CHAPTER II

THEORITICAL FRAMEWORK

A. System

Term of system is very common in our daily life. This term usually describe many issues on technology science field. System itself can describe any other aspect that related with human daily life.

1. System definition

Definition of system based on businessdictionary.com (2013), the term of system can define as a set of detailed methods, procedures and routines created to carry out a specific activity, perform a duty, or solve a problem. Based on Mc.Leod (2004:9) is a group of elements that integrated in the same purpose to achieved a goal. Based on Jogianto (2005:1) "*system is a set of procedures that are connected and integrated with each other to perform an activity to achieve a particular purpose*".

> Based on macmillian dictionary (macmilliandictionary.com : 2013) system is a set of connected things that work together for a particular purpose. System can also be mean as a set of pieces of equipment or computer programs that work together. There were so many definition related with system itself, but the main definition of system is "union".

Union of subsystem that can unite and formed into supersytem. This union have certain purpose to achieve. There is no system which build without purpose.

2. System Characteristic and Component

Based on previous explanation about system definition, a system may be seen as a set of interacting smaller systems known as subsystems or functional units each of which has its defined tasks. Above union of subsystem and systems itself, there is a huge systemthat can be called as supersystem. All these work in coordination to achieve the overall objective of the system. To analyze how system works, system analyze requires development of a strong foundation in understanding how to characterize a system, product, or service in terms of its attributes, properties, and performance. There are 4 elements needed to understand character of system, product or service based on freetuts (freetuts.com : 2013). There are :

1. Resources

   Every system requires certain resources for the system to exist. Resources can be hardware, software or liveware (brainware). Hardware resources may include the computer, its peripherals, stationery etc. Software resources would include the programs running on these computers and the liveware would include the human beings required to operate the system and make it functional.

2. Procedure

   Every system functions under a set of rules that govern the system to accomplish the defined goal of the system.

3. Data

   Every system has some predefined goal. For achieving the goal the system requires certain inputs, which are converted into the required output. The main objective of the System is to produce some useful output. Output is the outcome of processing. Output can be of any nature e.g. goods, services or information.

4. Processes.

   The systems have some processes that make use of the resources to achieve the set goal under the defined procedures. These processes are the operational element of the system.

3. System Classification

Information systems are developed for different purposes, depending on the needs of human usersand the business. Transaction Processing Systems (TPS) function at the operational level of theorganization; Office Automation Systems (OAS) and Knowledge Work Systems (KWS) support work at the knowledge level. Higher-level systems include Management Information Systems (MIS) and Decision Support Systems (DSS). “The development and use of Information Management Systems (MIS) is a modern phenomenon concerned with the use of appropriate information that will lead to better planning, better decision making and better results”(Adekey, 2012). Better designed os DSS can help decision makers to extract useful information from raw data, documents, personal knowledge and/orbusiness models with the objective of identifying and solving problems, and making decisions. Expert systems apply the expertise of decision makers to solve specific, structured problems. The strategic level of management exist Executive Support Systems (ESS). Group Decision Support Systems (GDSS) and the more generally described Computer-Supported Collaborative Work Systems (CSCWS) aid group-level decision making of a semistructured or unstructured variety.

Detailed sytem classificataion (Kendall, 2011: 2)

1. Transaction Processing Systems

> Transaction processing systems (TPS) are computerized information systems that were developedto process large amounts of data for routine business transactions such as payroll and inventory. ATPS eliminates the tedium of necessary operational transactions and reduces the time

once requiredto perform them manually, although people must still input data to computerized systems.

2. Office Automation Systems and Knowledge Work Systems

At the knowledge level of the organization are two classes of systems. Office automation systems(OAS) support data workers, who do not usually create new knowledge but rather analyze information to transform data or manipulate it in some way before sharing it with, or formally disseminating it throughout, the organization and, sometimes, beyond. Familiar aspects of OAS includeword processing, spreadsheets, desktop publishing, electronic scheduling, and communicationthrough voice mail, email (electronic mail), and teleconferencing.

3. Management Information Systems

Management information systems (MIS) do not replace transaction processing systems; rather,all MIS include transaction processing. MIS are computerized information systems that work because of the purposeful interaction between people and computers. By requiring people, software,and hardware to function in concert, management information systems support users in accomplishing a broader spectrum of organizational tasks than transaction processing systems, including decision analysis and decision making.

4. Decision Support Systems

Higher-level class of computerized information systems is decision support systems (DSS). DSSare similar to the traditional management information system because they both depend on a database as a source of data. A decision support system departs from the traditional management information system because it emphasizes the support of decision making in all its phases, although theactual decision is still the exclusive province of the decision maker. Decision support systems aremore closely tailored to the person or group using them than is a traditional management information system. Sometimes they are discussed as systems that focus on business intelligence.

