



Factors Influencing the Organization of Accounting Information Systems in Manufacturing Enterprises of Vietnam National Chemical Group

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ABSTRACT

The purpose of this study is to gain a comprehensive understanding of the factors that impact the organization of accounting information systems in manufacturing enterprises of Vietnam Chemical Group. To achieve the research objectives, the author thoroughly examines relevant theories and conducts expert exchanges and discussions to identify the key factors influencing the organization of accounting information systems. A total of 105 questionnaires were distributed to 35 manufacturing enterprises within the Vietnam National Chemical Group. The findings revealed that all four factors outlined in the research model have varying degrees of impact on the organization of the accounting information system in these enterprises, ranging from high to low. These factors include the resources of the organization's accounting information system, the social environment, the characteristics of the enterprise, and the accounting policies and principles applied. Based on these results, the author provides recommendations for policy improvements to enhance the quality of accounting information systems in manufacturing enterprises within the Vietnam National Chemical Group.

Keywords: Influential factors, organization of accounting information system, manufacturing enterprises

1. Introduction

Competition is the driving force behind economic development. The purpose of competition is to sell many goods and services. To achieve that, the organization of accounting information systems is a crucial component of the economic and financial information systems of companies. It plays a vital role in providing managers with the necessary data to make informed decisions and develop both short-term and long-term strategies. In today's market, particularly with the growing trend of global integration and development, managers recognize the significance of accounting information systems as effective tools for daily operations, control, and long-term decision-making in all economic organizations. Efficiently organizing accounting information systems in enterprises will offer optimal data to business administrators, enhancing production and business activity efficiency. This trend has gained significant interest worldwide and holds strategic importance in the socio-economic development of countries. A systematic and scientific study of the organization of accounting information systems in enterprises contributes to enhancing awareness and practical implementation of these systems, ultimately leading to improved management effectiveness and business efficiency.

Manufacturing companies in the chemical industry primarily focus on producing materials with a wide range of products that cater to various sectors such as healthcare, agriculture, construction, transportation, and more. Therefore, analyzing the structure of accounting information systems in chemical manufacturing companies is crucial to identify the benefits to enhance and the limitations to address in order to ensure that accounting effectively meets the information needs for managing and overseeing related areas, particularly in the era of Industry 4.0. Lately, factors related to the competitive landscape and managerial interests have influenced the design of accounting information systems in companies. Given the extensive international integration and technological advancements, it is essential for the accounting information systems in chemical manufacturing companies to be methodical, logical, and recognize the pivotal role of accounting information system organization within the enterprise. Consequently, the author has opted to investigate the "Factors influencing the accounting information system in manufacturing enterprises of Vietnam Chemical Group."

2. RESEARCH OVERVIEW

According to Hall J. A. (2011), the organization of the accounting information system consists of 3 subsystems: the system of daily transaction processing such as preparing reports, related documents; Financial statement system, ledger preparation and management reporting system to serve the purpose of decision making, preparation of estimation, and responsibility reports.

Research by Gelinas U., Dull R., Wheeler P. (2011) shows that accounting information systems in enterprises include 11 basic elements: databases, reports, information control systems, business operations, business processing, management decision-making, The system develops activities, information transmission, accounting procedures and methods.

Based on the fundamental components and structural approaches of accounting information systems, Romney M. B. and Steinbart P. J. (2014) assert that accounting information systems consist of six key elements: (1) hardware, (2) software, (3) databases, (4) individuals, (5) information processing and procedures, and (6) internal controls and security measures for information systems.

Vu Ba Anh's (2015) [9] study presents findings on the organization of accounting information systems at both domestic and international levels. Using this data, suggestions were put forward for the organization of accounting information systems in Vietnamese production and business enterprises across five key areas: human resources, accounting data, accounting procedures, hardware systems, and accounting software.

Dang Thi Thuy Ha (2016) highlighted that accounting information systems in logistics companies are impacted by various factors such as financial resources, human resources, information technology infrastructure resources, corporate culture, economic environment, legal environment, and information technology environment.

