Analysis Effect of External Variables on System Usage and User Satisfaction Using Technology Acceptance Model

(Empirical Study on *Bank Pekreditan Rakyat* in Semarang City Region)

A THESIS

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ABSTRACT

Advancement in the information system and technology has attracted both small and large businesses to use accounting information system in order enhance the financial information output which is produced by the system user. This research is aimed to study the influence of external variables factor which represented by top management support (TMS), training (TR), and user involvement UI on information system (IS/ IT) acceptance in small scale business. Indicator which often used to measure the success information system (IS/ IT) implementation are IS/ IT acceptance through system usage and user satisfaction. This acceptance indicator was developed by DeLone and McLean, later was used by many information system (IS/ IT) researchers. This study based on Rouibah *et al*. who built a model construct that link the external variables which consists of top management support (TMS), training (TR), and user involvement (UI) on system usage and user satisfaction through applying technology acceptance model (TAM).

This research uses survey data from operational and financial department of micro banking in Indonesia which known as *Bank Pekreditan Rakyat (BPR)*. The data is analyzed with structural equation model (SEM) to know the effect a variable to another variable.

Analysis result finds that top management support both directly and indirectly affects perceived usefulness, perceived ease of use, and system usage. However, training is found only directly affects the user satisfaction. While user involvement is found affects perceived ease of use and user satisfaction directly. According the result perceived usefulness is found has higher influence towards system usage than perceived ease of use. The other result, there is a significant positive relation between system usage to user satisfaction which means consistent with Rouibah *et al.* model.

Keywords: Accounting information systems, user acceptance of information system, technology acceptance model, top management support, training, user involvement

ABSTRAK

Kemajuan dalam sistem informasi dan teknologi telah menarik perhatian usaha kecil dan besar untuk menggunakan sistem informasi akuntansi dalam rangka meningkatkan output informasi keuangan yang dihasilkan oleh pengguna sistem. Penelitian ini bertujuan untuk mempelajari pengaruh faktor variabel eksternal yang diwakili oleh dukungan manajemen puncak (TMS), pelatihan (TR), dan keterlibatan pengguna UI pada penerimaan sistem informasi (SI / TI) pada bisnis skala kecil. Indikator yang sering digunakan untuk mengukur diterimanya sistem informasi (SI / TI) adalah sistem penggunaan sistem dan kepuasan pengguna. Indikator penerimaan ini dikembangkan oleh delone dan McLean, kemudian digunakan oleh banyak peneliti sistem informasi (SI / TI). Penelitian pada riset ini didasarkan pada Rouibah, dkk. yang membangun model yang menghubungkan variabel eksternal dukungan manajemen puncak (TMS), pelatihan (TR), dan keterlibatan pengguna (UI) pada penggunaan sistem dan kepuasan pengguna melalui model penerimaan teknologi (TAM*).*

Penelitian ini menggunakan survei data dari departemen operasional dan keuangan pada mikro perbankan di Indonesia yang dikenal dengan nama Bank Pekreditan Rakyat (BPR). Data dianalisis dengan model persamaan struktural (SEM) untuk mengetahui pengaruh variabel ke variabel lain.

Hasil analisis menemukan ada efek langsung dan tidak langsung antara hubungan dukungan manajemen puncak yang mempengaruhi persepsi kegunaan, persepsi kemudahan penggunaan, dan penggunaan sistem. Namun, variabel pelatihan ditemukan hanya mempengaruhi kepuasan pengguna secara langsung dan tidak langsung. Sementara itu keterlibatan pengguna ditemukan mempengaruhi persepsi kemudahan penggunaan dan kepuasan pengguna. Hasil lainnya mengungkapkan bahwa persepsi kegunaan ditemukan memiliki pengaruh yang lebih tinggi dengan penggunaan sistem daripada persepsi kemudahan penggunaan. Penelitian ini juga menghasilkan ada hubungan positif yang signifikan antara penggunaan sistem terhadap kepuasan pengguna yang berarti konsisten dengan yang diusulkan Rouibah et al.

Keywords: Sistem informasi akuntansi, penerimaan sistem informasi, model penerimaan teknologi, dukungan manajemen puncak, pelatihan, keterlibatan pengguna

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The author realizes this thesis is far away from perfect. Therefore if there are any errors in this thesis as well as shortcomings, the author accept criticism and constructive suggestions to perfect this research. Finally, the author hope this thesis may be useful for related society, institution and others researcher.

Semarang, March 2011

Author

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CHAPTER I

INTRODUCTION

1.1. Background

Business organizations, foreign and domestic, large and small need to be competitive in the global marketplace (Merchant, 2007). The business organizations seek new ways to manage their business toward global competition with other companies (Merchant, 2007). One of them is how the business organizations should manage their financial information. Nowadays, with the advance development in the information system (IS) or information technology (IT) many companies have changed the way to manage information, especially financial information that using computer/ technology based information system.

Venkatesh (2000), Wixom and Todd (2005), and Selamat *et al.* (2009) explained that successful in IT investment can lead to enhanced productivity, while failed systems can lead to undesirable consequences such as financial losses and dissatisfaction among employees. Hence information system (IS) and information technology (IT) considered as competitive advantage which have an important role towards businesses (Rouibah *et al*., 2009). Rouibah *et al.* (2009) argued that a competitive advantage occurs from IS/IT utilization, not the IS/IT solution. Similarly, Agarwal and Prasad (in Ramayah and Jantan, 2002) argued systems that are not utilized do not result in expected efficiency and effectiveness gains.

The continues development of information system and technology which never stop make many researches about information system became subject of much debate among information system researchers (Davis, 1989; Igbaria *et al*, 1995; Venkatesh, 2000; Rouibah *et al*, 2009). Much of these researches highlighted human factors which are influenced by other factors like individual perception, and other external factors. Many researchers studied these factors through the user attitudes toward the system. User attitudes can be known from the acceptance level of a new information system which is implemented in the business organizations (Selamat *et al.*, 2009). Igbaria *et al.* (1995) also mentioned that the focus of IS implementation research is to examine the factors affecting user acceptance of computer technology. Rouibah *et al.* (2009) defined IS/ IT acceptance as the potential user`s predisposition toward personally using a specific system and being satisfied about it.

DeLone and McLean (1992) mentioned that the success of IS which implemented can be measured at different levels, including the technical level, the semantic level, and the effectiveness level. DeLone and McLean (1992) defined the technical level as the accuracy and efficiency of the system which produces the information, the semantic level as the success of the information in conveying the intended meaning, and the effectiveness level as the effect of the information on receiver.

Seddon, Staples, Patnayakuni and Bowtell (in Urbach, 2009) stated to measure the IS success depends on the type of system being evaluated. In order to evaluate, multiple models were constructed by many researchers. Several

researchers like Delone and Mclean (1992), Soegiharto (2001), Komara (2005), Briggs *et al.* (2008), Rouibah and Hamdy (2009), Lee *et al*. (2009) suggested there are two most commonly used as the measure of user acceptance towards information system, they are system usage (SU) and user satisfaction (US). Both system usage (SU) and user satisfaction (US) measurement based on the attitudes of information system user towards the system which being used by them.

Further researches found system usage (SU) and user satisfaction (US) were linking each other. Rouibah and Hamdy (2009) suggest three models for the relationship between system usage (SU) and user satisfaction (US): (a) satisfaction and usage are not related, (b) satisfaction influences usage, and (c) usage influences satisfaction. In the study between the relation system usage and user satisfaction, the relation among the models must be further investigated because the causal relationship was influenced by many external factors and its various among researchers. In order linking the external factors with system usage (SU) and user satisfaction (US), usually researchers used a well grounded theory such Theory of Research Action (TRA), Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM).

Among of the three theories which mentioned above technology acceptance model (Davis, 1989) is the most commonly used because of its understandability and simplicity (Legris *et al.*, 2003), explains much of the variance in users' behavioral intention related to IT adoption and usage across a wide variety of context (Taylor and Todd, 1995). This model is implemented because the decision made by an individual to accept information system and

technology is a conscious act that can be explained and predicted (Jogiyanto, 2007). Technology acceptance model (TAM) is an acceptance model of information system and technology which used two kinds perceived of the user. There are two mediating factors: Perceived Ease-of-Use (PEOU) and Perceived Usefulness (PU), which have been reported to mediate the effect of several external factors on IS/IT usage and US (Rouibah and Hamdy, 2009; Lee *et al*., 2009).

