CHAPTER 2

THEORETICAL

2.1. Understanding Information

As Imelda, ST.,MT has note, In today's modern era, information becomes a very important commodity. Mastery of information with technology is the key to success in today's global competition. Information can be viewed as an entity that can be searched for, generated, processed, stored, disseminated, and utilized for various purposes. In this context information technology is defined as a set of assistive devices to work with information and use it quickly, accurately, efficiently and sustainably.

Information is valuable because it can affect behavior, a decision, or an outcome.

For example, if a manager is told his/her company's net profit decreased in the past month, he/she may use this information as reason to cut financial spending for the next month. A piece of information is considered valueless if, after receiving it, things remain unchanged.

[1] As Machlup (1983, 642) has noted, the original meaning of the word "information" derives from the Latin, informare, which means "to put into form."

"Informing" therefore carries the sense of "imparting learning or instruction" or more generally conveys the sense "to tell (one) of something." Thus, "information" refers to the action of informing or to that which is told. These meanings of the term are carried along with it wherever it occurs and are the basis of our commonsense notions of "information." [2] As Webster (1995, 26-7) points out, the semantic definition of information conveys that "information is meaningful, it has a subject, it is intelligence or instruction about something or someone.

2.1.1. Qualities of Information

[2] As Tosin Harold Akinbemisilu (2014) has noted, characteristics of good quality information can be defined as an acronym (ACCURATE). These characters are interrelated; focus on one automatically leads to focus on other and they are:

Accurate

Information should be fair and free from bias. It should not have any arithmetical and grammatical errors. Information comes directly or in written form likely to be more reliable than it comes from indirectly (from hands to hands) or verbally which can be later retracted

Complete

Accuracy of information is just not enough. It should also be complete which means facts and figures should not be missing or concealed. Telling the truth but not wholly is of no use.

Cost-beneficial

Information should be analyzed for its benefits against the cost of obtaining it. In business context, it is not worthwhile to spend money on information that even cannot recover its costs leading to loss each time that information is obtained. In other contexts, such as hospitals it would be useful to get information even it has no financial benefits due to the nature of the business and expectations of society from it.

User-targeted

Information should be communicated in the style, format, detail and complexity which address the needs of users of the information. Example senior managers need brief reports which enable them to understand the position and performance of the business at a glance, while operational managers need detailed information which enable them to make day to day decisions.

Relevant

Information should be communicated to the right person. It means person which has some control over decisions expected to come out from obtaining the information.

Authoritative

Information should be communicated to the right person. It means person which has some control over decisions expected to come out from obtaining the information

Authoritative

Information should come from reliable source. It depends on qualifications and experience and past performance of the person communicating the information.

Timely

Information should be communicated in time so that receiver of the information has enough time to decide appropriate actions based on the information received. Information which communicates details of the past events earlier in time is of less importance than recently issued information like

newspapers. What is timely information depends on situation to situation. Selection of appropriate channel of communication is key skill to achieve.

Easy to Use

Information should be understandable to the users. Style, sentence structure and jargons should be used keeping the receiver in mind. If report is targeted to new comer in the field, then it should explain technical jargons used in the report

2.2. Understanding System

[3] According to Information System (CS507) stated a system is a group of elements that are integrated with the common purpose of achieving an objective.

Organization having common goal for the achievement are functionally interactive units. All systems have inputs, outputs, and feedback, and maintain a basic level of equilibrium. For example, in the human body the heart function to support the circulatory system, which is vital to the survival of the entire body.

2.2.1. Features of a System

A system may have following features:

1. **Adaptability:**

Some systems are adaptive to the exterior environment, while some systems are non-adaptive to the external environment.

2. **Limitation**:

Every system has pre-defined limits or boundaries within which it operates. This limits or boundaries can be defined by law or current state of technology.

2.2.2. Components of a System

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

1. **Input elements**

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

2. **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.

3. **Output elements**

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

4. 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.

5. Feedback system

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

6. 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.

2.2.3. Types of System

1. Open System

An open system is one that interacts with its environment and thus exchange information, material, or energy with the environment, including random and undefined inputs. Open systems are adaptive in nature, as they tend to react with the environment in such a way, so as to favor their continued existence. Such systems are 'self-organizing', in the sense that they change their organization in response to changing conditions.

