

# Influence of Management Commitment and Organizational Structure on Application of ERP System & Its Impact on Quality of Accounting Information: A Survey in Vietnamese Telecommunication Enterprises

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## Abstract

The purpose of this study was to determine the influence of management commitment and organizational structure to the application of the enterprise resource planning (ERP) system and its implications on the quality of the accounting information at Vietnamese Telecommunication enterprises (VTEs). In order to achieve the goal of this study, the researcher chooses to survey VTEs that uses ERP systems. A questionnaire was designed and distributed to a sample of accountants and financial managers who works at such companies. A survey with 286 usable questionnaire responses is used to test the research hypotheses. The results show that both management commitment and organizational structure affect the level of ERP application, in which management commitment is the most influential factor. In addition, the ERP application also contributes to improving the quality of accounting information. The research model used is the structure equation model (SEM).

**Keywords:** ERP system, information accounting quality, management commitment, organizational structure, Vietnam

## 1. Introduction

In recent years, Vietnam's telecommunication enterprises (VTEs) have made great achievements and important contributions to the country's socio-economic development (Ministry of Information and Communications of Vietnam, 2017). With the development of the market economy, production and business activities of corporations are increasingly expanded, become more complex and diversified. Information for business management and operation has thus become more and more demanded and important. In addition, in the process of international economic integration, besides opportunities, VTEs also face many challenges, especially competitive pressure from international telecom corporations (Nguyen Thanh Hung, 2017). As a result, reducing costs, lowering the cost of providing quality telecommunication services at reasonable rates and ensuring business efficiency are important tasks for VTEs in the future. In that context, accounting information is one of the most important, highly reliable sources of information that support enterprise management to achieve that goal.

In recent times, with the widespread of the technology revolution 4.0, the application of enterprise management software in general and ERP software in particular in Vietnamese enterprises have steadily increased. The objective of the ERP system is to collect sufficient information on the operation of the organization, to ensure resources for enterprise (such as financial resources, human resources, materials, machinery...) always available in sufficient quantity as needed, through the use of planning tools and detailed planning (Nguyen Viet & Vu Quoc Thong, 2016). VTEs are large-scale enterprises, operating in large areas; organizational structure often is the parent-subsidary model with management decentralization. Due to the interconnect nature of accounting information, VTEs need to have coordination between departments and centers in collecting and processing information. ERP systems are software packages that integrate a number of business processes, such as manufacturing, supply chain, sales, finance, human resources, budgeting and customer service activities (Amalnick et al., 2011). Therefore, it allows easy and immediate access to information regarding inventory, product or customer data, and prior history information, lead to enhance the integration of information and operations among parties involved and provide output information faster (Shehab et al., 2004). From there, the enterprise can overcome spatial limitations and provides reliable and fast accounting information with the integration of the database. By influencing the process of data collecting, data processing,

information analysis, as well as system control, ERP affects the quality of accounting information, which is the accuracy, timeliness and relevance of information (Sutton, 2006).

In Vietnam, the application of ERP system in enterprise has encountered many difficulties and obstacles. That also has a significant impact on the quality of accounting information in VTEs in the recent years. The purpose of the study is: (1) to study the impact of management commitment and organizational structure on ERP system application; (2) to assess the effect of management commitment and ERP system application to the quality of accounting information in Vietnam Telecommunication enterprises.

The remainder of the paper is structured as follows: section two discusses the literature review along with the research hypotheses development. The research methodology, data analysis and hypothesis testing, are discussed in section three and four respectively. Section five presents the conclusions along with the implications of the study. Finally, the limitations and further research is presented in section six.

