CHAPTER 2

THEORETICAL

2.1. Understanding System.

A system is a set of interrelated elements or integrated which is intended to achieve an objective system. The system is a collection of elements which interact with one another to achieve the intended purpose. A system consists of parts which are interrelated that operate together to achieve some goal or purpose, goals and objectives are the same.

2.1.1. Basic Form System.

The general form of a system consisting of input, process and output. In this system the common form of or inputs will be processed and will produce something out.

2.1.2. Characteristics System.

A system has the characteristics or specific traits, which have components, limit environmental systems outside the system, input, output, processing and target or goal. A system is a set of components working together to achieve some goal.

1. **System Components.**

   Components of a System are interrelated, so they influence each other. The System also receives and sends influences from and to the External Environment .Because Components change, Interrelations change and Society

changes, making a system Dynamic! Component-component systems or system elements can be either a subsystem or the parts of the system.

2. **Restrictions System.**

Boundary is an area that limits the system between a system with other systems or with the environment outer. Boundary this system allows a system is seen as a unity and demonstrate the scope of the system.

3. **External environment System.**

External environmental factors are uncontrollable variables beyond the control of the organization. Outside influences that can impact a business. Various external factors can impact the ability of a business or investment to achieve its strategic goals and objectives.They consist of 5 groups:

1. Social factors- demographic characteristics and values.

2. Economic factors- income, expenditures, and resources that affect the cost o runninga business.

3. Technological- inventions and innovations from science or engineering

4. Competitive-competitionintheare a.

5. Regulatory forces- restrictions, state and federal laws placed on business with regard the conductofitsactivities.Also Internationalfactors and Natural factors.

These external factors might include competition; social, legal and technological changes, and the economic and political environment.Political, Economical, Social and Technological Factors (PEST) influence and are influenced by Tourism. Environment is the energy of the system and thus

must be maintained and maintained. Whereas adverse external environment must be retained and controlled, otherwise it will interfere with the viability of the system.

4. **Liaison system**

Liaison is a medium that combines the subsystem with other subsystems.A link of communicationor connection between two entities usually in a corporate setting. Connecting one Subsystem can be integrated with other subsystems to form a unity.

5. **Input System.**

The input signal is processed to obtain the output of the system.Feedback can be input signal energy care and maintenance that is energy input is entered so that the system can run. Resources such as people, raw materials, energy, information, or finance that are put into a system (such as an economy, manufacturingplant, computer system) to obtain a desired output.

6. **Processing System**

Processing System itself as assessment. Processors that will change the input to output.Taking inputted data and converting it to usable information.

7. **Output System.**

Systems output is processed and classified into useful output. Output can be an input for another subsystem.A result produced by a computer that is internal to the system (from one program or process to another) or external to

it (from a program or process to an output device) but internal to an output device.

8. Target System.

A system has goals and objectives, if the system does not have a target then the system would not exist. A system is successful when on target or goal. Target is very influential on the input and the output produced.

2.1.3 Classification System.

A system is a set of components working together to achieve some goal.A system is composed of hierarchical levels of physical elements, components.There are various types of system. To have a good understanding of these systems, these can be categorized in many ways. Some of the categories are open or closed, physical or abstract and natural or man made information systems, which are explained next.

1. Physical systems are tangible entities that we can feel and touch. These may be static or dynamic in nature. Static parts don't change. The dynamic systems are constantly changing. Computer systems are dynamic system. Programs, data, and applications can change according to the user's needs.
2. Abstract systems are conceptual. These are not physical entities. They may be formulas, representation or model of a real system.

   Systems interact with their environment to achieve their targets. Things that are not part of the system are environmental elements for the system. Depending upon the interaction with the environment, systems can be divided into two categories, open and closed.

3. Open systems: Systems that interact with their external environment. Practically most of the systems are open systems. An open system has many interfaces with its environment. It can also adapt to changing environmental conditions. It can receive inputs from, and delivers output to the outside of system. An information system is an example of this category.
4. Closed systems: Systems that don't interact with their external environment. Closed systems exist in concept only.
5. Natural systems are systems that occur due to natural processes are not created by humans (determined and subject to the will of the creator of nature).

2.2. Understanding Information

Information system deals with data of the organizations. The purposes of Information system are to process input, maintain data, produce reports, handle queries, handle on line transactions, generate reports, and other output. These maintain huge databases, handle hundreds of queries etc. The transformation of data into information is primary function of information system.Therefore information is a result of the processing of data that is useful and is used to make decisions.