An examination of domestic and international research papers on the topic of organizing accounting information systems reveals that various aspects have been explored from both theoretical and practical perspectives. The studies have approached the content of organizing accounting information systems from multiple angles. However, there is still a gap in research specifically focused on manufacturing enterprises, particularly those belonging to chemical corporations. Based on these findings, the author has pinpointed discrepancies in research regarding the structuring of accounting information systems within the Vietnam Chemical Group. These include factors that have an impact and evaluating how these factors affect the organization of accounting information systems in businesses, as well as suggesting remedies to improve the effectiveness of these systems in said enterprises.

3.THEORETICAL FOUNDATIONS AND RESEARCH MODELS

3.1. Concept of accounting information systems

According to Barry E. Cushing, Marshall B. Romney (2011), an accounting information system comprises human resources and capital within an organization. Its primary function is to produce financial information derived from the collection and processing of transaction data. This information is subsequently disseminated to all management levels to aid in the planning and monitoring of the unit's operations.

J. L. Boockholdt (1999) contends that an accounting information system comprises interconnected components that gather information, whether it be raw or ordinary data, and transform it into financial data. The primary objective is to present this information to decision makers. Boockholdt further defines accounting information systems as systems that carry out the tasks of collecting, processing, categorizing, and reporting financial events. The ultimate aim is to provide information that is pertinent to bookkeeping, guidance, and decision-making.

Marshall B. Romney and his colleagues have identified six essential components of an accounting information system when examining it from a component-based approach. These include the system's users, the process of directing and processing data, business organization documents, data processing software, internal controls and the security of accounting information, as well as the necessary infrastructure such as computers and supporting devices [6].

J. A. Hall (2011) posits that an accounting information system is comprised of three key components: a daily business processing system, ledger and financial statement systems for external audiences and management, and management accounting reporting systems which are essential for making business decisions through tools like estimates tables, comparative reports, and liability reports.

Thus, an accounting information system comprises interconnected components, including individuals, IT infrastructure, policies, procedures, financial decisions, and activities that work together to gather, process, store, and disseminate accounting information to various users within and outside the organization.

3.2 Research models

Resources of the accounting information system

The organization of the accounting information system within a company is heavily impacted by the technological infrastructure of the company, particularly based on the extent of technology utilization and implementation within the company on the national technology platform. Empirical research indicates that various factors such as hardware and software systems significantly affect the effectiveness of accounting information systems. Furthermore, the functionality of the accounting information system relies primarily on the individuals operating it, specifically on their expertise, professional knowledge, capabilities, and experience. Individuals within the accounting information system of the company, including the accounting team, the IT team, and business administrators, play a crucial role in enhancing the efficiency of the accounting information system within the company. (Barney and Wright, 1998).

Hypothesis H1: resources factors of the accounting information system in enterprises affect the organization of accounting information systems at enterprises

Accounting policies and principles

The operation of enterprises and the organization of accounting information systems are significantly impacted by the legal policies of the State. The accounting work contents in each subsystem, including the acquisition system, the processing system, and the accounting information supply system, are directly influenced by legal documents such as decrees, accounting regimes, circulars, and more. Consequently, the organization of the accounting information system within the enterprise is directly affected. (Colin Drury, 2001).

Hypothesis H2: The accounting policies and principles implemented by enterprises have a direct impact on the organization of accounting information systems of enterprises

Social environment

The development of accounting information systems is greatly influenced by the social environment. In a highly competitive setting, managers are compelled to make well-informed and timely decisions. It is crucial for managers to acknowledge the significance of the social environment. The ever-evolving nature of this environment presents various opportunities and challenges for businesses across different industries, thereby impacting their development strategies. (Colin Drury, 2001)

Hypothesis H3: Socio-environmental factors affect the organization of accounting information systems at enterprises.

Characteristics of the enterprise

The structure and ownership of a business play a crucial role in shaping its accounting information system. As a result, there exists a strong correlation between the accounting information system and the organizational structure of the business. Furthermore, the diverse nature, characteristics, scale, scope, and ownership of businesses lead to varying management and control requirements, ultimately impacting the organizational structure and the selection and development of organizational models within businesses. (Dam Thi Bich Ha 2019).