Since the original TAM was made by Davis in 1989, TAM can be tested in various ways with the wide selection of external variables and choice of dependant variables with different subjects, work-setting and different technology features across the globe (Seyal and Rahman, 2007). The variation of external variables can be seen on literature review done by Yousafzai *et al.* (2007). Yousafzai *et al.* (2007) grouped the variables into four groups: organizational characteristics, system characteristic, user personal characteristics, and other variables. According to Rouibah *et al.* (2009) the variation external factors is differ depending on the cultural society and the business environment. This was also has been proved by Rai *et al.* (2002) that the dependent variables can be variance along with advancement of era, development of technology, and human needs. In this research three organizational factors which consists of top management support (TMS), user involvement (UI), and training (TR) is used.

Three organizational factors top management support (TMS), user involvement (UI), and training (TR) are chosen because these three factors were found less received attention and very few studies examined the simultaneous

effect of these organization factors (TR, TMS and UI) on IS/IT acceptance, hence the result is still unknown that the presence of UI, TMS, and TR impact other variables (Rouibah *et al*., 2009).

The researches of information system have been widely applied. However, much of the researches were using large or macro business organizations. There were little researches which conducted in small or micro business organizations. As the fact, information system is not only used by large business but also the small ones (Ashari, 2008). One of the businesses which often related with the high use of information system is banking sectors. Indonesian micro banking as known as *Bank Pekreditan Rakyat* also start changed the manual system in accounting with computer based system. With the changing in the new implemented of the accounting information system need to be known that the system will create a competitive advantage through the successful or otherwise will cause the failure.

The better quality of information system is important for banking sectors since its need more carefully due to make decisions since they carry out public funds. In order to be effectively and efficiently, sectors banking applying AIS to record transactions, observe data to make report that will influence decisions about credit policies, and many more. However, users who use of new information system often got several problems because the complexity of the system. Therefore accounting information system which has been implemented to support their activity should be measure in order to know about the information system is successful or not. Based on the above description, the author conducts a research

about **"Analysis Effect of External Variables on System Usage and User Satisfaction Using Technology Acceptance Model."**

1.2. Problem Formulation

Business organizations whether foreign and domestic, large and small need to be competitive in the global marketplace (Merchant, 2007). The use of information system organization can creates competitive advantage against the rivals (Rouibah and Hamdy, 2009). The succession implementing IS enhanced productivity, while failed systems can lead to undesirable consequences such as financial losses and dissatisfaction among employees (Venkatesh, 2000; Wixom and Todd, 2005; Selamat *et al.*, 2009)

There are many models to measure IS success, two that commonly used are SU and US (Rouibah *et al.*, 2009). Using TAM which mediated by perceived ease of use (PEOU), and perceived usefulness (PU), Rouibah *et al*. (2009) studied about the relationship of SU and US with three organizational variables: Top Management Support (TMS), User Involvement (UI), and User Training (UT). This study is conducted with replicating on Rouibah *et al*. (2009) that found those variables affect each other. This research takes sample on *Bank Pekreditan Rakyat* in the Semarang City Region, Indonesia. Based on this, the author makes problem formulation as follows:

1. Does user involvement affect user satisfaction and system usage via perceived usefulness and perceived ease of use or directly?

2. Does top management support affect user satisfaction and system usage via perceived usefulness and perceived ease of use or directly?
3. Does user training affect user satisfaction and system usage via perceived usefulness and perceived ease of use or directly?
4. Does perceived usefulness affect user satisfaction via system usage or directly?
5. Does perceived ease of use affect user satisfaction via perceived usefulness and system usage or directly?
6. Does system usage affect user satisfaction directly?

1.3. Research Objectives

Based on the background and problem formulation that have been described previously, this research is aimed to study the influence of external variables factor which represented by top management support (TMS), training (TR), and user involvement (UI) on IS/IT usage and satisfaction in micro banking sector. According to problem formulation, this research has objectives as follows:

1. To test the effect of user involvement on user satisfaction and system usage, perceived usefulness, and perceived ease of use.
2. To test the effect of top management support on user satisfaction and system usage, perceived usefulness, and perceived ease of use.
3. To test the effect of training on user satisfaction and system usage, perceived usefulness, and perceived ease of use.

4. To test the effect of perceived usefulness on user satisfaction and system usage.
5. To test the effect of perceived ease of use on user satisfaction, system usage, and perceived usefulness.
6. To test the effect of system usage on user satisfaction.

1.4. Research Purpose

The purpose of this research is based on background, problem formulation, and research purpose. This research has several purposes, such as:

1. For researchers, this study is part of the learning process that is expected to increase understanding of the complexity factors that influence the performance of accounting information systems within one organization.
2. For management of the micro banking, the result of this study is expected to be useful as an evaluation on the company's accounting information system which is used in the work place through the acceptance level of the accounting information system.
3. For academics, the result is expected to provide an input in the research field of accounting information system in Indonesia. Especially, because there is few researches which use two kinds perceive in TAM as mediating factor to study the causal relation between external variables and user acceptance.

1.5. Structure of This Thesis

CHAPTER I : INTRODUCTION

This chapter consists of background which explains about the determinant factors that will affect on user satisfaction and system use of Accounting Information System (AIS), problem formulation, the purpose of the research, research benefit, and the structure of this thesis.

CHAPTER II : LITERATURE REVIEW

This chapter consists of theories that use as research basis such as expectancy theories, and TAM. Despite explain the theories, this chapter also explains the previous researches which relate with TAM to user satisfaction and system use, conceptual framework, and the hypothesis development.

CHAPTER III : RESEARCH METHODS

This chapter explains about research design, type and source of data, data collect method, research object, and data analysis. This research use quantitative approach with structural equation method (SEM) that is applied using AMOS 6 software.

CHAPTER IV : RESULT AND ANALYSIS

This chapter explains about the research object, descriptive analysis, data analysis that consists of measures the goodness fit of the model, confirmatory factor analysis, and regression weight analysis to measure how far a variable affect another variable. Further in this chapter explain about the hypothesis that are proposed in this research.

CHAPTER V : CONCLUSION

This chapter consists of conclusion which found from the analysis result, research limitation in this research, and implication and suggestion for further research.

CHAPTER II

LITERATURE REVIEW

2.1. Underlying Theories and The Previous Researches

2.1.1. Expectancy Theory

According to Vroom (in Issac *et al.,* 2001) expectancy theories based on people who consciously choose particular courses of action, based upon perceptions, attitudes, and beliefs, as a consequence of their desires to enhance pleasure and avoid pain. Expectancy theory also called theory of motivation because it emphasizes individual perceptions of the environment and subsequent interactions arising as a consequence of personal expectation (Issac *et al.,* 2001).

The expectancy theories itself relies upon extrinsic motivators to explain causes for behaviors exhibited in the workplace Leonard (in Issac *et al.*, 2001). The motivations for employer determine affective and behavioral reactions in numerous situations (Eveleth and Stone, 2008). Based on this theory, three organizational variables which are used in this research is the determinant motivation which influences the user of information system to accept the information system. When business implemented information system, the motivation to use system in the business is non-volitional but is mandatory. This means that an employee may not be required to use the system but the influences in the workplace itself suggest the employee should use it (Eveleth and Stone, 2008).

According to Issac *et al.* (2001) individual in the workplace feels motivated when three conditions are perceived:

1. The personal expenditure of effort will result in an acceptable level of performance (expectancy)
2. The performance level achieved will result in a specific outcome for the person (instrumentality)
3. The outcome attained is personally valued (valence)

2.1.2. Technology Acceptance Model

The technology acceptance model (TAM) was originally formulated by Davis in 1986. TAM is one of the most widely model that used to test technology acceptance. The TAM adapted Ajzen and Fishbein's (1980) theory of reasoned action (TRA) to explain the causal relationship between users, internal beliefs (usefulness and ease of use), attitude, intentions, and computer usage behavior (Davis *et al*., 1989).

Technology acceptance model (TAM) has two primary construct: perceived usefulness (PU) and perceived ease of use (PEOU). TAM argued that individual acceptance toward information systems technology is determined by both of the construct (Jogiyanto, 2007).