2. **Closed System**

Closed system is one, which does not interact with its environment. Such systems in business world, are rare, but relatively closed systems are common. Thus, the systems that are relatively isolated from the environment but not completely closed, are termed closed system.

3. **Open Loop System**

In open-loop architecture, business decisions made by management have an impact in the marketplace, and the impact of that decision is measured only indirectly by the company's computer systems

4. **Closed Loop System**

Closed loop system is a system where part of the output is fed back to the system to initiate control to change either the activities of the system or input of the system. In a closed-loop decision environment, the impact of decisions can be measured very precisely.

2.3. Understanding Information Systems

[4] According to (MIS 2011/2012 Lecture 3) stated information system has been defined

In terms of two perspectives: one relating to its function; the other relating to its structure. From a functional perspective; an information system is a technologically implemented medium for the purpose of recording, storing, and disseminating linguistic expressions as well as for the supporting

of inference making. From a structural perspective; an information system consist of a collection of people, processes, data, models, technology and partly formalized language, forming a cohesive structure which serves some organizational purpose or function.

An information system can be defined technically as a set of interrelated components That collect (or retrieve), process, store, and distribute information to support decision making and control in an organization. In addition to supporting decision making, coordination and control of information systems may also help managers and workers analyze problems, visualize complex subjects and create new products.

2.3.1. Components of Information System

An Information System (IS) is essentially made up of five components; hardware, software, database, network and people. These five components integrate to perform input, process, output, feedback and control

1. **Hardware**: hardware consists of input/output device, processor, and operating system and media services.

2. **Software**: software consists of various programs and procedures

3. **Database**: database consists of data organized in the required structures.

4. **Network**: network consists of hub, communication media and network devices

5. **People**: people consists of device operator, network administrator and system specialist.

Information processing consists of input; data process, data storage, output and control. During input stage data instructions are fed to the systems which during process stage are worked upon by software programs and other queries. During output stage, data is presented in structured format and reports

2.4. Online movie Booking System

Online movie booking system is a web portal where you can book tickets in advance, know your movie show timing, watch movie trailer and read reviews for the same.

You can know everything about a movie and its show rates and show time just sitting on your couch. What you need to do is just go to our web portal for Online Movie Ticket Booking System and register yourself and gain access to all the movie and theaters and many more features.

Online Movie Ticketing System in PHP is a very user friendly project and can be accessed from anywhere. There is no need to go to the movie theaters and wait for your turn to book movie tickets. You can now just track everything about a movie just by clicking on to it.

You can buy tickets just by selecting a movie and show timings.

2.4.1   Admin

This section is the main backbone of the web-based movie booking.

Admin is responsible for adding, editing Movie Theater, can add, and delete movies on each theater Admin will be responsible for adding, editing and deleting show time for movies, can also view the number of users that are registered in the system

2.4.2   Customer

This section is for the cinema customer which they can register on system, can watch movie trailers, can book movie tickets by selecting show time and show date.

Customer can choose the place of theater and can read the movie review along their ratings.

2.5 .PHP Programming

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. As of January 2013, PHP was installed on more than 240 million websites (39% of those sampled) and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1994, the reference implementation of PHP (powered by the Zend Engine) is now produced by The PHP Group. While PHP originally stood for Personal Home Page, it now stands for PHP: Hypertext Preprocessor, which is a recursive backronym.

PHP code can be simply mixed with HTML code, or it can be used in combination with various template engines and web frameworks. PHP code is usually processed by a PHP interpreter, which is usually implemented as a web server's native module or a Common Gateway Interface (CGI) executable. After the

PHP code is interpreted and executed, the web server sends resulting output to its client, usually in form of a part of the generated web page; for example, PHP code can generate a web page's HTML code, an image, or some other data. PHP has also evolved to include a command-line interface (CLI) capability and can be used in standalone graphical applications.

2.6. JavaScript

JavaScript is the programming language of HTML and the Web. It is also known as ECMAScript (the un-trademarked name used for the standard), It is most commonly used as part of web browsers, whose implementations allow client-side scripts to interact with the user, control

the browser, communicate asynchronously, and alter the document content that is displayed. JavaScript (at least the strict subset asm.js is also considered an "assembly language of the web – a compile target of source-to-source compilers – for making client side web applications, using other programming languages, supported by all the major browsers without plug-ins. It is also used in server-side network programming with runtime environments such as Node.js, game development and the creation of desktop and mobile applications.