5. Artificial Intelligence and Expert Systems

Artificial intelligence (AI) can be considered the overarching field for expert systems. The general thrust of AI has been to develop machines that behave intelligently. Two avenues of AI research are (1) understanding natural language and (2) analyzing the ability to reason through aproblem to its logical conclusion. Expert systems use the approaches of AI reasoning to solve theproblems put to them by business (and other) users.

Expert systems are a very special class of information system that has been made practicable for use by business as a result of widespread availability of hardware and software such aspersonal computers (PCs) and expert system shells. An expert system (also called a knowledgebased system) effectively captures and uses the knowledge of a human expert or experts for solving a particular problem experienced in an organization. Notice that unlike DSS, which leave theultimate judgment to the decision maker, an expert system selects the best solution to a problemor a specific class of problems.

6. Group Decision Support Systems and Computer-SupportedCollaborative Work Systems

Organizations are becoming increasingly reliant on groups or teams to make decisions together.When groups make semistructured or unstructured decisions, a group decision support system mayafford a solution. Group decision support systems (GDSS), which are used in special roomsequipped in a number of different configurations, permit group members to interact with electronicsupport—often in the form of specialized software—and a special group facilitator. Group decisionsupport systems are intended to bring a group together to solve a problem with the help of varioussupports such as polling, questionnaires, brainstorming, and scenario creation. GDSS software canbe designed to minimize typical negative group behaviors such as lack of participation due to fearof reprisal for expressing an unpopular or contested viewpoint, domination by vocal group members, and "group think" decision making. Sometimes GDSS are discussed under the more generaltermcomputer-supported collaborative work systems(CSCWS), which might include software support called groupware for team collaboration via networked computers. Group decision support systems can also be used in a virtual setting.

7. Executive Support Systems

When executives turn to the computer, they are often looking for ways to help them make decisions on the strategic level. Executive support systems (ESS) help executives organize their interactions with the external environment by providing graphics and communications technologiesin accessible places such as boardrooms or personal corporate offices. Although ESS rely on theinformation generated by TPS and MIS, executive support systems help their users address unstructured decision problems, which are not application specific, by creating an environment thathelps them think about strategic problems in an informed way. ESS extend and support the capabilities of executives, permitting them to make sense of their environments.

4. System Development Life Cycle

Based on Kendall (2011 : 8) SDLC is a phased approach to analysis and design that holds that systems are best developed through the use of a specific cycle of analystand user activities.Analysts disagree on exactly how many phases there are in the SDLC, but they generally laudits organized approach. Here we have divided the cycle into seven phases, as shown in Figure 1.

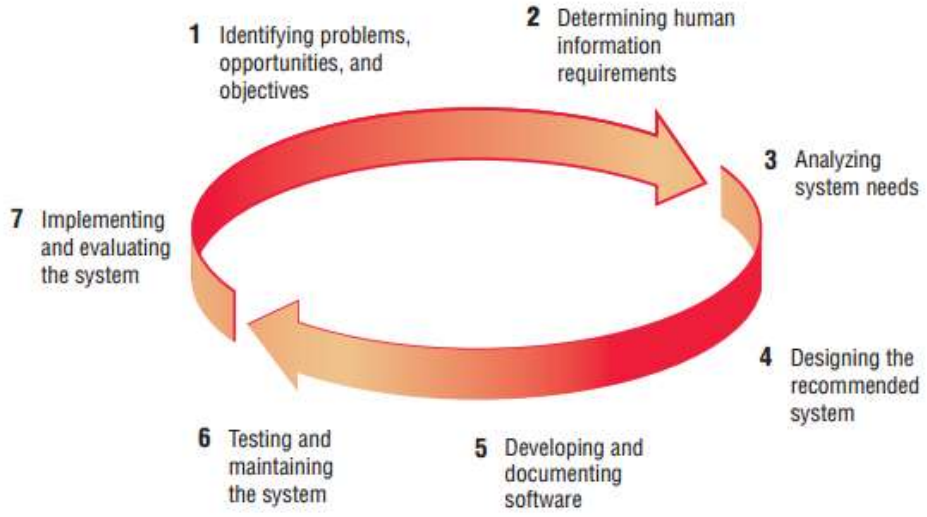

Figure 1: System DevelopmentLife Cycle
Source : Kendall (2006:8)

Although each phase is presented discretely, it is never accomplished as a separate step. Several activities can occur simultaneously, and activities may be repeated.