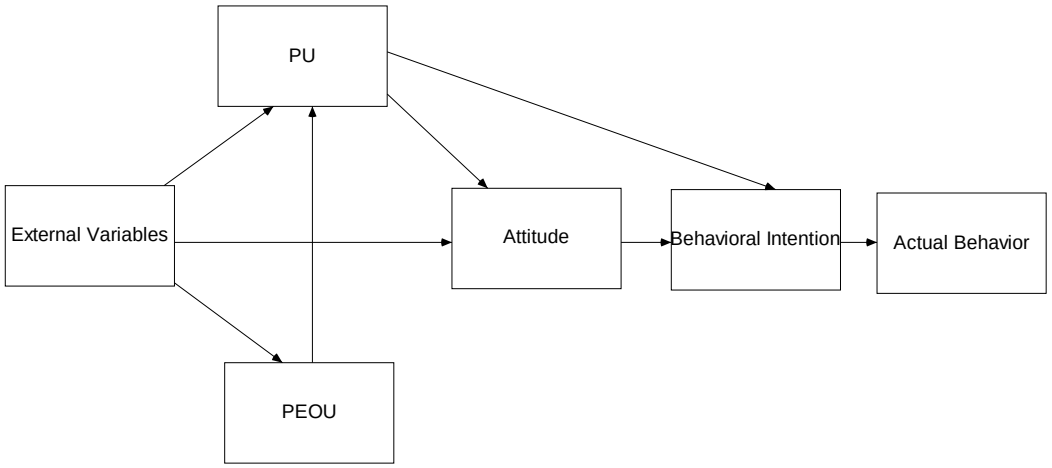
Both of perceived usefulness (PU) and perceived ease of use (PEOU) have influence to behavioral intention. The user of IS/ IT will intend to use technology if the user feels the technology will useful for them and they feel easy to use it. Despite that, perceived ease of use (PEOU) also influencing perceived usefulness

(PU) but not vice versa. The user will use the system whether the system is easy to use or not as long as the system usefulness for them (Jogiyanto, 2007).

The original TAM is shown in Figure 2.1. The originally TAM use five primary construct:

1. Perceived usefulness
2. Perceived ease of use
3. Attitude towards behavior or attitude towards using technology
4. Behavioral intention or behavioral intention to use
5. Behavior or actual technology use

Figure 2.1
Technology Acceptance Model



Source: Davis *et al.* (1989)

In order to apply the technology acceptance context, it is necessary to measure attitudes and beliefs regarding the use of technology rather than attitude and beliefs directed towards the technology itself, since individuals might hold a positive view about a technology without being favorably disposed towards its use (Yousafzai *et al.*, 2007).

Chau, Hu *et al*., Mathieson, Szajna (in Yousafzai *et al.*, 2007) mentioned that the widespread popularity of the TAM is broadly attributable to three factors: (1) it is parsimonious, IT-specific, and is designed to provide an adequate explanation and prediction of a diverse user population's acceptance of a wide range of systems and technologies within varying organizational and cultural contexts and expertise levels; (2) it has a strong theoretical base and a well researched and validated inventory of psychometric measurement scales, making its use operationally appealing; and (3) it has accumulated strong empirical support for its overall explanatory power and has emerged as a pre-eminent model of users acceptance of technology.

2.1.3. Perceived Usefulness

Davis *et al*. (1989) defined PU as the degree to which an individual believes that using the system will enhance his job performance. The definition means people who using computers in the workplace would increase their productivity, improve job performance and enhance job effectiveness and usefulness. When the user believes using information system is useful then the user will use the system because the system gives benefit to them. Conversely, if the user beliefs the system not useful, the user would not use it (Jogiyanto, 2007).

Previous researches have showed that construct of perceived usefulness influence significantly positive towards the user of information system (e.g. Davis, 1989; Igbaria *et al.,* 1995; Rouibah *et al.,* 2009). Igbaria *et al.,* (1995) studied the effect of perceived usefulness on usage in a field study of Finnish computer users. The result was found strong relationships between perceived

usefulness and usage. Previous research also showed that perceived usefulness was constructs the most significant and important which influences attitude, behavioral intention, and behavior (Jogiyanto, 2007).

2.1.4. Perceived Ease of Use

According to TAM, PEOU is a major factor that affects acceptance of information system (Davis *et al*, 1989). PEOU is defined as the degree to which an individual believes that using computer or computerized system will be free from physical and mental efforts (Davis *et al*, 1989). From the definition can be known perceived ease of use is a user belief which means with using information and technology their task will be easier. Hence perceived ease of use is more likely to be accepted by users and the more complex a technology is perceived as being, the slower will be its rate of adoption (Yousafzai *et al.*, 2007).

Previous researches showed tht the construct of paerceived ease of use iis influencing on perceived usefulness, attitude, behavioral intention, and behavior. Igbaria *et al.* (in Yousafzai *et al.*, 2007) examined the factors affecting personal computer acceptance in small firms in New Zealand. As the result, among these factors, perceived ease of use was found directly influence personal computer acceptance. The findings indicate that perceived ease of use is a dominant factor in explaining perceived usefulness and system usage and it was also found that perceived usefulness is a strong antecedent of system usage. Other research by Sanchez *et al.* (in Yousafzai *et al.*, 2007) also found the relationship between PEOU and PU was significant and positively related. The conclusion can be drawn the more complex system it will be useless.

2.1.5. Variance of External Variables in TAM

There are many external variables which can be used with TAM. Yousafzai *et al.* (2007) conducts a meta-analysis to combine the previous TAM researches. The first external variable added to the TAM was output quality Davis *et al*., in 1992, and since then researchers have proposed more than 70 external variables for PU and PEOU. Yousafzai *et al.* (2007) divided these external variables into four categories of organizational, system, user`s personal characteristics, and other variables. The variance of external variables can be seen in table 2.1

Table 2.1
Variance External Variables

Organizational Characteristic	System Characteristic	User Personal Characteristic	Other Variables
Competitive Environment	Accessibility	Age	Argument for Change
End User Support	Access Cost	Awareness	Cultural Affinity
Group`s Innovativeness Norm	Comparability	Cognitive Absorption	External Computing Support
Implementation Gap	Confirmation Mechanism	Computer Anxiety	External Computing Training
Internal Computing Support	Convenience	Computer Attitude	Facilitating Condition
Internal Computing Training	Image/ Interface	Computer Literacy	Subjective Norms
Job Insecurity	Information Quality	Educational level	Situational Normality
Management Support	Media Style	Experience	Social Influence
Organizational Policies	Navigation	Gender	Social Pressure
Organizational Structure	Objective Usability	Intrinsic Motivation	Task Technology Fit
Organizational Support	Output Quality	Involvement (Situational/ Intrinsic)	Task Characteristic
Organizational	Perceived	Personality	Vendor`s Co-

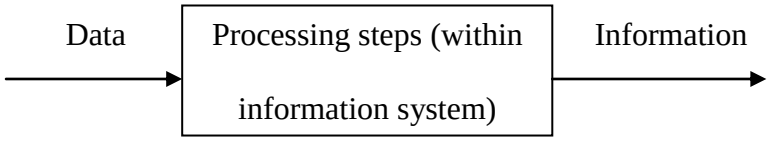
Usage	Attractiveness		operation
Peer Influence	Perceived Complexity	Perceived Developer`s Responsiveness	
Peer Usage	Perceived Importance	Perceived Enjoyment	
Training	Perceived Software Correctness	Perceived Playfulness	
Transactional Support	Perceived Risk	Perceived Resources	
	Relevance With Job	Personal Innovativeness Role with Technology	
	Reliability and Accuracy	Self Efficacy	
	Response Time	Shopping Orientation	
	Result Demonstrability	Skills and Knowledge	
	Screen Design	Trust	
	Social Presence	Tenure in Work Force	
	System Quality	Voluntariness	
	Terminology		
	Trialability		
	Visibility		
	Web Security		

Source: Yousafzai et al. (2007)

As can be seen the proposed external variables in this research are organization characteristic. This means, the variables are exhibited from workplace as the place that the user used the system. This variables occurs from the environment of the business organization to influence the user.

2.1.6. The Relationship Between Data, Information, and System

Figure 2.2
Data and Information Relation



Source: Wilkinson (1989)

Data and information are related each other in order to produce information through process in the information system, see figure 2.2. Wilkinson (1989) defined data are the raw facts and figures and even symbols that together form the inputs to an information system. Data also can be defined into facts or figures in raw form (Gelinas and Dull, 2008).