2.2.1. The basic concept of information

Information needs to be of high quality to be useful. A database design that is accurate and reliable will help achieve the development of new business ideas as well as promoting the organizational goals. Five characteristics of high quality information are accuracy, completeness, consistency, uniqueness, and timeliness.

1. **Accurate**

   The information that is input into a data base is presumed to be perfect as well as accurate.The information must be true, verifiable, and not deceptive. Accurate career information is based on empirical data and can be validated by comparing sources or checking for internal consistency.

2. **Completeness**

   Completeness is as necessary as accuracy when inputting data into a database.Completenessis another attribute of high quality information. Partial information may as well be incomplete information because it is only a small part of the picture.

3. **Consistency**

   Consistency is key when entering information into a database. If the fields are not set to a specific limit for information then consistency is even more important.

4. **Uniqueness**

   Uniqueness is the fourth component of high quality information. In order to add value to any organization, information must be unique and distinctive. Information is a very essential part of any organization and if used properly can make a company competitive or can keep a company competitive.

5. Timeliness

A fifth important aspect of information is timeliness. New and current data is more valuable to organizations than old outdated information. Especially now, in this era of high technological advances, out-of-date information can keep a company from achieving their goals or from surviving in a competitive arena. The information does not necessarily need to be out of date to have effect, it just needs to not be the most current. Real-time information is an element of timeliness

2.3. Understanding Information Systems

Information system, an integrated set of components for collecting, storing, and processing data and for delivering information, knowledge, and digital products.Are components (human, computer, information technology, and working procedures),that is processed (data into information), and is intended to achieve a goal or purpose.

2.3.1. Component Information System

Activities or processes within the system that transform inputs into intermediate forms or that generate system outputs. Some system components can be viewed as systems with their own sets of interrelated components subsystems. A subsystem is a component of a system which is also viewed as a system.The main components of information systems are computerhardware and software, telecommunications, databases and data warehouses, human resources, and

procedures. The hardware, software, and telecommunications constitute information technology (IT), which is now ingrained in the operations and management of organizations.

An information system depends on the resources of people (end users and IS specialists), hardware (machines and media), software (programs and procedures), data (data and knowledge basis), and networks (communications media and network support) to perform input, processing, output, storage, and control activities that convert data resources into information products.

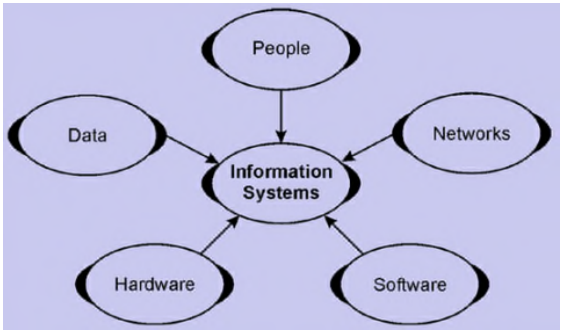


Figure 2.1 Component of Information System

(Source by Abey Francis Management Information System)

According to Abey Francis (Management Information System). This information system model highlights the relationships among the components and activities of information systems. It provides a framework that emphasizes four major concepts that can be applied to all types of information systems: People, hardware, software, data, and networks are the five basic resources of information systems.

1. People resources include end users and IS specialists,
2. Hardware resources consist of machines and media,
3. Software resources include both programs and procedures,
4. Data resources can include data and knowledge bases,
5. And network resources include communications media and networks.

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 Understanding Website

According to Nadine Übelhör, 174702 ,A person's or company's Internet presence on the World Wide Web (WWW) is called website. It contains numerous pages written in HTML language, which together combine the corporate appearance. A website can be reached by entering its domain name into the address field of an Internet browser. The main page such as www.heliskinepal.com is called 'homepage'; the term 'landing page' meanwhile defines the sub site – a web page - of a website which one is forwarded to via an online-shop or a search entry in a search engine. The aim hereby focuses on not forwarding a potential customer to the homepage itself but directly transmitting the information which was searched after (cf. Strauss/Frost 2014, p.336).

2.4.1 Web design

According to Nadine Übelhör, 174702, by using the term web design, the actual meaning of design is applied to the medium Internet. Design itself is mostly described as composition of colours and forms. However, it is more. Design can also be seen as a solution by forming objects and thereby, these objects are made comprehendible. Applying these ideas to the Internet, another meaning is added. Known as “form follows function”, web design emphasises the fact, that content and its function is the center of all activities for a presence on the Internet and that the used design strengthens this understanding. Web design therefore can be defined as a frame of content. This includes technical, structural and graphic aspects (cf. Hoffmann 2013, p.22/23).