Hypothesis H4: Characteristics of enterprises that affect the organization of accounting information systems at enterprises

Proposed research model

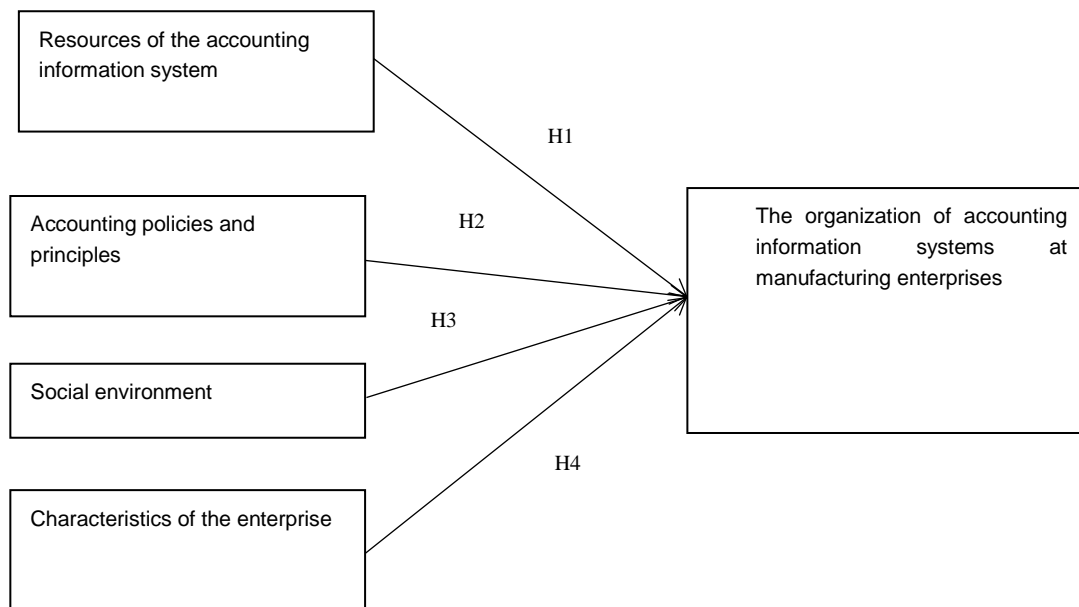


Figure 1. Research model of factors affecting the organization of accounting information systems in manufacturing enterprises of Vietnam Chemical Group

4. RESEARCH METHODOLOGY

The Likert scale was utilized in this research to assess observed variables on a scale of 1 to 5. Secondary data was gathered from the reports of manufacturing companies under the Vietnam Chemical Group, expert insights, and pertinent database outlets. The data for the study was collected through a convenient sampling technique between June 1st and June 30th, 2023.

In the view of Hair et al. (1998), the sample size used for the expected correlation and regression analyses is at least 5 times the total number of observed variables.

According to a study conducted by Tabachnick B. and Fidell L. (1996) [8], it is recommended to have a minimum sample size of 50+8 multiplied by the number of independent variables. In our proposed study model, we have 4 independent variables, which suggests that the expected study sample size should be 105.

After filtering, a total of 100 valid questionnaires were obtained through the survey process, which can be utilized for analysis in the study. The participants in this study are manufacturing enterprises affiliated with Vietnam Chemical Group, and they were chosen to test the model and research hypotheses. The collected data is subsequently encrypted and cleaned using SPSS 20.0 software. To evaluate the scale, the data gathered from the respondents were subjected to Reliability Analysis using Cronbach's Alpha coefficient, EFA (Exploratory Factor Analysis), Coefficient of correlation, and Regression Analysis.

5. FINDINGS AND ANALYSIS.

The author conducted face-to-face interviews and large-scale surveys to assess the current situation of factors influencing the organization of accounting information systems at manufacturing enterprises of Vietnam Chemical Group. Table 1 presents data from 35 manufacturing enterprises under Vietnam Chemical Group regarding these factors. It was observed that all factors were considered to have a significant impact, with percentages ranging from 63.4% to 81.1% of enterprises. Notably, the factor with the highest influence was "information technology infrastructure," affecting 81.1% of enterprises, while the factor with the lowest impact was "types of accounting applied," affecting 63.4% of enterprises. The remaining factors were evaluated by over 70% of businesses as having a substantial influence.