Detailed System Development Life Cycle (Kendall, 2011: 2)

1. Identifying problems,opportunities, and objectives
In this first phase of the systems development life cycle, the analyst is concerned with correctly identifying problems, opportunities, and objectives. This stage is critical to the success of the restof the

project, because no one wants to waste subsequent time addressing the wrong problem.The first phase requires that the analyst look honestly at what is occurring in a business.Then, together with other organizational members, the analyst pinpoints problems. Often otherswill bring up these problems, and they are the reason the analyst was initially called in. Opportunities are situations that the analyst believes can be improved through the use of computerized information systems. Seizing opportunities may allow the business to gain a competitive edge orset an industry standard.Identifying objectives is also an important component of the first phase. The analyst mustfirst discover what the business is trying to do. Then the analyst will be able to see whether someaspect of information systems applications can help the business reach its objectives by addressing specific problems or opportunities.

2. Determining human information requirements

The next phase the analyst enters is that of determining the human needs of the users involved, usinga variety of tools to understand how users interact in the work context with their current informationsystems. The analyst will use interactive methods such as interviewing, sampling and investigatinghard data, and questionnaires, along with unobtrusive methods, such as observing decision makers'behavior and their office environments, and all-encompassing methods, such as prototyping.The analyst will use these methods to pose and answer many questions concerning humancomputer interaction (HCI), including questions such as, "What are the users' physical strengthsand limitations?" In other words, "What needs to be done to make the system audible, legible,and safe?" "How can the new system be designed to be easy to use, learn, and remember?" "How can the system be made pleasing or even fun to use?" "How can the system support a user's individual work tasks and make them more productive in new ways?" In the information requirements phase of the SDLC, the analyst is striving to understand what information users need to perform their jobs. At this point the analyst is examining how to make the system useful to the people involved. How can the system better support individual tasks that need doing? What new tasks are enabled by the new system that users were unable to do without it? How can the new system be created to extend a user's capabilities beyond what the old system provided? How can the analyst create a system that is rewarding for workers to use?

3. Analyzing system needs

The next phase that the systems analyst undertakes involves analyzing system needs. Again, special tools and techniques help the analyst make requirement determinations. Tools such as dataflow

diagrams (DFD) to chart the input, processes, and output of the business's functions, or activity diagrams or sequence diagrams to show the sequence of events, illustrate systems in a structured, graphical form. From data flow, sequence, or other diagrams, a data dictionary is developedthat lists all the data items used in the system, as well as their specifications.During this phase the systems analyst also analyzes the structured decisions made. Structured decisions are those for which the conditions, condition alternatives, actions, and actionrules can be determined. There are three major methods for analysis of structured decisions:structured English, decision tables, and decision trees.

4. Designing the recommended system

In the design phase of the SDLC, the systems analyst uses the information collected earlier to accomplish the logical design of the information system. The analyst designs procedures for usersto help them accurately enter data so that data going into the information system are correct. Inaddition, the analyst provides for users to complete effective input to the information system byusing techniques of good form and Web page or screen design.Part of the logical design of the information system is devising the HCI. The interface connects the user with the system and is thus extremely important. The user interface is designed withthe help of users to make sure that the system is audible, legible, and safe, as well as attractiveand enjoyable to use. Examples of physical user interfaces include a keyboard (to type in questions and answers), onscreen menus (to elicit user commands), and a variety of graphical user interfaces (GUIs) that use a mouse or touch screen.

5. Developing and documenting software

In the fifth phase of the SDLC, the analyst works with programmers to develop any original softwarethat is needed. During this phase the analyst works with users to develop effective documentation forsoftware, including procedure manuals, online help, and Web sites featuring Frequently Asked Questions (FAQs), on Read Me files shipped with new software. Because users are involved from the beginning, phase documentation should address the questions they have raised and solved jointly withthe analyst. Documentation tells users how to use software and what to do if software problems occur.

6. Testing and maintaining the system

Before the information system can be used, it must be tested. It is much less costly to catch problems before the system is signed over to users. Some of the testing is completed by programmersalone, some of it by systems analysts in conjunction with programmers. A series of tests to pinpoint problems is run first with sample data and

eventually with actual data from the current system. Often test plans are created early in the SDLC and are refined as the project progresses.Maintenance of the system and its documentation begins in this phase and is carried out routinely throughout the life of the information system. Much of the programmer's routine work consists of maintenance, and businesses spend a great deal of money on maintenance. Somemaintenance, such as program updates, can be done automatically via a vendor site on the Web.Many of the systematic procedures the analyst employs throughout the SDLC can help ensurethat maintenance is kept to a minimum.

7. Implementing and evaluatingthe system

In this last phase of systems development, the analyst helps implement the information system. Thisphase involves training users to handle the system. Vendors do some training, but oversight of training is the responsibility of the systems analyst. In addition, the analyst needs to plan for a smooth conversion from the old system to the new one. This process includes converting files from old formats tonew ones, or building a database, installing equipment, and bringing the new system into production.Evaluation is included as part of this final phase of the SDLC mostly for the sake of discussion. Actually, evaluation takes place during every phase. A key criterion that must be satisfied iswhether the intended users are indeed using the system.It should be noted that systems work is often cyclical. When an analyst finishes one phase ofsystems development and proceeds to the next, the discovery of a problem may force the analystto return to the previous phase and modify the work done there.