2.5 Understanding Database

A databaseis a mechanism that is used to store information, or data. Information is somethingthat we all use on a daily basis for a variety of reasons. With a database, users should be ableto store data in an organized manner. Once the data is stored, it should be easy to retrieveinformation. Criteria can be used to retrieve information. The way the data is stored in thedatabase determines how easy it is to

search for information based on multiple criteria. Datashould also be easy to add to the database, modify, and remove.

Databases known are as include;

1. Personal address books
2. Telephone books
3. Card catalogs at libraries
4. Online bookstores
5. Personal finance software
6. Road maps

Some of these databases are static, whereas others are dynamic.

2.6Understanding Tourism Management

According to Abdulhamid Shafi'i "Destination Management Systems (DMS),these systems typically provide in the Web, information about the tourism offerings of a given Destination and may promote e-commerce activities to the potential visitor. The existing DMS's however do not support advanced models of interaction between tourists (or prospective tourists) of a Destination, nor interaction between tourists and locals. It is believed that this is a serious limitation of the existing DMS's, and therefore this work will propose an expanded functionality that provides the tourists with intelligent interactions based on a virtual community concept of tourists and locals that has a common interest theme, "Tourism at

Destination". Information systems that support interactions of a virtual community over the Web.

2.7UML(Unified Modelling Language) Tools

According to Dunstan Thomas Consulting,UML is derived primarily from the strengths of three notations; Booch OOD (Object Oriented Design), Rumbaugh OMT (Object Modelling Technique) and Jacobson OOSE (Object Oriented Software Engineering). UML is not a development method by itself; however, it was designed to be compatible with the leading object-oriented software development methods.UML is one of the standard language which is widely used in the industry to define requirements, making the analysis and design, as well as describe the architecture of object-oriented programming.

2.7.1 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.

1. **Use Case Diagram**

   The Use-Case Diagram captures the requirements of a system. Use-cases are a means of communicating with users and other stakeholders about what the system is intended to do. A Use-Case Diagram shows the interaction between the system and entities external to the system. These external entities are referred to as Actors.

Actorsrepresent roles which may include human users,external hardware or other systems. The tourist is the actor in this case.

2. Activity Diagram

Activity diagram is basically a flow chart to represent the flow form one activity to another activity. The activity can be described as an operation of the system.It captures the dynamic behaviour of the system. So the purposes can be described as;Draw the activity flow of a system,describe the sequence from one activity to another and Describe the parallel, branched and concurrent flow of the system.

3. Sequence Diagram

A Sequence diagram is an interaction diagram that shows how processes operate with one another and what is their order. It is a construct of a Message Sequence Chart. A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios.

4. Class Diagram

Class diagrams are visual representations of the static structure and composition of a particular system using the conventions set by

the Unified Modeling Language (UML). Out of all the UML diagram types it is one of the most used ones. System designers use class diagrams as a way of simplifying how objects in a system interact with each other. Using class diagrams, it is easier to describe all the classes, packages, and interfaces that constitute a system and how these components are interrelated.

5. Object Diagram

Object diagrams show examples different possible configurations of instances of class diagram. They help understand and validate class diagrams, which can be very generic.Object diagrams can also represent the initial configuration of a system, as well as typical instance configurations.Similar to class diagrams, object diagrams show the static design of system but from the real or prototypical perspective.

6. Component Diagram

Component diagrams are different in terms of nature and behaviour. Component diagrams are used to model physical aspects of a system. Component diagram is a special kind of diagram in UML. The purpose is also different from all other diagrams discussed so far. It does not describe the functionality of the system but it describes the components used to make those functionalities.A single component diagram cannot represent the entire system but a collection of

diagrams are used to represent the whole.So the purpose of the component diagram can be summarized as,visualize the components of a system,construct executables by using forward and reverse engineering and describe the organization and relationships of the components.

7. **Deployment Diagram**

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.So deployment diagrams are used to describe the static deployment view of a system. Deployment diagrams consist of nodes and their relationships.Deployment diagrams are used for describing the hardware components where software components are deployed. Deployment diagrams are used by the system engineers.The purpose of deployment diagrams can be described as,describe the hardware components used to deploy software components and describe runtime processing nodes.

