CHAPTER.2
THEORITICAL FOUNDATION

2.1.Literature review.

Research on measurement of information system effectiveness in the company in Indonesia is rare. One of the factors is difficulty of task to measure the effectiveness of the information systems. The variables to be measured on Information system research are difficult to determine. This constraints and variables are stated by some researchers as explained below.

Remenyi (1995,p 23), on his research states,

> "The assessment or evaluation of Information Technology, and especially Information Technology effectiveness, is a difficult task must be undertaken with considerable care. If the accountant is asking the question of effectiveness, then the answer is probably required in terms of Return on Investment (ROI). If the question of effectiveness is being asked by the operating management, the focus of the question is probably directed at the issue of whether the organization is getting the most from the Information System investment. Here, what can be achieved must be known and the performance of the system to this standard is the essence of the answer to the question. If the question of effectiveness is being asked by the Board of Directors, then the focus is probably on the issue of whether the computers are enhancing the general performance of the business as a whole ".

Post, Kagan, and Lau, (1995,p161-187) on their research states,

> "Traditional static benefit-cost methods were useful when evaluating transaction processing systems. Strategic benefits are more difficult to evaluate, since they involved dynamic interactions between customers, suppliers, and rivals. In an attempt to gain a competitive advantage, there is a strong incentive to be the first implementers of new technology. However, information technology (IT) costs decline over time, so there is an incentive to delay implementation. A model is developed that enable the managers to evaluate this trade-off and choose the best implementation time. The model emphasizes competition between large firms in the regional (or national) market, interacting with firms in a local market. The model is illustrated with an application to the banking industry. It compares the implementation times of larger regional banks vis-à-vis smaller local banks, and shows how the bank might use technology to respond to various changes in the banking industry."

In summarry, large banking firms implemented the information technology to gain the competitive advantage in the regional and local market competition. Therefore the other

financial institution likes Life Insurance Company also needs to implement the information technology in their activities. According to the rapid increasing in information technology, so that evaluation the effectiveness of the information system in firms becomes more difficult then traditional static benefit-cost methods.

Remenyi (1995,p117) in his books explain how to evaluate the effectiveness of the information system in the company. He explains how to measure the user information satisfaction (UIS) as an important indicator of Management Information System (MIS) effectiveness. This involves incorporating users feelings, beliefs, opinions and attitudes towards Information System into the evolution procedure. In the context of Information system effectiveness, it is generally believed that if users declare themselves to be satisfied with the system, then the system maybe said to be effective.

Remenyi (1995,p40) state

> " In evaluating the success or effectiveness of the IT department it is necessary to evaluate the performance of the individuals systems, and then use the aggregate of the performance on the individual systems as an overall measure of the success or effectiveness of the IT department. In organizations where there is a high degree of decentralization of the Information Technology function, the evaluation is not focused so much on the IT department but rather on the users of the information systems.
> For the organization's Information Technology function to be managed successfully, management will need to have appropriate instruments whereby it can measure the effectiveness of IT organization.

Summaries from this statement, to evaluate the effectiveness of the information system, must measure the user information satisfaction. The Information System function of an organization is involved in the development, implementation and maintenance of numerous information technologies/systems.

Remenyi (1995,p116) state

> An IT department can be considered effective when it:
> Is meeting its objectives,
> Operating within its budgets,
> Delivers on time,
> Is a major catalyst in directing the firm's use of IT,

> Ensures that the firm is using IT competitively,
> Has a clearly understood role in the organization,
> Is generally perceived to be an ally,
> Is at least as internally efficient as the industry average,
> Can deliver systems for no grater cost than they can be purchased in the open market,
> Is perceived by top management to be value for money and users believe that IT is being deployed in a way which supports their pursuit of excellence.

Hamilton and Chervany, on Remenyi (1995,p117) state

> "Basically there are two general views with respect to measuring IT effectiveness. These are the goal centred view and the system resource view. In the goal centred view we focus on the outcomes of the Information Technology function. We determine the task objectives of the system and then establish the criteria for measuring whether these objectives have been achieved. In the system's resource view we focus on the process or functional aspects of the system. In this case effectiveness is measured against such things as user job satisfaction, communication between Information Technology staff and users, and quality of service."

Summaries from this statement, to measure the effectiveness of information system, through a goal centred view or a system resources view.