## **2. Literature Review and Research Hypothesis**

### *2.1 Organizational Structure and ERP System Application*

Organizational structure is the formal system of task and authority relationships that control how people coordinate their actions and use resources to achieve organizational goals (Jones, 2010). Organizational structure is formally dictated on how jobs and tasks are distributed and coordinated between individuals and groups within the company (Lussier, 2008). When managers develop or change an organization's structure, they are engaged in organizational design, a process that involves decisions about four key elements: division of labor, hierarchy, span of control and line and staff (Starling, 2008). Therefore, the organizational structure always has influences on an enterprise's accounting information system, determining the type of information provided to managers at each level, so that they perform their management functions for the enterprise, such as information for short-term, long-term and strategic decision making. Stair & Reynolds (2011) argue that the organizational structure affects the application of software system in an enterprise's management information system. Similarly, in the study by Gurbaxani & Wang (1991), organizational structure is shown to have influences on the application of management software by providing information more accurately, exactly and flexibly. Dezdar & Ainin (2011) shows that organizational structure of an enterprise can have impact on its ERP system application. Specifically, the application of ERP system helps encouraging employees. Once an organizations decide to adopt ERP systems, they have to communicate to explain and justify their actions. What is important is how the business justification for the ERP system is translated to lower level employees so that they feel motivated to go along with the implementation and do not resist the changes that will occur. Implementing an ERP system encourages communication and can lead to more acceptances of these changes and the reduction of unnecessary worries. Al-Mashari (2003), Egdair et al. (2017) argue that ERP implementation will fail without considering the compatibility of organizational structure with the ERP system. The enterprise may face internal conflicts due to changes in business processes, organization size, centralization as well as span of control. Organizational changes in structure have to be managed prior to, during, and after ERP implementation. Therefore, in order to successfully design and implement an ERP system, management needs to consider the compatibility of their organizational structure with the ERP system. Thus, we hypothesize that:

*H1: Organizational structure has influences on ERP application.*

### *2.2 Management Commitment and ERP System Application*

Management commitment is defined as engaging in and maintaining behaviors that help others achieve a goal (Cooper, 2006). Management commitment includes investing and upgrading the information technology system, which will be ready to provide necessary resources and authority to the implementation of a project (Englund & Bucero, 2006). According to Siakas and Georgiadou (2002) management commitment is one of the driving factors for motivating employees to strive for continuous process of improvement. Management commitment has been emphasized, as a crucial factor in successful ERP implementation by Al-Mashari (2003), Umble et al. (2003). According to Zhang et al. (2005), management commitment in implementing ERP project has two main aspects: (1) providing the necessary resources and leadership; and (2) establishing rational objectives for the ERP implementation. These actions will facilitate the successful implementation of ERP in the organization. Moreover, the commitment and support from management should not stop at the initiation and facilitation stage, but it should continue throughout the entire ERP implementation process (Al-Mashari, 2003). Therefore, we hypothesize the second hypothesis:

*H2: Management commitment has influences on ERP system application.*

### 2.3 Management Commitment and Accounting Information Quality

Accounting information is considered to be of value when it is useful to users for decision making (Xu, 2003; Gelinas et al., 2012). The quality of accounting information can be evaluated by four attributes accuracy: timeliness, completeness and consistency (Mc Leod & Schell, 2007; Al-Hakim, 2007). Xu (2003) argued that management commitment was the most important factor among 25 factors affecting the quality of accounting information. If enterprises want quality accounting information, managers need to commit and take specific actions such as control the input data and data processing process to ensure and maintain the quality of accounting information system. In turn, Al-Eqab & Ismail (2011) and Meiryani (2014) confirmed that management commitment has a significant effect on the quality of accounting information and assist managers in making decisions. Therefore, we hypothesize that:

*H3: Management commitment has influences on the quality of accounting information.*

### 2.4 ERP System Application and Accounting Information Quality

In the recent years, enterprises in the world and Vietnamese enterprises in particular, have implemented ERP systems to improve their competitive advantage (Dezdar & Ainin, 2011; Nguyen Viet & Vu Quoc Thong, 2016). ERP allows a company to manage its business with potential benefits of improved process flow, reduced inventories, better data analysis, better customer service, and improved profit margins (Siriginidi, 2000; Fan and Fang, 2006). ERP system is an integrated system, which removes cross functions barrier and result in managers capability to access, process, analyze and disseminate information to external users quickly. As a result, ERP system has had impacts on the quality of accounting information (Ladewi, 2014). The accounting information provided with ERP system becomes more diverse, accurate, relevant, timely and complete. There are many researchers such as Scapens & Jazayeri (2003); Spathis & Constantinides (2004); Nicolaou (2004); and Galani et al. (2010) studied the relationship between ERP and quality of accounting information. Scapens & Jazayeri (2003) explored the experience of the American system (SAP) and concluded that the implementation of the ERP system provides the managers directly with useful information and increases the role of managerial accountants. In addition, Spathis & Constantinides (2004) studied the improvements offered by the ERP system to the process of accounting information in business, and to identify the ways to develop ERP system in the future. Therefore, we hypothesize that:

*H4: ERP system application has influences on the quality of accounting information.*