JavaScript is classified as a prototype-based scripting language with dynamic typing and first-class functions. This mix of features makes it a multi-paradigm language, supporting object-oriented, imperative, and functional programming styles.

JavaScript is also used in environments that aren't web-based, such as PDF documents, site-specific browsers, and desktop widgets

2.7. HTML (Hyper Text Markup Language)

Hyper Text Markup Language, commonly referred to as HTML, is the standard markup language used to create web pages. It is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>).

HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent empty elements and so are unpaired, for example <img>. The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags).

Web browsers can read HTML files and compose them into visible or audible web pages. Browsers do not display the HTML tags and scripts, but use them to interpret the content of the page. HTML

describes the structure of a website semantically along with cues for presentation, making it a markup language, rather than a programming language.

HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings; paragraphs, lists, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

Web browsers can also refer to Cascading Style Sheets (CSS) to define the look, layout of text and other material. The World Wide Web Consortium (W3C), maintainer of both the HTML and the CSS standards, encourages the use of CSS over explicit presentational HTML

2.8. Cascading Style Sheets (CSS)

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language (like adding fonts, colors, spacing, etc). Although most often used to change the style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. Along with

HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications

2.9. Database

[5] According to Vangie Beal (Webopedia), "Often abbreviated DB, a database is basically a collection of information organized in such a way that a computer program can quickly select desired pieces of required data. You can think of a database as an electronic filing system." Traditional databases are organized by fields, records, and files. A field is a single piece of information; a record is one complete set of fields; and a file is a collection of records. An alternative concept in database design is known as Hypertext. In a Hypertext database, any object, whether it is a piece of text, a picture, or a film, can be linked to any other object. Hypertext databases are particularly useful for organizing large amounts of disparate information, but they are not designed for numerical analysis.

2.10. Database Management System (DBMS)

To access information from a database, you need a database management system (DBMS). This is a collection of programs that enables you to enter, organize, and select data in a database. Increasingly, the term database is used as shorthand for database management system. There are many different types of DBMs ranging from small system that runs on personal computers to huge system that runs on mainframe

2.11. MySQL

MySQL is (as of July 2013) the world's second most widely used relational database management system (RDBMS) and most widely used open-source RDBMS. The SQL acronym stands for Structured Query Language.

MySQL is a popular choice of database for use in web applications, and is a central component of the widely used LAMP open source web application software stack (and other 'AMP' stacks). LAMP is an acronym for "Linux, Apache, MySQL,

Perl/PHP/Python." Free-software-open source projects that require a full-featured database management system often use MySQL. Applications that use the MySQL database include: TYPO3, MODx, Joomla, WordPress, phpBB, MyBB, Drupal and other software

2.12. UML (Unified Modeling Language)

[6] Grandy Booch, James Rubaugh, and Ivar Jacobson collaborate to combine the best features of their individual object-oriented analysis and design methods into a unified method. The result, called the Unified Modeling Language (UML).

To understand UML, we need to first reference the organization that is responsible for bringing this language together and agreeing on a standard for laying out a way to visualize complex systems and their requirements. The Object

Management Group (OMG) is the group of professionals that does this.

The OMG defines the purpose of UML as follows:

The objective of UML is to provide system architects, software engineers, and software developers with tools for analysis, design, and implementation of software based system as well as for modeling business and similar process.

1. UML stands for Unified Modeling Language
2. UML is different from the other common programming languages like C++ Java, COBOL, etc.
3. UML is a pictorial language used to make software blue prints.

2.12.1. UML Architecture

UML plays an important role in defining different perspectives of a system. These perspectives are: Design; Implementation; Process; and Deployment. And the Centre is the Use Case view which connects all these four. A Use case represents the functionality of the system. So the other perspectives are connected with use case.

1. **Design** of a system consists of classes, interfaces and collaboration. UML provides class diagram, object diagram to support this.

2. **Implementation** defines the components assembled together to make a complete physical system. UML component diagram is used to support implementation perspective

3. **Process** defines the flow of the system. So the same elements as used in Design are also used to support this perspective

4. **Deployment** represents the physical nodes of the system that forms the hardware. UML deployment diagram is used to support this perspective.

2.12.2. Structural Diagrams

The structural diagrams represent the static aspect of the system. These static aspects represent those parts of a diagram which forms the main structure and therefore stable.