Remenyi (1995,p119) state

> User information satisfaction (UIS) is recognized as an important indicator of Management Information System effectiveness. This involves incorporating user feelings, beliefs, opinions and attitudes toward Information Technology into the evaluation procedure. In the context of Information System effectiveness, it is generally believed that if users declare themselves to be satisfied with the system, then the system may be said to be effective. User satisfaction is generally considered to result from comparison of user expectations of the Information System with the perceived performance of the Information System on a number of different facets of the Information System. More specifically, overall attitude to the Information System function can be considered to be influenced by the size and direction of the discrepancies between expectations and performance. A positive or negative gap results when perceived performance exceeds or bellows expectation. A large 'positive' gap can be interpreted as indicating that Information System resources are being wasted, whereas a large 'negative' gap indicates a need for improved performance.
> UIS (User Information Satisfaction) is considered to be influenced not only by post implementation experience with the Information System but also by pre-implementation expectation of the Information System. In this approach, UIS is measured by the discrepancy between the Users perception score of the Information System performance and the Users expectation score of the Information System."

The model of Kim as explained by Remenyi (1995,p119-120) measured the three gaps by evaluating pre-implementation experience and post-implementation experience to find the User Information Satisfaction (UIS). Furthermore, his model describes how User

Information Satisfaction is influenced by the discrepancies that arise during the developmental and service delivery processes.

DeLone,. and. McLean (1992,p 60-95), state

> "The importance of system quality, information quality and systems success has been recognized by many researchers as key ingredients in developing a competitive advantage."

From this Information system model, we find that there is relationship between Information use and User satisfaction, and four elements of the Information system model (System Quality, Information quality, Information use and User satisfaction) will affect the individual impact first, and then the Organizational user.

Newsted,P Huff,S & Munro,M (1998,p5) constructs the instrument related to measuring Information System Effectiveness are summarized as:

Accuracy, a list of references
Attitude toward Computers
Attitude towards alternative media
complexity of computers
computer user satisfaction
user information satisfaction
computer anxiety
ease of use
perceived ease of use
quality of Information System support
task characteristics
User abilities

Detmar Straub (1989,255-276), explained that the Instrument for MIS Research consists of 2 sections as listed below:

Section I. Computer Abuse Questionnaire
A. Personal Information (3 question)
B. Organizational Information (6 question)
C. Computer Security, Internal Audit, and Abuse Incident Information (18 question).

A Computer Security function in an organization is any purposeful activity that has the objective of protecting assets such as hardware, programs, data, and computer service from loss or misuse.

Section II.Computer Abuse Incident Report Covering the 3-year period, and give 16 question according to incident on information system

The conclusion is, the three information should collect to evaluate the effectiveness of the information system are:

Personal information,

Organizational information,

Security and also incident information.

Doll, William J. and Torkzadeh, Gholamreza (1988,p259-274)

explained the instrument to be used in his surveys.

> The instrument employs "a five point Likert-type scale",
> Where 1 = Almost never;
> 2 = some of the time;
> 3 = about half of the time;
> 4 = most of the time; and
> 5 = almost always.
> The instructions requested the users to write in the name of their specific application and, for each question, to circle the response which best described their satisfaction with this application. Questions are grouped according to the components of end-user computer satisfaction that they measure."

From these structure of questionnaire, there are 5 (five) components : content (4 questions), accuracy (2 questions), format (2 questions), ease of use (2 questions) and timeliness (2 questions) to measure the effectiveness of Information System in the organization. Then to convert the qualitative data from the respondents to quantitative analysis Likert-type scale is used.

Szajna, Bernadette and. Scamell, Richard W. (1996,p 495-516) state

> " The consequences of information system failure become more acute as organizations continue to invest in information technology and application development. Being able to better predict Information System failure before implementation of a system could facilitate changes in the information system that can lead to implementation success. The realism of user expectations has been suggested as one possible means of assessing the eventual success or failure of an Information System. Cognitive dissonance theory was used to hypothesize the behaviours and attitudes of end users having certain expectations of a system. This experiment investigates the association between unrealistic expectations with both users' perceptions (i.e., user satisfaction) and their performance with the Information System (i.e., decision performance).
> A longitudinal experiment was performed in which the expectations of the subjects were manipulated to be unrealistically high, realistically moderate, or unrealistically low. The results suggest an association between realism of users' expectations and their perceptions but not their actual performance. Future

> research should be directed toward the development of an instrument to measure user expectations, as well as toward understanding the causes of unrealistic user expectations "

From this statement, it can be concluded that users expectation and perception will affect the performance of information system, so we must measure and evaluate the users expectation.