The objectives of this study are to examine the influence of management commitment and organizational structure on the application of ERP system and its implications to the quality of the accounting information. The theoretical framework was developed in (figure 1)

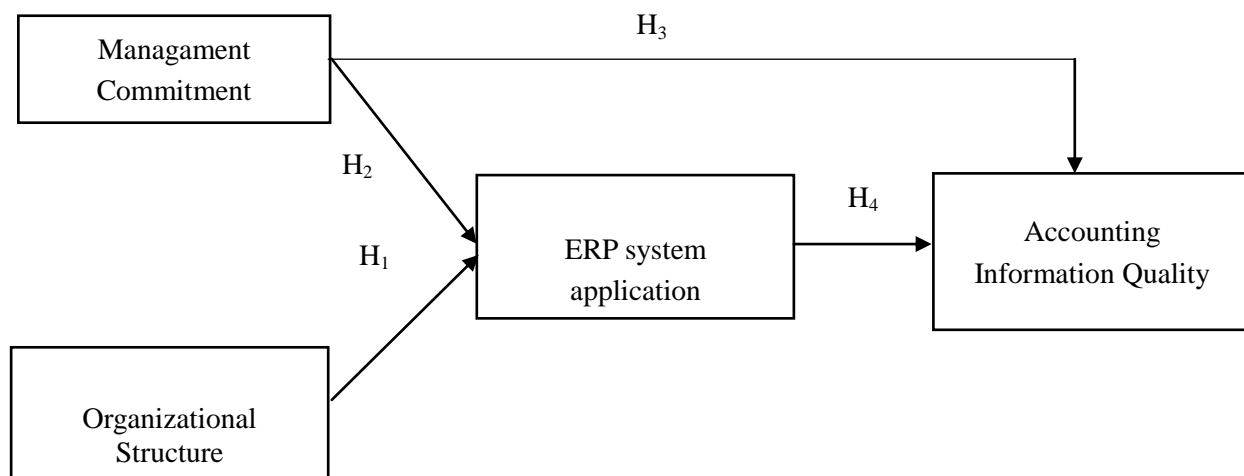


Figure 1. Theoretical framework of the study

## 3. Research Methodology

### 3.1 Questionnaire Design

Research methodology used in this study is survey method, with questionnaires as the tool. The questionnaire was translated from English to Vietnamese and was evaluated through a group discussion with six experts on the telecommunication industry in Vietnam. Then, the questionnaire was pre-tested with 121 respondents including

accountants, managers in VTEs. The measurement scale used 5-point Likert scale form "1 - totally disagree" to "5 - totally agree". We eliminated unsuitable scales using content analysis and tested by Cronbach Alpha test and Corrected Item-Total Correlation. The following table indicates the measures of the study variables used in the study:

Table 1. The Study Variable

<b>Factor/ Study Variable</b>	<b>Sources</b>	<b>Code</b>	<b>Observation variables</b>
<b>Management Commitment (MAC)</b>	Rahayu (2012);	MAC1	Commitment to invest, to upgrade the ERP system to meet the needs of system development
	Al-Mashari (2003)	MAC2	Develop future plan to apply ERP system
		MAC3	Budget for accounting staffs training and upgrading ERP system
		MAC4	Commitment to ensure the human resources demands of ERP system
		MAC5	Objectivity in carrying out commitment to improve ERP system
<b>Organizational structure (OST)</b>	Ifenedo (2007); Xu (2003);	OST1	Clear distinction between tasks for staffs in the ERP system
	Hong & Kim (2002)	OST2	Managers hold important role in decision making
		OST3	When organizational structure changes, ERP system will be adjusted accordingly.
		OST4	Compatible organizational structure will improve the quality of accounting information.
<b>ERP system application (ERP)</b>	Attayah and Sweiti (2014);	ERP1	ERP system helps finding information quickly and correctly
	Alzoubi (2011)	ERP2	ERP system effectively controls the access and usage of system data.
		ERP3	ERP system reduces errors in providing accounting information to management.
		ERP4	ERP provides flexible and diversified accounting information for its users
		ERP5	ERP system helps reducing risks in using accounting information to make decisions.
<b>Accounting information quality (AIQ)</b>	Alkhaffaf & Aldalahmeh (2016)	AIQ1	Accounting information provided by ERP system is compatible with the organization's goals.
	Rahayu (2012),	AIQ2	Accounting information provided by ERP system is trustful.
	Alzoubi (2011)	AIQ3	Accounting information provided by ERP system ensures timeliness.
		AIQ4	Accounting information provided by ERP system ensures security and confidentiality.