2.7.2UML Architecture

The purpose of deployment diagrams can be described as,describe the hardware components used to deploy software components and describe runtime processing nodes.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 Usecase 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.

2.8 Software Support Used

The Software used to support this system are as:

2.8.1 PHP

According to wikipedia,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 recursivebackronym. PHP code

can be simply mixed with HTML code, or it can be used in combination with various templating 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 standalonegraphical applications.

PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge. PHP is a popular general-purpose scripting language that is especially suited to web development. Fast, flexible and pragmatic, PHP powers everything from your blog to the most popular websites in the world.

2.8.2 HTML

According to wikipedia ,Hypertext 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 represent empty elements and so are unpaired, for example <img>. The first tag in such a pair is the start tag, and the second is the end tag (they are also called opening tags and closing tags).Web browsers can read HTML files and render 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 websitesemantically 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, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

HTML adds "markup" to standard English text. "Hyper Text" refers to links that connect Web pages to one another, making the World Wide Web what it is today. By creating and uploading Web pages to the Internet, you become an active participant in the World Wide Web.

HTML supports visual images and other media as well. HTML is the language that describes the structure and the semantic content of a web document. Content within a web page is tagged with HTML elements such as <img>, <title>, <p>, , <picture>, and so forth. These elements form the building blocks of a Most Visited.

2.8.3 MySQL Database

MySQL is a relational database management system (RDBMS), and ships with no GUI tools to administer MySQL databases or manage data contained within the

databases. Users may use the included command line tools,or use MySQL "front-ends", desktop software and web applications that create and manage MySQL databases, build database structures, back up data, inspect status, and work with data records.

MySQL is a database system used;

1. on the web
2. that runs on a server
3. is ideal for both small and large applications
4. is very fast, reliable, and easy to use
5. uses standard SQL
6. compiles on a number of platforms
7. is free to download and use
8. is developed, distributed, and supported by Oracle Corporation

The data in a MySQL database are stored in tables. A table is a collection of related data, and it consists of columns and rows. Databases are useful for storing information categorically

MySQL is the de-facto standard database system for web sites with HUGE volumes of both data and end-users (like Facebook, Twitter, and Wikipedia).Another great thing about MySQL is that it can be scaled down to support embedded database applications.

2.8.4 Networking

Networking is the practice of linking two or more computing devices together for the purpose of sharing data. Networks are built with a mix of computer hardware and computer software.A network is a group of two or more computer systems linked together. There are many types of computernetworks,according to webopedia.com

1. **local-area networks (LANs):** The computers are geographically close together (that is, in the same building).
2. **wide-area networks (WANs):** The computers are farther apart and are connected by telephone lines or radio waves.
3. **Metropolitan-area networks MANs):** A data network designed for a town or city.
4. **Home-area networks (HANs):** A network contained within a user's home that connects a person's digital devices.
5. **topology:** The geometric arrangement of a computer system. Common topologies include a bus, star, and ring. See the Network topology diagrams in the Quick Reference section of Webopedia.

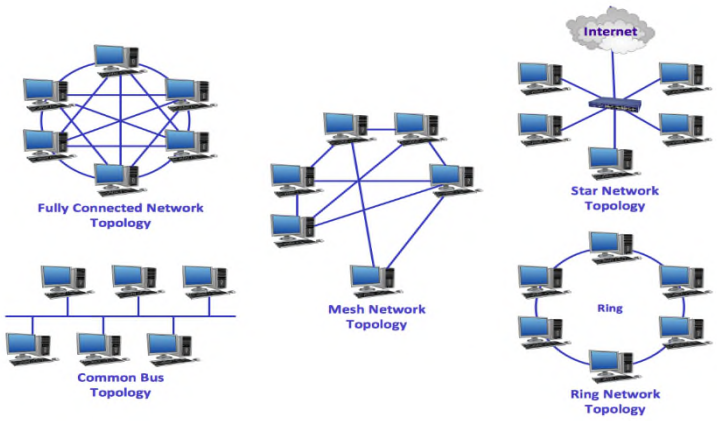


Figure 2.2 Network Topology Diagram

(Source by Webopedia.com)

6. **Protocol:** The protocol defines a common set of rules and signals that computers on the network use to communicate. One of the most popular protocols for LANs is called Ethernet.
7. **Architecture:** Networks can be broadly classified as using either a peer-to-peerorclient/server architecture.