Leedy, Paul D (1996,p157-158) describe

> " Three approach to analysing case study data: Interpretational, structural, and reflective analyses. Interpretational analysis refers to examining the data for constructs, themes, and patterns that can be used to describe and explain the phenomenon studied. Structural analysis refers to searching the data for patterns inherent in discourse, text, events, or other phenomena, with little or no inference made as to the meaning of the patterns. Reflective analysis refers to using primarily intuition and judgement to portray or evaluate the phenomenon."

The conclusion from this article is there are three approaches to analyze the case study : interpretational, structural and reflective analysis.

This research is a case study on Jiwasraya, one of life insurance companies in Indonesia.

Lawrence (2000,32), states

> " In case-study research, he or she examines, in depth, many features of a few cases over a duration of time. Cases can be individuals, groups, organizations, movements, events or geographic units. The data are usually more detailed, varied, and extensive. Most involve qualitative data about a few cases."

The conclusion from this article is, in case studies we must collect in depth many features of a few cases, by individuals, groups, organizations, movements, events or geographic units in detail.

Regin (1992,5) on Neuman W. Lawrence (2000,148) states

> "Qualitative researchers tend to use a 'case-oriented approach that places cases, not variables, centre stage. They examine a wide variety of aspects of one or a few cases. Their analyses emphasize contingencies in 'messy' natural settings (i.e., the co-occurrence of many specific factors and events in one place and time)."

From this article we concluded that, the qualitative research tend to use the case-oriented

approach.

Lawrence (2000,152), states

> " In qualitative research, ideas and evidence are mutually independent. This applies particularly to case study analysis. Cases are not given pre-established empirical units or theoretical categories apart from data; they are defined data and theory. By analysing a situation, the researcher organizes data and applies ideas simultaneously, to create or specify a case."

From this article we summarized that, in qualitative research ideas and evidence are mutually independent, and will be applied on case study analysis.

Leedy, (1997,p157-158) state

> " Case studies are a type of qualitative research in which the researcher "explores a single entity or phenomenon ('the case") bounded by time and activity (a program, event, process, institution, or social group) and collects detailed information by using a variety of data collection procedures during a sustained period of time. Almost any phenomenon can be examined by means of the case study method. Whereas some researchers focus on the study of one case because of its unique or exceptional qualities, other researchers study multiple cases to make comparisons, build theory, and propose generalization."

From this article we summarized that, on case study we will explore a single entity or phenomenon and bounded by time and activity, and we must collect detailed information through a variety of data collection activity. The purpose of case study is conducted to shed light on a phenomenon, be it a process, event, person, or object of interest to the researcher. A case constitutes a single instance of the phenomenon.

Leedy, Paul D (1997,160) state

> " Researchers generally do case studies for one of the three purposes:
> 1. To produce detailed descriptions of phenomenon,
> 2. To develop possible explanation of it, or
> 3. To evaluate the phenomenon."

From this article we concluded that there are three purposes of case studies to describe and evaluate the phenomenon and the possible explanation of the phenomenon.

Collection of data in this research is using questionnaire and the data will be processed based on the statistical analysis as used by some researchers as explained below.

Leedy, Paul D (1997,p160), states

> " Data gathered in case studies can be in the form of words, images, or physical objects. Some case study researchers also collect quantitative data such as achievement scores, time-on-task, and census data. Fieldwork is typically a part of the data collection effort because it enables the researcher to engage in informal conversations with the participants and to observe and understand the phenomenon as it is experienced by them".

The summary of this article, is a researcher must collect data through field work and informal conversations with the participants or respondents.

In this research data are collected through questionnaires filled in by the users of the information system at Head office and Branch Offices and also from the managers and discussed with E.D.P. Staff at Head Office.

Lawrence (2000,p251), states

> " A good questionnaire forms an integrated whole. The researcher weaves questions together so they flow smoothly. He or she includes introductory remarks and instructions for clarification and measures each variable with one or more survey questions."

From this article we summarized that the questionnaire consists of introduction, and contents with clear instructions or statements.

Many definitions are offered in the literature for factor analysis.

A comprehensive definition was provided by Reymont and Joreskog (1993,71):

> " Factor analysis is a generic term that we use to describe a number of methods designed to analyze interrelationships within a set of variables or objects [resulting in] the construction of a few hypothetical variables (or objects), called factors, that are supposed to contain the essential information in a larger set of observed variables or objects...that reduces the overall complexity of the data by taking advantage of inherent interdependencies [and so] a small number of factors will usually account for approximately the same amount of information as do the much larger set of original observations."

Factor analysis reduced the large amount of variables into small amount of variables, by extracting and rotating the matrixes of the components and selecting the factors for a certain eigenvalues.