Table 1: Degree of influence of factors on the organization of accounting information system in manufacturing enterprises of Vietnam Chemical Group (Unit: %)

	Uninfluential	slightly influential	Neutral	Very influential	Extremely influential
Humans	12,50	6,70	6,40	43	31,40
System of documents, accounts, books and accounting reports	4	13,70	10,70	21	50,60
Accounting cycles	2,40	4,90	18	21,60	53
Information technology infrastructure	2,10	7,30	9,50	29,60	51,50
Types of accounting applied	14,60	8,80	13,10	27,70	35,70
Social environment	1,80	14,60	11,90	28,40	43,30
Nature, type of business, scale and scope of operation of the enterprise	1,20	6,40	18,60	20,70	53
Characteristics of business management organization, enterprise management qualifications, and requirements.	0,90	7,60	14	25,90	51,50

(Source: Results of data analysis on SPSS 20.0 by the author)

Thus, it can be seen that the organization of accounting information systems at manufacturing enterprises under Vietnam Chemical Group is dominated by many important factors, related to the resources of the organization of accounting information systems, organization of accounting work, social environment and characteristics of each business as the research model has shown. Next, the author used SPSS software to synthesize survey data from 35 enterprises and statistics on necessary indicators, analyze information to draw conclusions and answer questions posed in the research model.

Hence, it is evident that the arrangement of accounting information systems in manufacturing enterprises under Vietnam Chemical Group is influenced by several significant factors. These factors pertain to the resources allocated for organizing accounting information systems, the structure of accounting tasks, the social environment, and the unique characteristics of each business, as indicated by the research model.

Subsequently, the author employed SPSS software to amalgamate survey data from 35 enterprises and statistical data on essential indicators. This analysis facilitated drawing conclusions and addressing the research model's inquiries.

** Results of testing the reliability of variables in the study model*

In order to assess the reliability of the observed variables in the research model, it is recommended to utilize the Cronbach Alpha coefficient scale test and the correlation coefficient of manufacturing enterprises belonging to Vietnam Chemical Group for the total variables. The findings from the scale test of factors, using the adjusted Cronbach Alpha coefficient (table 2), indicate that the factors "Resources of the organization of the accounting information system in the enterprise" (X1), "Accounting policies and principles applied in the enterprise" (X2), "Social environment" (X3), and "Characteristics of the enterprise" (X4) all possess a Cronbach Alpha group value greater than 0.6. Additionally, the correlation coefficients for the total

variables of the observed variables within each factor are greater than 0.3. Consequently, it can be concluded that all variables within the model are reliable and relevant.

Table 2. 1. The findings from the analysis involve the exploration of observed variables.

	Component			
	1	2	3	4
X ₁₁	0.841			
X ₁₂	0.766			
X ₂₁		0.523		
X ₂₃		0.611		
X ₃			0.616	
X ₄₁				0.789
X ₄₂				0.736
X ₄₃				0.883
Eigenvalue	6.039			
KMO	0.940			
P-value	0.0000			
Total Variance Explained	75.489%			

(Source: Results of data analysis on SPSS 20.0 by the author)

* Exploratory factor analysis

The results of the analysis exploring the factors indicated in table 3 show that: the KMO coefficient is quite high (0.94>0.5), p-value = 0 (<0.5), the total variance to explain the factors is 75, 489% (>50%) – satisfying the condition of the exploratory factor analysis. Thus, 4 factors affecting the organization of accounting information systems at manufacturing enterprises belonging to Vietnam Chemical Group have been identified as forecasted in the model.

* Regression analysis and testing of research hypotheses

Table 3. Correlation matrix between variables in the model

	Mean	Std. Deviation	X ₁	X ₂	X ₃	X ₄	Y
X ₁	4.028	10.296	1	0.855	0.710	0.804	0.835
X ₂	4.074	10.889	0.855	1	0.691	0.800	0.761
X ₃	3.960	10.590	0.710	0.691	1	0.793	0.764
X ₄	41.376	0.9436	0.804	0.800	0.793	1	0.796
Y	40.170	0.8671	0.835	0.761	0.764	0.796	1

(Source: Results of data analysis on SPSS 20.0 by the author)

The outcomes of conducting correlation testing and multiple regression to test the hypotheses indicated that the dependent variable exhibited a significant correlation with the majority of other variables in the model. The correlation coefficient ranged from 0.761 to 0.835, reaching a statistically significant level. The significance of the model is presented in table 5. Consequently, all four explanatory (independent) variables in the model accounted for 76.5% of the variation in the dependent variable.