Data are facts that are collected, recorded, stored, and processed by an information system. Data usually represent observations or measurements of business activities that are of importance to information system users. According to Romney and Steinbart (2009) several kinds of data need to be collected in business, such as:

1. Facts about the activities that take place,
2. The resources affected by the activities, and
3. The people who participate in the activity

In order to make data become useful, data must be transformed to information through any information systems. Accounting Information System (AIS) is Information system that process data to become useful information. Information serves as the basis for making decisions and taking action (Wilkinson, 1989). Arnold and Hope (1990) also stated that information is essentially financial and mainly used for the purpose of decision making, supervision and implementation of corporate decisions. The information has value to the decision maker because it reduces uncertainty and increases knowledge about a particular area of concern (Gelinas and Dull, 2008). Good information must have standards before information can be called into useful

information. Romney and Steinbart (2009) categorized this into seven characteristic, they are:

1. Relevant

   Information is relevant if it reduces uncertainty, improves decision makers' ability to make predictions, or confirms or corrects their prior expectation.

2. Reliable

   Information is reliable if it is free from error or bias and accurately represents the events or activities of the organization.

3. Complete

   Information is complete if it does not omit important aspects of the underlying events or activities that it measures

4. Timely

   Information is timely if it provided in time for decision makers to make decisions

5. Understandable

   Information is understandable if it is presented in a useful and intelligible format

6. Verifiable

   Information is verifiable if two knowledgeable people acting independently would each produce same information

7. Accessible

   Information is accessible if it is available to users when they need it and in a format they can use.

According to Wilkinson (1989) system is an integrated entity that attempts to achieve a set of objectives. Hall (2008) defined a system is a group of two or more interrelated components or subsystems that server a common purpose. Wilkinson (1989) defined a system is a unified group of interacting parts function together to achieve it purposes. Gelinas and Dull (2008) defined a system is a set of interdependent elements that together accomplished specific objectives. Romney, and Steinbart (2009) defined a system is a set of two or more interrelated components that interact to achieve a goal. The goal or objectives itself is to provide useful information from the data.

2.1.7. Accounting Information System Role in Business

There are many definitions of AIS, but the primary goal is same. Bodnar and Hopwood (2004) defined Accounting information system (AIS) is a collection of resources, such as human and equipment, designed to change the financial data and other data into information. Hall (2008) defined AIS as a group of two or more components of interrelated or subsystems that come together to achieve common purpose. Gelinas and Dull (2008) defined AIS as specialized subsystem of the IS to collect, process, and report information related to the financial aspects of business events. Romney and Steinbart (2009) defined AIS as a system that collects, records, stores, and processes data to produce information for decision makers.

Accounting information is classified into three types: (1) operation information, (2) management accounting information, and (3) financial accounting information (Anthony & Reece, 1989).

1. Operating Information

This information provides the raw data for the information of financial accounting and management accounting information. The information contained in the manufacturing company operations includes: production information, purchase information and use of raw materials, payroll information, sales information, etc. (Wilkinson, 1989).

2. Management Accounting Information

According to Anthony and Reece (1989) accounting information that specifically addresses for management is called management accounting information. This information is used in three management functions, namely: (1) planning, (2) implementation, (3) control.

Management accounting information is presented to the company management in various reports, such as budgets, sales reports, production cost reports, cost reports according to responsibility center, cost reports according to activity, and others.

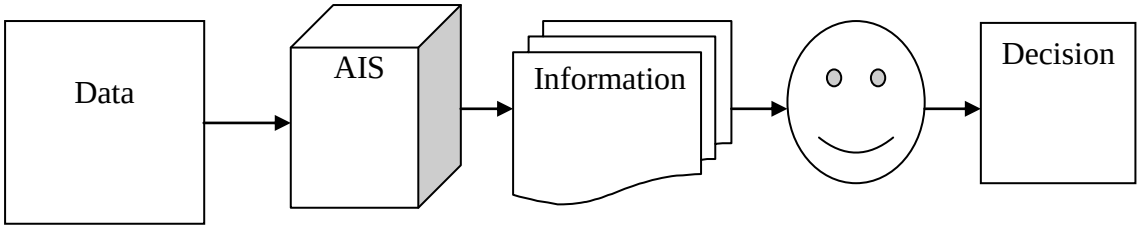
3. Financial Accounting Information

Financial accounting information used by both company managers and external parties, with aim to provide information concerning the financial position, performance and financial changes in an enterprise that benefits a large number of users in making economic decisions (Wilkinson, 1989).

Financial accounting information to outside parties presented in the financial statements consisting of balance sheet, income statement, and statement of retained earnings, statement of cash flows. In order to make data become

financial information, business used accounting information system to process the raw data into financial information, see figure 2.3. Outsiders who use this financial report are including shareholders, creditors, government agencies or institutions, and the general public where each party has different interests.

Figure 2.3
Accounting Information System Process



Source: Romney and Steinbart (2009)

Accounting Information System provides benefit and competitive advantage within a company. Romney and Steinbart (2009) explained three benefits of accounting information system: (1) accounting information system can be used to process transactions virtually every business enterprise requires the exact recording of data concerning the daily operations of transactions that will be processed into useful information for interested parties, (2) accounting information system can assist in making decisions, (3) accounting information system provides adequate controls to safeguard enterprise assets including the data.

2.1.8. Computer Based Accounting Information System

According to McLeod (2007) there are two kinds of information system, the first is manually based information system and the other ones is computer based information system. Same with general information system, Accounting Information System also based either manual or computer. Competition in

businesses have made many companies left the manually ways into computer or technology based information system.

Computerizing AIS changed the character of the component become automatically. However this can lead to benefit in order crating competitive advantages (Wilkinson, 1989). The improvements in performance that computer technology provides:

1. Faster processing of transactions and other data
2. Greater accuracy in computations and comparisons with data
3. Lower cost of processing each transaction
4. More timely preparation of reports and other output
5. More concise storage of the data, with greater accessibility when needed
6. Larger range of choices for entering data and providing outputs
7. Higher productivity for employees and managers, especially when they effectively use computers to aid in their routine (and also decision-making) responsibilities.

2.1.9. Previous Researches

Researches which tested the acceptance and use of technology with using a model of Technology Acceptance Model (TAM) have been carried out widely by the researchers of information systems. The researches were variety among the researchers with the modification of TAM or using different external variable. Here will be explained some previous research which related to this research either directly or indirectly.

1. Davis (1989)

David (1989) conducted a research with title "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology". The purpose of this research was to pursue better measures for predicting and explaining use. The research was developed with TAM as the underlying theories and focuses on two theoretical constructs, perceived usefulness and perceived ease of use. Both these constructs are theoretically being fundamental determinants of system usage. This research gives potential contribution because it provides the basis for researches that recently done.

The research consists of two studies, study 1 at current usage and study 2 at future usage. The result of this research showed that perceived usefulness was significantly correlated with both self reported current usage (r=0,63) and self-predicted future usage (r=0,82). Perceived ease of use was also significantly correlated with current usage (r-0,45) and future usage (r=0,59). The research also resulted that usefulness had a significantly greater correlation with usage behavior than did ease of use.

2. Adams *et al.* (1992)

Adams et al. (1992) conducted a research with title "Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication". This research was the replication of Davis (1989) research. This research focus on evaluating the psychometric properties of the ease of use and usefulness scales, while examining the relationship between ease of use, usefulness, and system usage.

In this study a total of 118 respondents from 10 different organizations were surveyed for their attitudes toward two messaging technologies: voice and

electronic mail. The results of the studies demonstrate reliable and valid scales for measurement of perceived ease of use and usefulness. The results of this model are consistent with previous research for Study 1 (Davis, 1989), suggesting that usefulness is an important determinant of system use. For Study 2 (Davis, 1989) the results are somewhat mixed, but indicate the importance of both ease of use and usefulness.

3. Igbaria *et al.* (1995)

Research conducted by Iqbaria *et al.* (1995) with title "Testing the Determinants of Microcomputer Usage via a Structural Equation Model" incorporate external factors such as characteristics of the system, organization, individuals toward the usage of microcomputers, by integrating two models that describes the use of computers. Two kinds of model were used. The first model used by Davis, namely Technology Acceptance Model (TAM), the second model namely Theory of Planned Behavior (TPB). The analysis used in this research is using Structural Equation Modeling approach (SEM) with Partial Lease Square (PLS).

This model proved there was influence of external factors on the perceived ease of use and perceived usefulness and perceived ease of use on perceived usefulness and impact of perceived ease of use and the perceived usefulness of the variety of usage.