B. Information

Information is a word that commonly use in our daily life. But the use of this term is still many and gneral. There were a lot definition related with information in general term like facts provided and learned by someone, but actually in the world of computer, information can be provided by human and helped by machine. In order to give clear explanation of the term information in our subject, we can see more specific in next explanation.

1. Information Definition

Definition of information is what conveyed or represented by a particular arrangement or sequence of things (oxforddictionaries.com : 2013). From this definition, we can see the use of human as subject of information could not be filled a hundred percent. Information based on Laudon & Laudon (2009:478) is data that have been shaped into a form that ismeaningful and useful to human beings. The main focused of this term come from particular arrangement or sequence things. No matter hor presented the information as long as it was presented in particular arrangement or sequence, it can be called as information. But the simplest came from Mc Leod, he stated that information is processed data which is meaningfull (Mc Leod, 2007 : 39)

2. Information Quality

Information quality" is a measure of the value which the information provides to the user of that information. "Quality" is often perceived as subjective and the quality of information can then vary among users and among uses of the information. Nevertheless, a high degree of quality increases its objectivity or at least the intersubjectivity. Accuracy can be seen as just one element of IQ but, depending upon how it is defined, can also be seen as encompassing many other dimensions of quality (http://mitiq.mit.edu: 2013).

If not, it is perceived that often there is a trade-off between accuracy and other dimensions, aspects or elements of the information determining its suitability for any given tasks.

3. Information Cycle

The Information Cycle is the progression of media coverage of a particular newsworthy event. Gregory (library.illinois.edu : 2013) said that understanding the information cycle will help you to better know what information is available on your topic and better evaluate information sources covering that topic.

After an event, information about that event becomes available in a pattern similar to this:

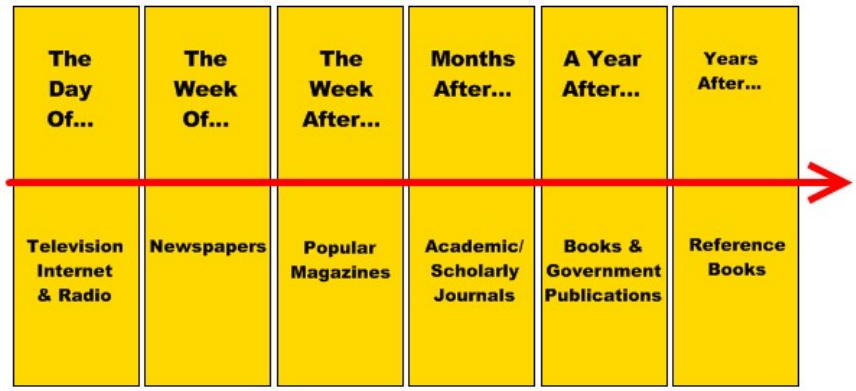

Figure 2: Information Cycle

Source : library.illinois.edu (2013)

C. Information System

1. Information System Definition

Based on Laudon and Laudon (2009:478) information system is interrelated components working together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and visualization in an organization. Information systems are one of the major tools available to business managers for achieving operational excellence, developing

new products and services, improving decision making and achieving competitive advantage. Together with technologies, they become the foundation of new services-based e-commerce.

Based on Alkhaffaf (2013 : 19) Information system is professional discipline bridging the business field and the well-defined computer science field that is evolving toward a new scientific area of study. It includes people, procedures, data, software, and hardware that are used to gather and analyze digital information.The main objective of information systems is helping decision makers by providing accurate and time based information helping them in making the right decisions in turbulent environment. A successful organization now relies heavily on information systems to improve its work in one hand, and on the other hand achieving its goals and benefits.

2. Information System Component

Based on Laudon (2009:43) The 5 components that must come together in order to produce a Computer-Based Information system are:

1. Hardware:The term hardware refers to machinery.This category includes the computer itself, which is often referred to as the central processing unit (CPU), and all of its support equipments. Among the support equipments are input and output devices, storage devices and communications devices.
2. Software:The term software refers to computer programs and the manuals (if any) that support them. Computer programs are machine-readable instructions that direct the circuitry within the hardware parts of the system to function in ways that produce useful information from data. Programs are generally stored on some input / output medium,often a disk or tape.
3. Data:Data are facts that are used by programs to produce useful information.Like programs,data are generally stored in machine-readable form on disk or tape until the computer needs them.
4. Procedures:Procedures are the policies that govern the operation of a computer system. "Procedures are to people what software is to

hardware" is a common analogy that is used to illustrate the role of procedures in a system.