### 3.2 Sample and Data Collection Method

The data are collected through questionnaires. Analysis units are accountants and managers at all levels in VTEs. In this study, we surveyed telecommunication enterprises which were allowed to setup public telecommunication network nationwide, provide telecommunication services such as mobile phone services and internet services... They include large-scale companies such as Viettel Group, MobiFone Corporation, VNPT-Vinaphone, HaNoi

Telecom, FPT Telecom ... These enterprises accounted for about 90% market share of mobile phone service and 95% market share of internet broadband service.

The data used is the primary data obtained through questionnaires that were answered by directly handing paper-based questionnaire form and by the google doc tool. We received a total of 321 responses after 3 months doing survey. The answers were treated as data and processed by statistical measurement, and 282 questionnaires were used for analysis purposes. The descriptive statistical analyses are performed with the support of SPSS 22.0 and AMOS 22.0.

### 3.3 Data Analysis

The research data were analyzed by multivariate analysis. Firstly, the factors in the research model were evaluated for reliability with Cronbach's Alpha coefficient greater than 0.6 (Hair et al, 2006), Corrected Item-Total Correlation greater than 0.3 (Nunnally and Burstein, 1994). Then, we used EFA analysis with KMO greater than 0.5, Barlett's test with p-value less than 0.05 (Hair et al., 2006). Confirmatory Factor Analysis (CFA) was used to evaluate the construct. The model is considered to fit the data when Chi-square/df value < 3, RMSEA < 0.05, and GFI, NFI, TLI and CFI > 0.90 (Hair et al, 2006; Kline 2015, Byrne, 2016). To test the hypotheses, we applied structural equation modeling (SEM) with the level of 5%. We also used direct correlation, indirect correlation and generalized correlation to evaluate the total impact of factor on the accounting information quality.

## 4. Data Analysis and Hypothesis Testing

### 4.1 Reliability and Validity Analysis

The results of the reliability analysis showed that all factors had Cronbach's Alpha coefficient greater than 0.7, the observation variables of each factor all had Corrected Item- Total Correlation greater than 0.5. Exploratory Factor Analysis (EFA) with Principal Axis Factoring and Promax rotation showed that the observed variables in each factor is unidirectional scale and the 18 observed variables are compatible with the data. The KMO coefficient is greater than 0.5, the Barlett test has a p-value less than 0.05, the Eigenvalue coefficient > 1, factor loading > 0.5 (see table 2)

Table 2. Result of reliability analysis

Factor	Cronbach's Alpha coefficient	Corrected Item - Total correlation	Eigenvalue	Factor loading
Mangament commitment	0.872	0.610 - 0.734	2.902	0.625 - 0.836
Organizational structure	0.856	0.638 - 0.741	1.397	0.695 - 0.829
ERP system application	0.878	0.639 - 0.751	6.652	0.669 - 0.853
Accounting information quality	0.882	0.732 - 0.757	1.595	0.758 - 0.829

We used Confirmatory Factor Analysis (CFA) to evaluate the fit of the research model with collected data. CFA results indicated that Chi-square/df = 1,833 < 3; CFI = 0.961; TLI = 0.954; GFI = 0.912, were all greater than 0.9; RMSEA = 0.054 < 0.08. The normalized regression weights were greater than 0.5, the Composite Reliability (CR) were greater 0.6 indicating that all factors are sufficiently credible (Hair et al., 2006). Testing discriminant validity representing the level of square roof of Average Variance Extracted (AVE) of factors was greater 0.5 indicating that the factors have convergent value, the latent variable is well explained by its observation variables (Hair et al., 2006) (see table 3).

Table 3. Result of validity analysis

Factor	Number of observation variables	Composite Reliability	Average Variance Extracted	Minimum normalized regression weight
Management commitment	5	0.872	0.579	0.656
Organizational structure	4	0.858	0.603	0.696
ERP system application	5	0.880	0.595	0.665
Accounting information quality	4	0.883	0.654	0.782

Source: Authors' calculation with AMOS 22.0

4.2 Structural Equation Modeling Analysis and Hypothesis Testing

The analysis of structural equation modeling showed that the model fits the data, Chi-square/df = 1,828 < 3; CFI = 0.961; TLI = 0.954; GFI = 0.912, were greater than 0.9; RMSEA = 0.054 < 0.08, P.Value = 0.000 < 0.05. The estimated results of relationships among factors are shown in Figure 2.