4. Venkatesh (2000)

Research by Venkatesh (2000) with title "Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the

Technology Acceptance Model" was done because very little research have been conducted to understand how the perception forms and changes over time toward perceived usefulness that influencing user acceptance and usage behavior of information technologies.

The model proposed control (internal and external-conceptualized as computer self-efficacy and facilitating conditions, respectively), intrinsic motivation (conceptualized as computer playfulness), and emotion (conceptualized as computer anxiety) as anchors that determine early perceptions about the ease of use of a new system.

The proposed model was tested in three different organizations among 246 employees using three measurements taken over a three-month period. The proposed model was strongly supported at all points measurement, and explained up to 60% of the variance in system-specific perceived ease of use, which is twice as much as our current understanding.

5. Rahadi (2007)

Research by Rahadi (2007) with title "*Peranan Teknologi Informasi Dalam Peningkatan Pelayanan Di Sektor Publik*" adopted the theory of technology acceptance model (TAM) which consist of three primary variables, usefulness, ease of use, and acceptance IT.

The research used analysis of structural equation model (SEM) with using sample from government employees who work in public sectors. The result showed ease of use and usefulness were not influenced to the acceptance IT. Conversely, ease of use was influenced to usefulness.

6. Seyal and Rahman (2007)

Research by Seyal and Rahman (2007) with title "The Influence of External Variables on The Executives Use of The Internet" has purposed to test and augment the original technology acceptance model (TAM) with three external variables: computer attitude, computer self-efficacy and personality to study the use of internet of the business executives not addressed previously.

The sample to this research was data from 105 business executives which selected randomly. The result showed that computer attitude has a significant effect on perceived ease of use (PEOU). Whereas, computer self-efficacy has significant but negative effect on PU and has a positive and significant effect on PEOU.

7. Selamat *et al.* (2009)

Research by Selamat *et al.* (2009) with title "Technology Acceptance in Malaysian Banking Industry" has purposed to examine the determinant factors and acceptance of information technology in the Malaysian banking industry. The research based on technology acceptance model (TAM) to study the perceived usefulness, perceived ease of use, social pressure, perceived enjoyment and fun, as well as perceived complexity of IT usage and acceptance of Malaysian bankers.

The sample selected of 200 bankers located within the Klang Valley in Malaysia. The results of the study established that perceived usefulness was the most influential in determining microcomputer usage among bankers in Malaysia.

8. Jahangir and Begum (2008)

Research done by Jahangir and Begum (2008) with title "The Role of Perceived Usefulness, Perceived Ease of Use, Security and Privacy, and Customer Attitude to Engender Customer Adaptation in The Context of Electronic Banking" was aimed to test the theoretical models to measure the causality whether perceived usefulness, ease of use, security and privacy, and customer attitude can foster customer adaptation.

The analysis method employ structural equation modeling techniques and used data collected from 227 customers of private commercial banks in Bangladesh. The initial results of the study indicate that perceived usefulness, ease of use, security and privacy, and customer attitude are significantly and positively related to customer adaptation.

9. Rouibah *et al.* (2009)

Rouibah *et al*. (2009) conducted a research with title "Effect of Management Support, Training, and User Involvement on System Usage and Satisfaction in Kuwait" The purpose of this research was to investigate the organizational factors and human motivations affecting information systems and information technology (IS/IT) usage and user's satisfaction in an Arabic country.

Rouibah *et al.* (2009) developed a research model that links three organizational factors (top management support – TMS, availability of training, and user's involvement) to IS/IT usage and end-user's satisfaction via the mediation of TAM beliefs (usefulness and ease-of-use) through 382 IS users in public sectors. The model was examined with SEM through the LISREL.

The results in this research indicated that IS/IT usage and user satisfaction is largely influenced by perceived usefulness. Among the organizational factors, TMS was found to have the strongest effect on IS/IT usage and user's satisfaction, followed by availability of training and user involvement.

For further details, these studies can be summarized, see table 2.2., as follows:

Table 2.2
List of Previous Researchers

Researcher	Title of Research	Variable Used	Result
1. Davis (1989)	Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology	Perceived usefulness, perceived ease of use, and system usage	Perceived usefulness was found significantly correlated with both self reported current usage (r=0,63) and self-predicted future usage (r=0,82). Perceived ease of use was also significantly correlated with current usage (r-0,45) and future usage (r=0,59). The research also resulted that usefulness had a significantly greater correlation with usage behavior than did ease of use.
2. Adams *et al.* (1992)	Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication	Perceived usefulness, perceived ease of use, and system usage	The results of this research are consistent with previous research for Study 1 (Davis, 1989), suggesting that

			usefulness is an important determinant of system use. For Study 2 (Davis, 1989) the results are somewhat mixed, but indicate the importance of both ease of use and usefulness.
3. Igbaria *et al.* (1995)	Testing the Determinants of Microcomputer Usage via a Structural Equation Model	Perceived usefulness, perceived ease of use, microcomputer acceptance, intra-organizational factors, and extra-organizational factors	There was influence of external factors on the perceived ease of use and perceived usefulness and perceived ease of use on perceived usefulness and impact of perceived ease of use and the perceived usefulness of the variety on usage.
4. Venkatesh (2000)	Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model	Perceived usefulness, perceived ease of use, behavior intention to use, experience, computer self-efficacy, perceptions of internal control, computer anxiety, computer playfulness, perceived enjoyment, objective usability	The proposed model was strongly supported at all points measurement, and explained up to 60% of the variance in system-specific perceived ease of use, which is twice as much as our current understanding.
5. Rahadi (2007)	*Peranan Teknologi*	Perceived usefulness,	Ease of use and usefulness were

	Informasi Dalam Peningkatan Pelayanan Di Sektor Publik	perceived ease of use, and IT acceptance	not influenced to the acceptance IT. Conversely, ease of use was influenced to usefulness.
6. Seyal and Rahman (2007)	The Influence of External Variables on The Executives Use of The Internet	Computer self efficacy , personality Risk-taking, personality autonomy, computer attitude, perceived usefulness, perceived ease of use, and business executives use of internet	Computer attitude has a significant effect on perceived ease of use (PEOU). Whereas, computer self-efficacy has significant but negative effect on PU and has a positive and significant effect on PEOU.
7. Selamat *et al.* (2007)	Technology Acceptance in Malaysian Banking Industry	Perceived usefulness, perceived ease of use, social pressure, perceived enjoyment & fun, perceived complexity, and IT usage	Perceived usefulness was most influential in determining microcomputer usage among bankers in Malaysia.
8. Jahangir and Begum (2008)		Perceived usefulness, perceived ease of use, security and privacy, customer attitude, and customer adaptation	Perceived usefulness, ease of use, security and privacy, and customer attitude were significantly and positively related to customer adaptation.
9. Rouibah *et al.* (2009)	Effect of Management Support, Training, and User Involvement on	Top management support, training, user involvement, perceived usefulness,	IS/IT usage and user satisfaction is largely influenced by perceived usefulness.

	System Usage and Satisfaction in Kuwait	perceived ease of use, system usage, and user satisfaction	Among the organizational factors, TMS was found to have the strongest effect on IS/IT usage and user's satisfaction, followed by availability of training and user involvement.