5. People:Every system needs people if it is to be useful. Often the most over-looked element of the system are the people, probably the component that most influence the success or failure of information systems.

3. Information System Framework

Information system of a hypothetical manufacturing firm decomposed into its elemental subsystems. Notice that two broad classes of systems emerge from the decomposition: the Accounting Information System (AIS) and the Management Information System (MIS). This framework is important to identify the domain of AIS and distinguish it from MIS.

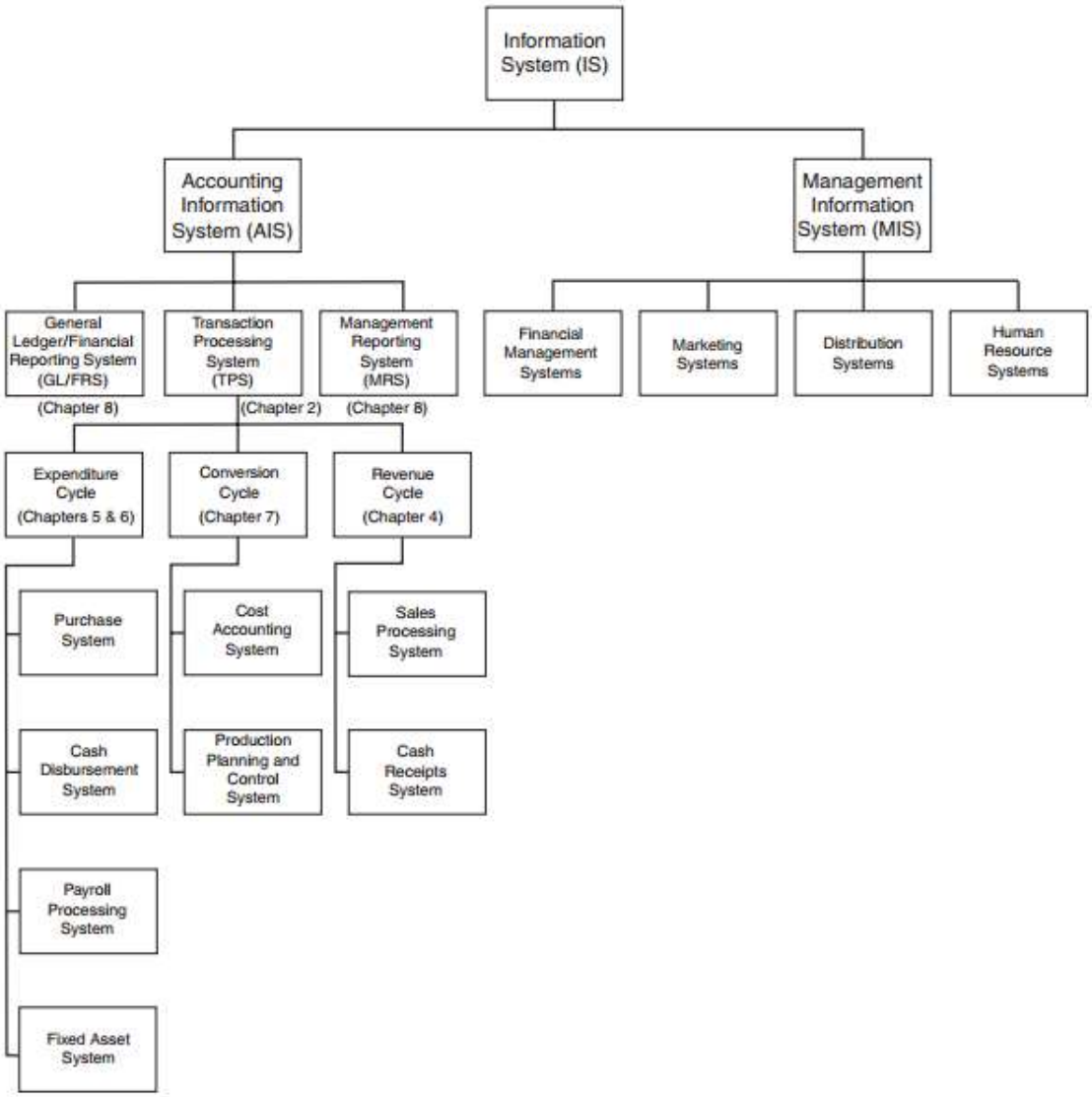

Figure 3 : Information System Framework

Source : Hall (2008:7)

Physical information systems are not typically organized into such discrete packages. More often, MIS and AIS functions are integrated to achieve operational efficiency.

D. Accounting Information System

Based on Laudon (2009:477) Accounting Information System is Systems keep track of the firm's financial assets and fund flows.