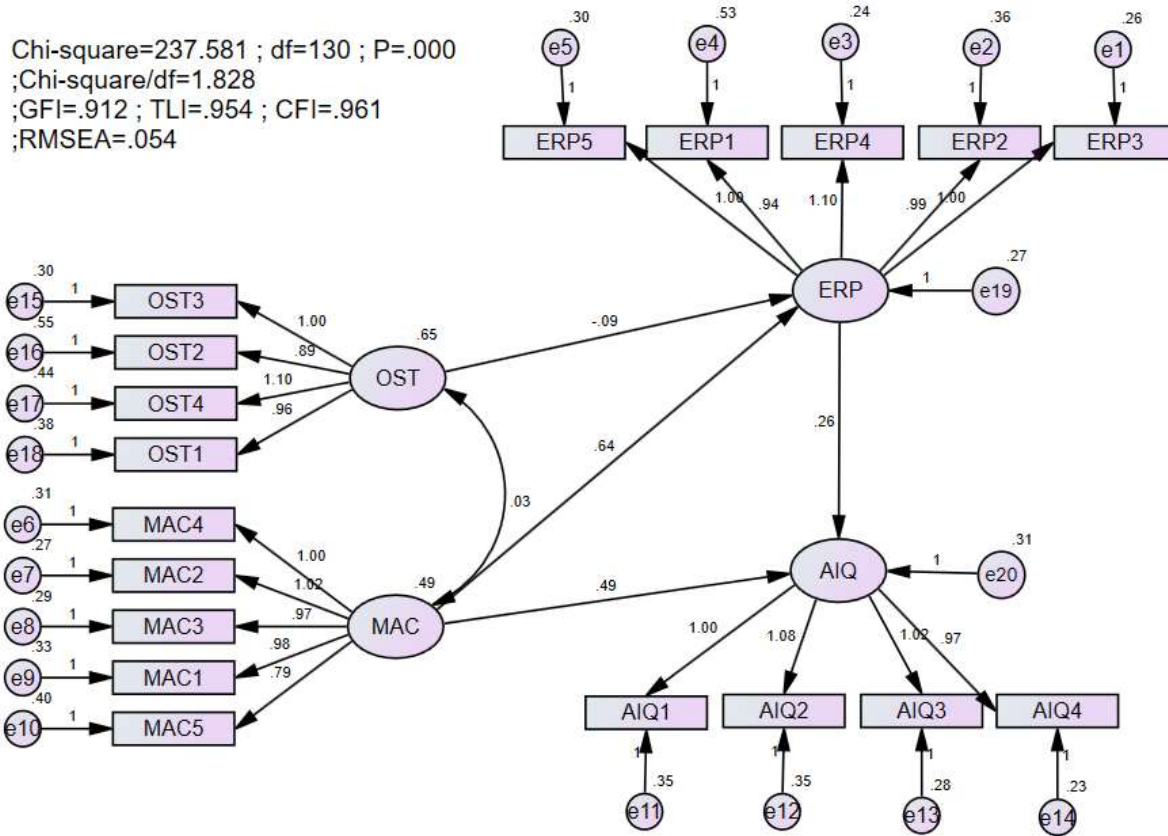


Figure 2. Standardized structural equation modeling analysis

The two factors MAC and OST both have influence to the ERP system application, in which MAC has positive impact ( $\beta = 0.650$ ) and OST has negative impact ( $\beta = -0.110$ ). The quality of accounting information (AIQ) is also influenced by MAC and ERP with beta coefficients of 0.469 and 0.243 respectively. As a result, four hypotheses are accepted. The coefficient  $R^2$  of the model that affects ERP system application is 0.426, which shows that 42% of ERP system application in VTEs can be explained by the 2 variables MAC and OST. The  $R^2$  coefficient of the model that affects the quality of accounting information is 0.428, indicating that the impacts of these two variables ERP & MAC can explain 42.8% of changes in AIQ. (see table 4).