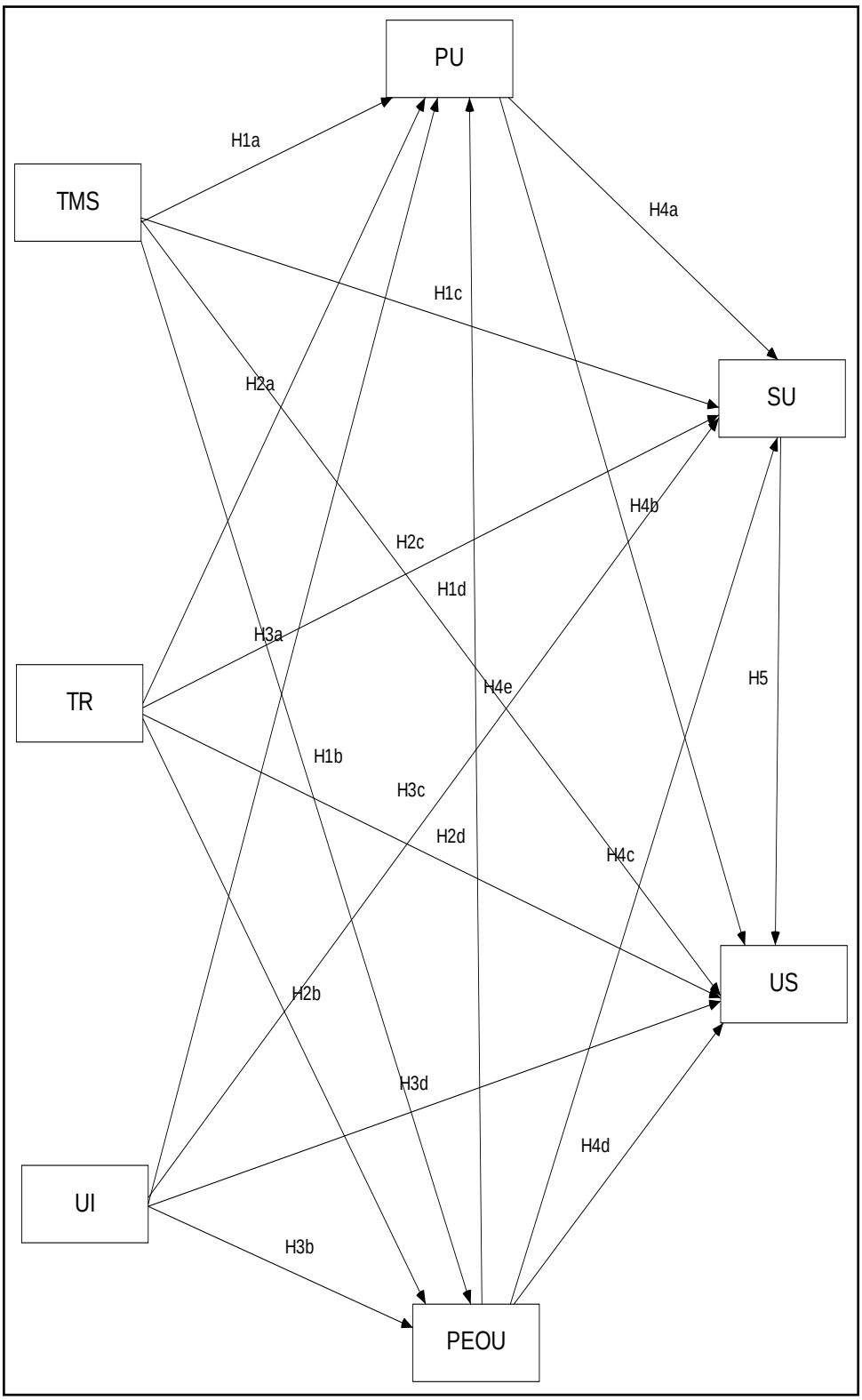
Based on these studies can be concluded that technology acceptance model (TAM) were used in varieties according to the needs. TAM can be modified with either user acceptance variables or external variables. In this research, construct is limited based on Rouibah *et al.* (2009) who study the user acceptance (user satisfaction and system usage) with using two belief (perceived usefulness and perceived ease of use) toward external organizational variables (top management support, training, and user involvement).

2.2. Theoretical Framework

This study uses a framework based on variables that have been tested in research by Rouibah *et al.* (2009). Thus, the framework of this research can be described in figure 2.4.

As can be seen below in figure 2.4, this theoretical framework describes the relation three organizational variables which are used (TMS, TR, and UI) directly to user acceptance or indirectly through two belief, perceived usefulness (PU) and perceived ease of use (PEOU).

Figure 2.4
Theoretical Framework



Source: Rouibah *et al.* (2009)

2.3. Hypothesis Development

2.3.1. Effect of Top Management Support on Perceived Usefulness, Perceived Ease of Use, System Usage, and User Satisfaction

The expectancy theory explains causes for behaviors exhibited in the workplace Leonard *et al* (in Issac et al., 2001). Here can be explained that the support that management given is viewed as stimuli to influence the attitude of employees to using information system or technology that expected to enhance the work performance of the employees.

Using technology acceptance model, support from top management that given to the information system user will create belief, perceived usefulness and ease of use for information system which is used. Several researches have proved that given support from top management (TMS) will influence the perceived usefulness (PU) for the user (Igbaria *et al*., 1995; Al-Gahtani and King, 1999; Lewis *et al*., 2003; and Rouibah *et al.*, 2009). As well as on perceived ease of use (PEOU), the support of management purposed the user of the system will give encourage to the user so it can create belief that use information system will makes their task easier. This is supported by Igbaria *et al.* (1995), Lewis *et al*. (2003), and Rouibah *et al.* (2009) that proved top management support (TMS) affected perceived ease of use (PEOU).

Top management support (TMS) also influences both user satisfaction (US) and system usage (SU). User satisfies and more willing to use the information system if the system is useful and easy to use. Directly, the support also will bring satisfaction and increasing usage of the information system.

Researches about the influence of top management support (TMS) on system usage (SU) have been proved by Al-Gahtani and King (1999), Rouibah *et al*. (2009). Influence of top management support (TMS) on user satisfaction (US) were proved by Al-Gahtani and King (1999), Kim and Kim (2008), and Rouibah *et al*. (2009).

Based on the theories that are mentioned above and previous researches which showed the influence of top management support on perceived usefulness, perceived ease of use, system usage, and user satisfaction, the hypothesis is stated as follows:

H1a: Top management support (TMS) will directly and indirectly affect perceived usefulness (PU)

H1b: Top management support (TMS) will directly affect perceived ease of use (PEOU)

H1c: Top management support (TMS) will directly and indirectly affect system usage (SU)

H1d: Top management support (TMS) will directly and indirectly affect user satisfaction (US)

2.3.2. Effect of Training on Perceived Usefulness, Perceived Ease of Use, System Usage, and User Satisfaction

Technology acceptance depends on the technology itself and level of skill or expertise of the individual using technology (Igbaria *et al*. 1995). Expectancy theory explain with the availability training given to the user of the information system, it is expected the user ability to use the information system will increase.

The motivation that companies given will affect the user attitudes which will increase their performance.

Using technology acceptance model, training that given to the information system user will create belief, perceived usefulness and ease of use for information system which is used. Several researches have proved that training (TR) will influence the perceived usefulness (PU) for the user (Igbaria *et al*., 1995; Rouibah *et al*., 2009). As well as on perceived ease of use (PEOU), the training will ease user in using information system or technology because with training user became more experience and skillful. Influence training (TR) on perceived ease of use (PEOU) also supported by some researches like Taylor and Todd (1995), Venkatesh (2000), Davis (1989), and Rouibah *et al*., (2009).

Training (TR) also influences both user satisfaction (US) and system usage (SU). User satisfies and more willing to use the information system if the system is useful and easy to use. The training also will bring satisfaction and increasing usage of the information system. Research about the influence of training (TR) on system usage (SU) has been proved by Igbaria *et al*. (1995), Al-Gahtani and King (1999). Then Al-Gahtani (2004) proved that there was influence of training (TR) on user satisfaction (US)

Based on the theories that are mentioned above and previous researches which showed the influence of training on perceived usefulness, perceived ease of use, system usage, and user satisfaction, the hypothesis is stated as follows:

H2a: Training will directly and indirectly affect perceived usefulness

H2b: Training will directly affect perceived ease of use

H2c: Training will directly and indirectly affect system usage

H2d: Training will directly and indirectly affect user satisfaction

2.3.3. Effect of User Involvement on Perceived Usefulness, Perceived Ease of Use, System Usage, and User Satisfaction

According the expectancy theory involving the Information System user is believed will improve the level of acceptance system. The information system which developed will appropriate with what the user needs. Thus, user who involved in information system is expected will increase their acceptance level toward system and enhance their performance.

User involvement will create belief, perceived usefulness and ease of use for information system which is used. User can decide whether the system is appropriate with the work or not. Several researches have proved that user involvement (UI) will influence the perceived usefulness (PU) for the user (Kujala (2003); and Rouibah *et al.*, 2009). As well as on perceived ease of use (PEOU), involving the user will ease user in using information system or technology because with the user will become more familiar with the information system. Rouibah *et al.* (2009) proved that there was influence of user involvement (UI) on perceived ease of use (PEOU).

User involvement (UI) also influences both user satisfaction (US) and system usage (SU). User satisfies and more willing to use the information system if the system is useful and easy to use. With involving user, it will bring satisfaction that can lead in increasing usage of the information system. Research about the influence of user involvement (UI) on system usage (SU) have been

proved by Igbaria *et al*. (1995), Rouibah *et al*. (2009), Kujala (2003). Al-Gahtani and King (1999), and Kujala (2008) proved that there was influence of user involvement (UI) on user satisfaction (US).