These static parts are represents by classes, interfaces, objects, components and nodes. The four structural diagrams are:

1. Class diagram
2. Object diagram

3. Component diagram

4. Deployment diagram

1. Class Diagram

Class diagrams are the most common diagrams used in UML. They are consists of classes, interfaces, associations and collaboration. Technically, class diagrams represent the object oriented view of a system which is static in nature. Active class is used in a class diagram to represent the concurrency of the system. It is generally used for development purpose. This is the most widely used diagram at the time of system construction

2. Object Diagram

Object diagrams can be described as an instance of class diagram. These diagrams are more close to real life scenarios where we implement a system. They are a set of objects and their relationships is just like class diagrams and also represent the static view of the system. The usage of object diagrams is similar to class diagrams but they are used to build prototype of a system from practical perspective.

3. Component Diagram

Component diagrams represent a set of components and their relationships. These components consist of classes, interfaces or collaborations. Component diagrams represent the implementation view of a system. During design phase software artifacts (classes, interfaces) of a system are arranged in different groups depending upon their relationship. Now these groups are known as components. Component diagrams are used to visualize the implementation.

4. Deployment Diagram

Deployment diagrams are a set of nodes and their relationships. These nodes are physical entities where the components are deployed. Deployment diagrams are used for visualizing deployment view of a system. This is generally used by the deployment team.

2.12.3. Behavioral Diagrams

Any system can have two aspects, static and dynamic. A model is considered as complete when both the aspects are covered fully. Behavioral diagrams basically capture the dynamic aspect of a system. Dynamic aspect can be further described as the changing/moving parts of a system

1. Use case Diagram

Use case diagrams are a set of use cases. They represent actors and their relationships, represent the use case view of a system, and or represent a particular functionality of a system. They are also used to describe the relationships among the functionalities and their internal/external controllers. These controllers are known as actors.

2. Sequence Diagram

Sequence diagram is an interaction diagram that shows how processes operate with one another. It is constructing of a message sequence chart. A sequence diagram shows object interactions arranged in time sequence

3. Collaboration Diagram

Collaboration diagram is another form of interaction diagram. It represents the structural organization of a system and the messages sent/received. Structural organization consists of objects and links. The purpose of collaboration diagram is similar to sequence diagram. But the specific purpose of collaboration diagram is to visualize the organization of objects and their interaction

4. Statechart Diagram

Any real time system is expected to be reacted by some kind of internal/external events. These events are responsible for state change of the system. Statechart diagram is used to represent the event driven state change of a system. It basically describes the state change of a class, interface etc. State chart diagram is used to visualize the reaction of a system by internal/external factors

5. Activity Diagram

Activity diagram describes the flow of control in a system. It consists of activities and links. The flow can be sequential, concurrent or branched. Activities are nothing but the functions of a system. Numbers of activity diagrams are prepared to capture the entire flow in a system. It is used to visualize the flow of controls in a system. This is prepared to have an idea of how the system will work when executed

2.12.4 Object-Oriented Analysis and Design (OOAD)

Object-Oriented Analysis and Design (OOAD) is a popular technical approach to analyzing, designing an application, system, or business by applying the object-oriented paradigm and visual modeling throughout the development life cycles to foster better stakeholder communication and product quality.

[7]According to the popular guide Unified Process; OOAD in modern software engineering is best conducted in an iterative and incremental way. Iteration by iteration, the outputs of OOAD activities, analysis models for OOA and design models for OOD respectively, will be refined and evolve continuously driven by key factors like risks and business value.

2.13. SSL

SSL: Is the standard security technology for establishing an encrypted link between a web server and a browser. This link ensures that all data passed between the web server and browsers remain private and integral. To be able to create an SSL connection a web server requires an SSL Certificate. When you choose to activate SSL on your web server you will be prompted to complete a number of questions about the identity of your website and your company. Your web server then creates two cryptographic keys - a Private Key and a Public Key.

The Public Key does not need to be secret and is placed into a Certificate Signing Request (CSR) - a data file also containing your details. You should then submit the CSR. During the SSL Certificate application process, the Certification Authority will validate your details and issue an SSL Certificate containing your details and allowing you to use SSL. Your web server will match your issued SSL Certificate to your Private Key.

Your web server will then be able to establish an encrypted link between the website and your customer's web browser.