Table 4. Regression analysis and hypothesis results

	Impact		Unstandardized estimation	Standardized estimation	S.E	C.R	P	$R^2$
ERP	<---	OST	-0.095	-0.110	0.048	-1.966	0.048	0.426
ERP	<---	MAC	0.642	0.650	0.068	9.464	***	
AIQ	<---	MAC	0.495	0.469	0.087	5.659	***	0.428
AIQ	<---	ERP	0.259	0.243	0.083	3.115	0.002	

Table 5 shows the direct, indirect and total influence of the factors on the quality of accounting information, and indicates that accounting information quality is most influenced by management commitment ( $\beta = 0.627$ ), followed by ERP system application ( $\beta = 0.243$ ), and finally organizational structure, which has reversed impact ( $\beta = -0.027$ )

Table 5. Impact of factors on accounting information quality

Factor	Impact	ERP application	Accounting information quality
Organizational structure	Direct	-0.110	0.000
	Indirect	0.000	-0.027
	Mixed	<b>-0.110</b>	<b>-0.027</b>
Management commitment	Direct	0.650	0.469
	Indirect	0.000	0.158
	Mixed	<b>0.650</b>	<b>0.627</b>
ERP application	Direct	0.000	0.243
	Indirect	0.000	0.000
	Mixed	<b>0.000</b>	<b>0.243</b>

## 5. Conclusion

In the process of integration with the world economies, VTEs have constantly improved production methods to adapt to the increasingly fierce competition environment. ERP application is one of the solutions used by managers to provide quality accounting information for decision making. Results from the research showed that:

Management commitment (MAC) has the largest direct and indirect impacts to the accounting information quality ( $\beta = 0.627$ ). When the managers fulfill their commitments, it will enhance the usability of the system, enabling their employees to be motivated to work and work efficiency will be improved. This result are consistent with the findings of earlier research by Rahayu (2012) and Meiryani (2014).

The application of ERP system (ERP) in VTEs has a direct impact on the accounting information quality ( $\beta = 0.243$ ). Implementing and applying ERP system will improve the relevance, timeliness, completeness and confidentiality of accounting information; enhance the efficiency of decision making. The findings are consistent with research of Attayah & Sweiti (2014) in Saudi Arabia; Aryani & Krismiaji (2013) in Indonesia and Brazel & Li (2005) in the US. Therefore, VTEs should implement and apply the ERP system in accordance with their production and business process. At the same time, managers at all levels should seriously perform their commitments, as it will contribute to improving accounting information quality.

Management commitment (MAC) also has a strong impact on the application of ERP system (ERP) in VTEs ( $\beta = 0.650$ ). When management performs their commitments on investing, upgrading the system and human resources, the level of ERP system application in enterprises is higher. Management commitment is also demonstrated through participation in ERP project, the selection and implementation of ERP system. The results are also consistent with study by Ladewi (2014), Umble et al. (2003) which shows that correlation between management commitment and ERP system application in enterprises.

Organizational structure (OST) is the negative factor to the ERP system application (ERP) in enterprises ( $\beta = -0.110$ ). In VTEs, enterprise size is very large, with many subsidiaries and branches in the country and in other nations. The application of ERP system encounters many challenges due to decentralized management. In addition, the application of management/accounting software is not consistent among subsidiaries and branches. It leads to the control of input data and output information at the parent company being difficult. Moreover, under competitive pressure as well as the requirements of the Ministry of Defense, Ministry of Information and Communications, Vietnamese Telecommunication Enterprises are in the process of restructuring, equitization and merging. The ERP system will have to change to be compatible with the new organizational structure. The stability of the ERP system is not high. Therefore, organizational structure had a negative effect on the application of ERP system in VTEs.

By using all the above results, this study directs management's attention to the importance of management commitment and application of ERP system on accounting information quality in VTEs. Management commitment should be further enhanced, especially on the aspect of ensuring the availability of resources for implementing ERP. In addition, our findings suggest that VTEs implementing ERP must consider the fit of ERP with their structures, the consequences of changing their business processes, the restructuring and the potential resistance from within. With increased management commitment and efficient ERP implementation, the quality of accounting information will be improved, thus in turn enhance managers' decision making.

## 6. Limitations and Further Research

The research also has a number of limitations. Samples were small compared to the size and number of employees participating in the ERP system of VTEs. In addition, there are some factors which influence the application of ERP system that have not been included in the research model such as organizational, managers' knowledge,... The study also did not assess the changes in the quality of accounting information before and after applying of ERP system in VTEs. Therefore, these issues may be further clarified in further research.

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