Accounting Information System's subsystems process financial transactions and nonfinancial transactions that directly affect the processing of financial transactions. For example, changes to customers' names and addresses are processed by the AIS to keep the customer file current. Although not technically financial transactions, these changes provide vital information for processing future sales to the customer.

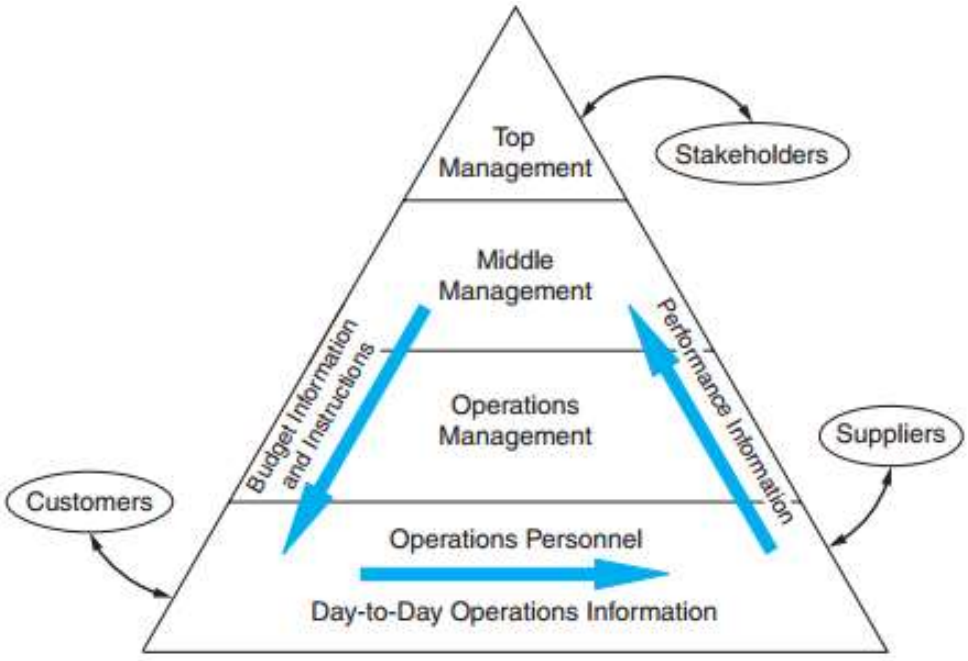

Figure 4: Accounting Information Flow

Source : Hall (2008:3)

Based on Hall (2008 : 10) Accounting Information System consist of three aspect :

1. Transaction Processing System

   The transaction processing system (TPS) is central to the overall function of the information system by converting economic events into financial transactions; recording financial transactions in the accounting records (journals and ledgers); and distributing essential financial information to operations personnel to support their daily operations.

2. General Ledger/Financial Reporting Systems

   The general ledger system (GLS) and the financial reporting system (FRS) are two closely related subsystems. However, because of their operational interdependency, they are generally viewed as a single integrated system—the GL/FRS. The bulk of the input to the GL portion of the system comes from the transaction cycles. Summaries of transaction cycle activity are processed by the GLS to update the general ledger control accounts. Other, less frequent events, such as stock transactions, mergers, and lawsuit settlements, for which there may be no formal processing cycle in place, also enter the GLS through alternate sources.

3. Management Reporting System

   The management reporting system (MRS) provides the internal financial information needed to manage a business. Managers must deal immediately with many day-to-day business problems, as well as plan and control their operations. Managers require different information for the various kinds of decisions they must make. Typical reports produced by the MRS include budgets, variance reports, cost-volume-profit analyses, and reports using current (rather than historical) cost data. This type of reporting is called discretionary reporting because the organization can choose what information to report and how to present it.

E. Salary

1. Definition of salary

Salary (humanresources.about.com : 013) is a fixed amount of money or compensation paid to an employee by an employer in return for work performed. Salary is paid, most frequently, in a bi-weekly paycheck to an exempt or professional employee. In most years, an employee's salary is paid in 26 even paychecks over the course of the year.

An employee who is paid a salary is expected to complete a whole job in return for the salary. This is different from a non-exempt employee who is paid an hourly rate. This employee is generally eligible to collect overtime.

The salaried employee or employee who is paid by salary does not track hours worked and is not paid for overtime. (Some public sector, often union represented, employees expect to account for hours and collect compensatory time off. This is not the norm in the private sector.)

Because of Fair Labor Standards Act (FLSA) rules about overtime payment, employers are required to closely track the hours and partial hours worked by non-exempt or hourly employees.

Salary is determined by market pay rates for people doing similar work in similar industries in the same region. Salary is also determined by the pay rates and salary ranges established by an individual employer. Salary is also affected by the number of people available to perform the specific job in the employer's employment locale.