Table 5. Assess model suitability

Model Summary						
Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	0.875	0.765	0.761		0.4239	1.652
a. Dependent Variable: organization of accounting information systems at enterprises						
b. Predictors: (Constant) X ₁ , X ₂ , X ₃ , X ₄						

(Source: Results of data analysis on SPSS 20.0 by the author)

Table 6. Results of regression analysis

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Beta	Beta			Tolerance	VIF
1	(Constant)	0.764	0.126		6.056	0.000		
	X1	0.410	0.057	0.051	7.222	0.000	0.225	4.442
	X2	0.051	0.028	0.053	1.825	0.078	0.233	4.300
	X3	0.211	0.044	0.258	4.816	0.000	0.355	2.816
	X4	0.171	0.061	0.186	2.796	0.006	0.232	4.317

(Source: Results of data analysis on SPSS 20.0 by the author)

Table 6 shows: The multiplicity linear regression equation showing the influence relationship of 4 factors on the organization of accounting information systems at manufacturing enterprises of Vietnam Chemical Group is built as follows:

$$Y = 0,764 + 0,410 * X_1 + 0,051 * X_2 + 0,211 * X_3 + 0,171 * X_4$$

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusion

The study above indicates that the organization of accounting information systems at manufacturing enterprises of Vietnam Chemical Group is significantly influenced by various factors, including: (1) The resources of the accounting information system within the enterprise, (2) Applicable accounting policies and principles, (3) Social environment, (4) Characteristics of the business. This alignment is essential as the accounting information system within the enterprise is designed to support accounting activities. It should adhere to the general structure of an information system organization, be tailored to the accounting operations of the enterprise, and reflect the specific characteristics of the business within its operating environment. In order to ensure high efficiency in the organization of their accounting information systems, manufacturing enterprises under Vietnam Chemical Group must carefully consider and apply these influencing factors during the process of organization, construction, and operation.

6.2 Recommendations

Solutions to improve resources of accounting information system

The hardware organization needs to be finalized in order to enhance the hardware equipment for both information systems in general and accounting information systems in particular, for certain manufacturing enterprises under the Vietnam Chemical Group. This is necessary to align with the enterprises' scale and scope of operations, including the provision of computer equipment to meet the requirements of the accounting staff. It is imperative for all manufacturing enterprises within the Vietnam Chemical Group to establish LANs, ensuring centralized and unified data management, as well as convenient and secure information sharing across the entire enterprise.

Finalize the software installation process. Upgrading the accounting software utilized by manufacturing companies under Vietnam Chemical Group is essential to guarantee that the software can adequately cater to the required functions of the accounting department, in line with the enterprises' operational and managerial needs.

Ensure the management of accounting data and information is fully executed. Companies must arrange databases to store information overall, especially accounting information. Vietnamese Chemical Group's manufacturing companies should promptly adopt the centralized database management model. This model is efficient for centralized, systematic management and delivering timely, precise, and convenient data.

Measures to enhance the structure of human resources and the organizational framework of the accounting information system.

About the organization of human resources. Improve the quality of human resources in general and human resources for accounting and accounting information systems in particular at manufacturing enterprises belonging to Vietnam Chemical Group. To elevate the quality of human resources for accounting information systems in the future, these enterprises must prioritize the training and development of accounting professionals and individuals proficient in operating information systems both in the immediate and distant future.

Ensure the arrangement of the system for gathering, analyzing, disseminating, and monitoring financial information within the company.

Solutions to complete accounting policies and principles

Companies need accounting software vendors to develop software that meets the management needs of the business, with the aim of lessening the burden on accountants.

Enterprises construct a comprehensive and diverse accounting system based on management entities, ensuring a meticulous representation of all operational and commercial endeavors undertaken by the organization. This system effectively caters to the internal management needs of the enterprise by facilitating the utilization of information.

Enterprises are required to establish a comprehensive and integrated accounting reporting system, as well as conduct thorough analysis of their business situation. In addition, manufacturing enterprises under the Vietnam Chemical Group must create and implement a set of specific indicators to assess the performance of their organizations and evaluate the responsibilities of each department based on assigned tasks.

Solutions for organizing modules within the accounting information system at businesses..

Enterprises must ensure that their accounting apparatus is well-organized and efficient in order to deliver accounting information in a timely, accurate, and comprehensive manner. This information should be valuable to users and also contribute to the enhancement of the professional skills of the accounting staff.

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