Based on the theories that are mentioned above and previous researches which showed the influence of user involvement on perceived usefulness, perceived ease of use, system usage, and user satisfaction, the hypothesis is stated as follows:

H3a: User involvement (UI) will directly and indirectly affect perceived usefulness (PU)

H3b: User involvement (UI) will directly affect perceived ease of use (PEOU)

H3c: User involvement (UI) will directly and indirectly affect system usage (SU)

H3d: User involvement (UI) will directly and indirectly affect user satisfaction (US)

2.3.4. Effect of Perceived Usefulness, and Perceived Ease of Use on System Usage and User satisfaction, and Effect of Perceived Ease of Use on Perceived Usefulness

Based on TAM, Davis (1989) mentioned user satisfaction and system usage known be affected by two belief, perceived usefulness (PU) and perceived ease of use (PEOU). Research by Igbaria *et al*. (1995) and Al-Gahtani and King (1999), and Rouibah *et al*. (2009) proved that there was influence that perceived usefulness (PU) affect system usage (SU). Other research by Rouibah and Hamdy (2009), and Rouibah *et al*. (2009) found that perceived usefulness (PU) also affect user satisfaction (SU). Based on the theory that was mentioned above and

previous researches which showed the influence of perceived usefulness on system usage, and user satisfaction, the hypothesis is stated as follows:

H4a: Perceived usefulness will directly affect perceived system usage

H4b: Perceived usefulness will directly and indirectly affect user satisfaction

Research by Igbaria *et al*. (1995), Rouibah and Hamdy (2009) proved that there was influence that perceived ease of use (PEOU) affects system usage (SU). Other research by Davis (1989), Taylor and Todd (1995) found that perceived usefulness (PU) also affect user satisfaction (SU). Despite affects on system usage (SU) and user satisfaction (SU), further research by Rouibah and Hamdy (2009) found that perceived ease of use (PEOU) affect perceived usefulness (PU). Rahadi, (2007) also proved that perceived usefulness affect on perceived usefulness. Based on the theory that was mentioned above and previous researches which showed the influence of perceived usefulness on system usage, and user satisfaction, the hypothesis is stated as follows:

H4c: Perceived ease of use will directly and indirectly affect system usage

H4d: Perceived ease of use will directly affect perceived usefulness

H4e: Perceived ease of use will directly and indirectly affect user satisfaction

2.3.5. Effect of System Usage on User Satisfaction

According to Rouibah and Hamdy (2009), the more end-users use the system, the more they will feel to be satisfied. The user which feels satisfied can be looked from how often they use the system after they have used the information system. This model also supported by other researchers like Al-

Gahtani (2004), and Rouibah *et al.* (2009). Based on the previous research, the hypothesis is stated as follows:

H5: System usage will directly affect user satisfaction

CHAPTER III

RESEARCH METHOD

3.1. Research Variables and Operational Definition

3.1.1. Top Management Support

Top management support (TMS) is defined as set up the structures of signification, legitimization, and domination that reveal to individuals the ways in which the technology might be useful in their work process and task activities. Purvis (in Lewis, 2003) stated that top management support shapes individuals belief that the technology is useful for work activities and that its use in the salient work activities will be normatively valued and instrumentally rewarded.

Based on the TAM, Davis *et al.* (1989) also proposed that belief (perceived ease of use and perceived usefulness) were affected by organizational support/ management support. Organizational support/ management support has been emphasized by several researchers as a potential determinant of system success (Igbaria *et al.,* 1995). Igbaria *et al.* (1995) found that lack in the organizational support is considered as a critical barrier to the effective utilization of computers. The result was strengthened by Rouibah *et al.* (2009) who found TMS as the largest variable which influence system usage and user satisfaction.

From the definition above is known that support from top management gives guidance and encourage the information system user to more used system so the task will be easier. Igbaria *et al.* (1995) stated that top management support consists of two supports: end support and management support, the end support

includes the availability of system development assistance, specialized instruction, and guidance in using information system whereas the management support includes top management encouragement and allocation of resources. Overall, top management support is the way for organizational management to signaling the user to do the expected behavior.

In the structure equation model (SEM), this variable is known as exogenous variable. Top management support in the path diagram abbreviated as TMS. Top management support (TMS) that used in this research is used to know the influence top management support on perceived usefulness, perceived ease of use, system usage, and user satisfaction. Top management support (TMS) is assessed with eight items adapted from Rouibah *et al.* (2009). Respondents are asked to express their agreement/ disagreement with eight statements concerning organizational support on a five-point Likert-scale ranging from (1) "strongly disagree to (5) "strongly agree".

3.1.2. Training

User training (TR) which represents as individual skills and expertise were found to be related to user beliefs and usage (Igbaria *et al.* 1995). Research by Zmud (in Igbaria *et al.,* 1995) proved training as critical factor for IS success through the acceptance of IS/ IT. Study by Igbaria *et al.* (1995) also found that user training plays a very important role in influencing user beliefs toward the system and that training programs are likely to increase user confidence in their ability to master and use computers in their work. Concluded from the definition that the more training is given to the user, the more they will adapt the system.

The training creates experience and build up user skill in order operates the system.

In the structure equation model (SEM), this variable is known as exogenous variable. Training in the path diagram abbreviated as TR. Training (TR) that used in this research is used to know the influence training on perceived usefulness, perceived ease of use, system usage, and user satisfaction. Training (TR) is assessed with five items adapted from Rouibah *et al.* (2009). Respondents are asked to express their agreement/ disagreement with five statements concerning training on a five-point Likert-scale ranging from (1) "strongly disagree to (5) "strongly agree".

3.1.3. User Involvement

There is no clear definition about user involvement (UI), but Kujala (2003) found user involvement (UI) was synonymous with "focus on user" (Wilson *et al.* in Kujala 2003), "consulting end-user" (Noyes, *et al.* in Kujala, 2003), "contacting with system user (Grudin in Kujala, 2003), "participation of users" (Heinbokel *et al.* in Kujala, 2003). User involvement can be seen to a general term describing contact with users and covering many approaches. Kujala (2003) conducted three streams research and found clearly it has positive effect on both system success and user satisfaction. Involving the user also will increase the chance system being more accepted to support daily work. With the advancement of Information System and software, Kujala (2008) showed that user involvement not only provides useful information about users needs but also increases the understanding of user's values.

In the structure equation model (SEM), this variable is known as exogenous variable. User involvement in the path diagram abbreviated as UI. User involvement that used in this research is used to know the influence user involvement on perceived usefulness, perceived ease of use, system usage, and user satisfaction. User involvement (UI) is assessed with two items adapted from Rouibah *et al.* (2009). Respondents are asked to express their agreement/ disagreement with two statements concerning user involvement on a five-point Likert-scale ranging from (1) “strongly disagree to (5) “strongly agree”.

3.1.4. Perceived Usefulness

Davis (1989) defined perceived usefulness (PU) as the degree to which an individual believes that using the system will enhance his job performance. Based on the definition can be known that usefulness of using information systems is purposed to improve performance, and achievement of people who use them. Generally, user will use the information system if they feel it is useful to them (Jogiyanto, 2007). Igbaria *et al*. (1995) found there was a strong relationship between perceived usefulness and system usage. Similarly, Ndbusi and Jantan (2003) proved perceived usefulness (PU) is robust in determining usage, while having direct effect on usage and also mediating in the relationship between PEOU and usage. In Rouibah *et al.* (2009) has been proved that perceived usefulness (PU) influence largely on system usage and user satisfaction rather than perceived ease of use (PEOU)

Chin and Todd (1995) developed several dimensions about IT usefulness that included to two categories, (1) usefulness with a factor estimated, and (2)

usefulness with two factor estimated. Usefulness with a factor estimated include as follows:

1. Makes job easier
2. Useful
3. Increase productivity
4. Enhance effectiveness
5. Improve job performance

Usefulness with two factors estimated by Chin and Todd (1995) divided into two categories, as follows:

1. Usefulness that covered dimension:
    a. Makes job easier
    b. Useful
    c. Increase productivity
2. Effectively that covered dimension:
    a. Enhance my effectiveness
    b. Improve my job performance

Based on some definitions and literature review above can be concluded that the uses of information technology can be knew from how much the users of information technology trust that information system will give positive contribution to them.