Many companies participate in salary market surveys to create a trustworthy resource for salary research. More and more salary research is occurring online using salary calculators.

F. Salary System

Salary systems (also referred to as compensation plans or pay structure) are a collection of steps, policies and practices employers use to pay employees for their work (Mayhew, smallbusiness.chron.com : 2013). Salary systems consist of more than producing a weekly, biweekly or bimonthly paycheck. Components of a salary system range include everything from pay scales to the method employers use to reward employees for performance.

The objectives of the salary system are to pay each position as fairly as possible in relation to comparable positions at other places of employment and within budgetary limitations, pay each position fairly in relation to other positions at the University requiring similar knowledge, skills, and responsibilities, provide greater reward to employees whose performance truly excels.

Based on www.byu.edu (2013), salary system has four components such as :

1. Job Descriptions

Departments are responsible for writing and keeping their position descriptions current and accurate. When significant changes with responsibilities occur, position descriptions should be updated and submitted to Human Resource Area Consultants for re-evaluation. All position titles require approval by the Compensation Department before use. In addition, the Human Resource Committee must approve the titles of Director, Managing Director, Executive Director, Assistant Dean, Associate Dean, and Dean.

2. Job Evaluation

The purpose of job evaluation is to establish the value of each position. An Evaluation Committee, whose members have received special training in using a professional job evaluation system, evaluates each position. The Job Evaluation Committee role is to: (1) determine exemption status (whether a position is staff or administrative), (2) make salary grade decisions (whether a position should be on salary grade 53 or 54, etc.), and (3) help promote consistency with similar jobs across campus. Input is received in the form of job descriptions and information from the supervisor. In some cases, members of the committee visit the work site to help understand the

position.The Evaluation Committee assigns each position a job level and salary range. Factors that are considered include know-how requirements, problem-solving challenges, decision-making requirements, level of accountability, working conditions, salary survey job matches, internal equity, and supervisor input. Supervisors are encouraged to review the evaluations of positions reporting to them and give input and suggestions to the Evaluation Committee so the evaluation work may be done as accurately and fairly as possible.

3. Salary Surveys

Surveys are conducted each year to determine salaries being paid by other employers for jobs similar to those at the University. Considerable time and great care is taken to assure sufficient data is collected and proper comparisons are made. A group of universities of similar size and complexity are used for salary comparisons of staff and administrative positions. In addition, comparative information is collected from the Wasatch front for salary comparisons of staff and administrative positions.

4. Salary Increases

The Salary Review process (salary increases) is conducted annually and approved increases are effective at the beginning of the academic year. The University provides an annual budget for merit increases (not cost-of-living), in other words pay-for-performance. Accordingly, it is expected that star performers be given an increase well above average, solid performers be given an average increase, and under-performing individuals be given a less-than-average increase. By distributing the money in this manner, we reward those individuals who are achieving results and contributing the most toward the mission of their department and the University.

G. System Design

System design is the determination of the overall system architecture—consisting of a set of physical processing components, hardware, software, people, and the communication among them—that will satisfy the system's essential requirements (Denis, 2012 : 260).

During the initial part of design, the project team converts the business requirements for the system into system requirements that describe the technical details for building the system. Unlike business requirements, which are listed in the requirements definition and communicated through use cases and logical process and data models, system requirements are communicated through a collection of design documents and physical process and data models. Together, the design documents and physical models make up the blueprint for the new system.

We should note here that our focus is on the design of the technical system blueprint that will satisfy the system's requirements. An important element of the final, complete information system, however, will be redesigned work flows and procedures that users will follow when using the new system. Business analysts often turn their attention to the design of these components at this stage of the project, while systems analysts focus on more technical design elements. Ultimately, the redesigned business processes and procedures will be communicated in user documentation. Research of business process have to be carefully done, since there are a lot of problem related with Business Process Model,ne ofthe main problems is the lack of content (Aalst, 2011).Since business

process modellingjust provide a generic infrastructure to build information systems.To avoid insufficientct in organization needed, business process model need to build more carefull and detail for supporting specific processes.

H. Data Flow Diagram

Based on Kendall (2011:10) Data Flow Diagram is a tool which help the analyst make requirement determinations. The function DFD ismake chart to describe input, processes, and output of the business's functions, or activity diagrams or sequence diagrams to show the sequence of events, illustrate systems in a structured, graphical form. From data flow, sequence, or other diagrams, a data dictionary is developedthat lists all the data items used in the system, as well as their specifications.

I. Data Model

A data model is a formal way of representing the data that are used andcreated by a business system; it illustrates people, places, or things about which information is captured and how they are related to each other (Wixom, 2012 : 224). The data model is drawnby an iterative process in which the model becomes more detailed and less conceptual over time. During analysis, analysts draw a logical data model, which shows the logical organization of data without indicating how data are stored, created, or manipulated.