In the structure equation model (SEM), this variable is known as endogenous variable. Perceived usefulness in the path diagram abbreviated as PU. Perceived usefulness (PU) that used in this research is used to know the influence

perceived usefulness (PU) on system usage, and user satisfaction. Perceived usefulness (PU) is assessed with six items adapted from Rouibah *et al.* (2009). Respondents are asked to express their agreement/ disagreement with six statements concerning perceived usefulness on a five-point Likert-scale ranging from (1) “strongly disagree to (5) “strongly agree”.

3.1.5. Perceived Ease of Use

Davis (1989) defined perceived ease of use (PEOU) as the degree to which an individual believes that using computer or computerized system will be free from physical and mental efforts. Hence an application perceived to be easier to use than another is more likely to be accepted by users and the more complex technology is perceived as being, the slower will be its rate of adoption (Selamat *et al.* 2007). The definition above means ease of use will decrease effort which user meets in learning information system. So that with using information system the user feel easier in facing works rather than work without using information system. Davis (1989) stated some indicators about ease of use, such as:

1. Computers are very easy to learn,
2. Computer easy to do with what is desired by users
3. User`s skills increased by using a computer
4. Computers are very easy to be operated

Adams *et al.* (1992) stated system that easy to use can be look from the intensity the system being used. When the information system is often used it creates satisfaction on the system user (Rouibah *et al.* 2009)

In the structure equation model (SEM), this variable is known as endogenous variable. Perceived ease of use in the path diagram abbreviated as PEOU. Perceived ease of use (PEOU) that used in this research is used to know the influence perceived ease of use (PEOU) on perceived usefulness, system usage, and user satisfaction. Perceived ease of use (PEOU) is assessed with two items adapted from Rouibah *et al.* (2009). Respondents are asked to express their agreement/ disagreement with two statements concerning perceived ease of use on a five-point Likert-scale ranging from (1) "strongly disagree to (5) "strongly agree".

3.1.6. System Usage

DeLone and McLean (1992) mentioned system usage is one of measure in information system success. The information system success can be looked from the level system being used by the user to complete the job. Rouibah *et al.* (2009) proved system being used if it's found useful, while Rouibah and Hamdy (2009) found the ease of use affected the current use. From the two results can be concluding that both PU and PEOU altogether increase the usage of system.

In the structure equation model (SEM), this variable is known as endogenous variable. System usage in the path diagram abbreviated as SU. System usage (SU) that used in this research is used to know the influence system usage on user satisfaction. System usage (SU) is assessed with three items adapted from Rouibah *et al.* (2009). Respondents are asked to express their agreement/ disagreement with three statements concerning system usage on a five-point Likert-scale ranging from (1) "strongly disagree to (5) "strongly agree".

3.1.7. User Satisfaction

Like system usage (SU), user satisfaction was found as one construct in IS success (DeLone and McLean, 1992). The successful interaction by user of the information system with the system can be measure through satisfaction. DeLone and McLean (1992) mentioned there are three reasons why user satisfaction became widely used. Firstly, satisfaction has a high degree of face validity. It is hard to deny the success of a system which its users say that they like. Second, the development of the Bailey and Pearson instrument and its derivatives has provide a reliable tool for measuring satisfaction and for making comparisons among studies. The third reason for the appeal of satisfaction as a success measure is that most of the other measures are so poor; they are either conceptually weak or empirically difficult to obtain.

In the structure equation model (SEM), this variable is known as endogenous variable. User satisfaction in the path diagram abbreviated as US. User satisfaction (US) is assessed with seven items adapted from Rouibah *et al.* (2009). Respondents are asked to express their agreement/ disagreement with seven statements concerning user satisfaction on a five-point Likert-scale ranging from (1) “strongly disagree to (5) “strongly agree”.

3.2. Population and Sample Determination

Population refers to the entire group of people, events, or things of interest that the researcher wishes to investigate (Sekaran, 2003). Sample is a subset of population (Sekaran, 2003). Population in this research is the users of accounting

information system who work on *Bank Pekreditan Rakyat* in the Semarang City Region. In the Semarang city region there are 20 *Bank Pekreditan Rakyat* which become population of this research. From this population, this research takes 10 samples on the users of accounting information system who work in the financial and operational department on *Bank Pekreditan Rakyat* in Semarang City Region.

The sampling method of this research is purposive sampling. The reason is the obtained data will accordance with the research objectives and can be compared with previous studies. The criteria of the sample must using information system that related to the accounting task and they must work in the operational and financial department.

3.3. Types and Sources of the Data

This research uses two kind of data used during this research:

1. Primary data. Data collected firsthand for subsequent analysis to find solutions to the problem researched (Sekaran, 2003). Primary data collected from questioners which send to the respondents. The questioners is used to measure IS success.
2. Secondary data. Data that have already been gathered by researchers, data published in statistical and other journals, and information available from any published or unpublished source available either within or outside the organization, all of which might be useful to the researcher (Sekaran, 2003). This research uses secondary as additional information to help the research analysis.

3.4. Data Collection Method

Data collection in this study is conducted with survey method by spreading directly the list of questions in the form of questionnaire. The questionnaire is filled by the respondent from staff in *Bank Pekreditan Rakyat* (*BPR*) Semarang City region who works in the financial and operational department. Before the questionnaire is given, first each firm is asked about their willingness to become a respondent and let their staff to fill the questionnaire. The next step is delivers a pack of questionnaire which consists of ten questionnaires. When the questionnaires are delivered, respondents are explained about the questioners include the purpose of the research and how the questioners should be filled. This step is purposed for gains high amount rate of return (response rate) and avoids failed questionnaires. The questionnaire presented to the respondent along with a written request to become respondent and an explanation about how to fill it with some instructions. The questionnaire consists of two parts: the first part contains the identity of respondents, while the second part contains a number of questions and statements that have been structured on factors which influence the acceptance in accounting information system such as, top management support (TMS), training (TR), user involvement (UI), perceived ease of use (PEOU), perceived usefulness (PU), system usage (SU), and user satisfaction (US).

The questionnaire also contains a request to return the questionnaire that has been filled not later than two weeks commencing from time respondent receives the questionnaire. Then, the questionnaires which have been filled by the respondents are selected to separate usable questioners with the failed ones.

3.5. Analysis Method

3.5.1. Descriptive Statistic

This research uses descriptive statistics to illustrate about the demographic of research respondents and description of independent variables to determine the absolute frequency distribution that shows the average, median, range, and standard deviation (Ghozali, 2006). SPSS 16 is used to conduct descriptive statistic.

3.5.2. Hypothesis Test

Hypothesis test in this study is conducted by Structural Equation Model with using AMOS 6 software. Structural equation model (SEM) is combination of factor analysis and path analysis which makes it into a comprehensive statistic method (Ghozali, 2008).

First, path diagram which based on the research by Rouibah *et al.* (2009) is constructed. This path diagram is analyzed and resulting four regression equation as follow:

PEOU $= \gamma_1 \text{TMS} + \gamma_5 \text{TR} + \gamma_9 \text{UI} + \varepsilon_1$

PU $= \gamma_2 \text{TMS} + \gamma_6 \text{TR} + \gamma_{10} \text{UI} + \beta_1 \text{ PEOU} + \varepsilon_2$

SU $= \gamma_3 \text{TMS} + \gamma_7 \text{TR} + \gamma_{11} \text{UI} + \beta_2 \text{ PEOU} + \beta_4 \text{ PU} + \varepsilon_3$

US $= \gamma_4 \text{TMS} + \gamma_8 \text{TR} + \gamma_{12} \text{UI} + \beta_3 \text{ PEOU} + \beta_5 \text{ PU} + \beta_6 \text{ SU} + \varepsilon_4$

This research applied two kinds of analysis techniques, namely:

1. Confirmatory Factor Analysis and Construct Validity, confirmatory factor analysis is used to ensure the data is valid and reliable. There are four test

in validity test, they are: (1) convergent validity, (2) variance extracted, (3) construct reliability, and (4) discriminant validity.

2. Regression Weight Analysis, Regression Weight Analysis is used to examine how much influence between the variables. Before Regression weight analysis is applied. The model is assessed for its goodness of fit. This research is using maximum likelihood estimation. The construct model is assessed with goodness of fit measures such as: CMIN/DF, RMR, GFI, NFI, RFI, IFI, TLI, CFI, RMSEA, AIC, CAIC and ECVI.

SEM is used in this research because of its ability to combines the measurement model with the structural model simultaneously and efficiently when compared with other multivariate techniques (Ghozali, 2008).