Because this model is free of any implementation or technical details, the analysts can focus more easily on matching the diagram to the real business requirements of the system.In the design phase, analysts draw a physical data model to reflect how the data will physically be stored in databases and files. At

this point, the analysts investigate ways to store the data efficiently and to make the data easy to retrieve.

J. Database

Based on Kendall (2011 : 403) Databases are not merely a collection of files. Rather, a database is a central source of data meantto be shared by many users for a variety of applications. The heart of a database is the Database Management System (DBMS), which allows the creation, modification, and updating of the database; the retrieval of data; and the generation of reports and displays. The person who ensures thatthe database meets its objectives is called the database administrator.

The effectiveness objectives of the database include the following:

a) Ensuring that data can be shared among users for a variety of applications.
b) Maintaining data that are both accurate and consistent.
c) Ensuring that all data required for current and future applications will be readily available.
d) Allowing the database to evolve as the needs of the users grow.
e) Allowing users to construct their personal view of the data without concern for the way thedata are physically stored.

K. Relational Database Management System

A relational database is organized in meaningful tables, which minimizes the repetitionof data, which in turn minimizes errors and storage space (Kendal, 2011:411). A relational data structure consists of one or more twodimensional

tables, which are referred to as relations. The rows of the table represent the records,and the columns contain attributes.

L. Small Medium Enterprises

Based on businessdictionary.com (2013) Business segment term used differently in different countries, sometimes differently in different industries in the same country. In the US, any firm from a Small-Office Home-Office (SOHO) to a large corporation may be called a SME. More specifically, firms included in Russel indices such as Russel 2500 index and Russel Midcap index are classified as SMEs. In European Union, a firm with 50 to 250 employees, annual turnover of Euro 7 to 40 million, total assets less than Euro 27 million, and not more than 25 percent ownership by a large corporation, may be classified as a SME. The International Chamber Of Commerce (ICC) defines a SME as having 100 to 2000 employees.

Adeosun, et al (2009) said that ITC (Information Technology and Communication) used give positive impact for strategic management which have relationship with communication aspect, information access, decision making process, database management and knowledge management in organization.The ICT driven business processes re-engineering observed in the industry gradually generates a new paradigm-shift. (Buhalis, 2008).Facing standards evolution in the marketplace, firms need to evaluate both their internal resources and their external environments in order to successfully adopt new open standards (Zhu, 2005 :

27).there is a growing need to understand which factors are likely to affect a firm's choices along the trajectory of standards evolution.

Small and medium sized enterprises (SMEs) are the dominant form of business organisation in developed, emerging and developing economies (Harvie, 2013 : 1). Polard (2006, in Berisha, 2009:2) stated that behind this lies an common recognition that SME play an important and a key role in revitalization and development of national economy in many countries, by providing various goods and services, forming a structure of division of labour and developing regional economies and communities.

The use of IT by Small and Medium Enterprises can be seen in the use of Internet. There are so many company in developed country use internet, but the others is still difficult to use. While internet penetration among SMEs is on the rise, there obviaously seems to be confusion about what to use the internet for and whetehr they can gain from using it. Vital for SMEs to be included in what is widely considerer to be the future of business. Solid advice requires knowledge about the factor that drive the adoption of the different uses of the internet. There are no different in using internet and any other technology for SMEs or bigger company. Even for high tech SMEs also dealing with the same kind of organizational and strategic choices than less technological sophisticated firms (Sluisman, 2008: 300).

In Indonesia, Provision of information is always occurringfrom public organizations such as the central and regional governments and chambers of commerce, but recently the sharing of information is increasing due to the use of

ITC systems (SMRJ, 2008:36). However, with information overflowing from the internet, it is difficult to know to what extent small and medium enterprises are able to obtain effective information, that is useful to their business. In particular, for micro enterprises,the problem begins with the fact that they cannot even afford to purchase a computer in order to gather information. Also, the organization of industry cooperatives and associations is helping to share information, but with the exception of particularly cutting edge regions, organizations do not yet offer national coverage for their activities.

There are a lot of factor that affect IT use and implementation towards SME, there are :

1. Environmental Factor

   The stronger competition towards others SMEs, the need of IT become higher. Competitive advantage from using IT is higher than if SMEs not using IT. The ease of accessing information in order to compete with other SMEs is a must. The effectivenes of using time can be achieved from using IT.

2. Organizational Factor

   Organization behavior becomes very important to implemengt technology. For SMEs that still existed using conventional methods and live will be difficult to access IT, because their tradition and culture insist them to not using modern technology.

3. Innovation

World limit become nothing if we use IT. Same with idea and creativity boundaries. The ability to share idea and information becomes really useful for SMEs. Rapid change of trends can be acknowledge fast with IT. That is why invention of new product will be no matter.