Int. J. Nonlinear Anal. Appl. 14 (2023) 7, 261–274
ISSN: 2008-6822 (electronic)
http://dx.doi.org/10.22075/ijnaa.2022.27976.3774

Presenting the model of factors affecting the implementation of the accounting information system in Tehran Stock Exchange Companies

Fatemeh Farivarnia, Keyhan Azadi Hir*, Mohammad Reza Vatanparast

Department of Accounting, Rasht Branch, Islamic Azad University, Rasht, Iran

(Communicated by Mohammad Bagher Ghaemi)

Abstract

The main purpose of this study is to identify and present a model of factors affecting the accounting information system in Tehran Stock Exchange companies using a combined approach. The research is descriptive research and a combination of qualitative and quantitative methods has been used. Through structural equations, the researcher examined the research hypotheses in the form of model fit, the results showed that the infrastructure with the effect of 0.905, requirements and policy with 0.880, and transparency with 796, respectively. Organizational arrangements with 0.619 and education and culture with 0.396 have an effect on the accounting information system in listed companies. To present the problems and challenges identified in the companies under study.

Keywords: Accounting information, Implementation of Accounting Information System, Accounting Information System
2020 MSC: 91G15

1 Introduction

Organizations are increasingly facing dynamic and changing environments, and therefore, in order to survive and dynamism, they have to adapt themselves to environmental changes. According to the accelerating speed of scientific, technological, social and cultural changes and developments in the current era, organizations are considered successful and efficient which, in addition to coordinating with the developments of today's society, can predict the path of changes and transformations in the future and are able to adapt to these changes, guide them in the direction of creating desirable changes to build a better future [2]. In this direction, the importance of the role of information systems in realizing the organization's goals is prominent. An accounting information system is a combination of people, equipment, policies, and procedures that work together to collect data and transform it into useful information. This system is a formal mechanism for collecting, organizing and communicating accounting information about the organization's activities [1]. It is a system that provides data or information related to the organization's performance to stakeholders, shareholders, employees, and community members by effectively providing timely information to approved people to support the activities of employees, owners, customers, and other key people in the organization's

*Corresponding author
Email addresses: faranakfarivarnia@gmail.com (Fatemeh Farivarnia), Ka.cpa0202@yahoo.com (Keyhan Azadi Hir), vatanparast@iaurasht.ac.ir (Mohammad Reza Vatanparast)

Received: September 2021 *Accepted:* April 2022

environment, gives [9]. The accounting information system is a system that is a set of various facilities and components that provide information to support the management decision-making process, and its main task is to collect, process and communicate data that is necessary for the organization's performance [4]. In this research, a combination of qualitative and quantitative methods has been used with the benefit of library resources, experts' opinions and analysis methods.

2 Statement of the Problem

The accounting information system consists of different sub-systems that overlap and align in order to achieve organizational goals in order to provide timely, reliable and accurate information for decision-making [7]. In other words, it is a network formed in an organization to provide information to managers to help them make decisions. It is an automatic and routine system that is used to collect and transmit data in order to help and coordinate collective decision-making according to the overall goals of a company. A successful accounting information system leads to the success of the organization in achieving its goals, but an unsuccessful information system can lead to the failure of the organization to achieve its goals and lead to the inability to grow and survive [9].

In the meantime, the reports extracted from the information systems should have the necessary quality for all relevant organizations. Meanwhile, in the statement of government accounting standards (2005), the purpose of financial reporting is to provide useful information to the users of the reports so that these reports can be used as a basis for evaluating accountability and creating economic, social and economic balance, used politically and ultimately to make better decisions [11]. There is a logical relationship between the quality of reporting from accounting information systems and organizational performance, which has been pointed out in various researches. Moda et al. state that accounting plays an important role in encouraging accountability, efficiency and effectiveness of public services. The quality of information improves the quality of management in observing the changes around the organization so that it can respond to these changes quickly and accurately. The same is known from the IPSASB statement (2013), which states that the allocation of resources by the government is insufficient if it is supported by the government. Financial information with low quality. The same view has been presented by several researchers who concluded that the quality of financial reporting is closely related to the company's performance [14]. Bell et al. (2012), a document stating that the audit opinion and the timeliness of local government financial reports have a positive and significant effect on the financial performance of local governments, acknowledged that the establishment of information systems on modernization, acceleration And the integrity of information in organizations has an effect [17]. Several researchers have investigated the relationship between accounting systems and financial reporting quality. The existence of an accounting information system provides many advantages in the processing and presentation of accounting information, especially for financial reporting purposes, because it can reduce the time required to prepare and disclose reports for accountants and increase the efficiency of information presentation, as well as have a positive impact on business decisions, have different organizations and groups of stakeholders [18, 23, 20].

In many companies, the weakness of integration, availability and clarification of information has caused confusion for management, stakeholders and shareholders and has led to inappropriate decisions and results [20]. In this regard, according to the report of the Association of Charted Certified Accounts (2013), one of the tasks of accounting is designing an information system to provide information needed by management and other stakeholders in order to speed up and facilitate their decision making. Therefore, having enough information and awareness about the stages of establishment and implementation by managers is based on the share of beneficiaries and shareholders of awareness and information sharing among the requirements and prerequisites in the organization [21, 22, 27]. The activity trend of some listed companies shows that the lack of awareness of managers in the field of implementing accounting information systems in order to achieve the qualitative development of reports and favorable financial reporting, in the form of It has not been specially analyzed that this concern exists as one of the basic challenges in these companies. Since the field of competition among listed companies has intensified due to today's business environment and challenges such as the conditions of the Corona epidemic, currency fluctuations, sanctions and regional incidents, and due to The characteristics of different companies, especially listed companies, which include [28, 29]:

- Financial fluctuations, high amount of debts, lack of liquidity and financial fragility, relatively high profitability compared to large companies, the necessity of quick response and reaction to environmental actions, the need of these companies to make decisions. Finance in volatile conditions. And according to the volume and range of products and services they provide, they need to create accounting information systems that can move in

Statement of Governmental Accounting Standards

accordance with the organizational goals in the direction of achieving the quality of financial reporting. These systems should be emphasized.

- Many companies are looking for this type of awareness level among managers, but so far there has been little research on the factors affecting this type of coordination. In Iran, due to several reasons, including the problem of lack of access to companies' information and the lack of research background, there was no research regarding the process of managers' awareness and information requirements needed for research. The current article is carried out in the country because Iraq is a developing country and manufacturing companies of different sizes play a significant role in the economic development of the country, but despite the importance of this issue, the type and quality of information systems There are some concerns in these companies and Iran is in a lower position compared to developed countries in terms of the use of information systems and the use of information technology in business decision making. This research seeks to present the accounting information system model in Iranian stock exchange companies, which has deepened the current understanding of the importance of using information systems in companies and the role of information systems in the company in the path of information quality development. It makes it brighter.

3 The Importance and Objectives of Research

Considering the improvement of the field of information systems and the field of financial reporting in the international arena, it is necessary to develop the mechanisms of information systems in accordance with these developments. For this purpose, the lack of performance in the relevant organizations in order to explain the three main factors, including the binding factors that supervise the alignment, alignment and proper orientation of the mechanisms and actions of the companies in line with the implementation of the system, information and development of the quality of financial reporting, the foundational factors include the mechanisms and implementation fields in order to fulfill the requirements, as well as the facilitating factors that oversee the creation of tools and methods It is obvious that the new one is to facilitate and speed up financial reporting. For this purpose, in the current research, the researcher seeks to resolve this operational gap by presenting a conceptual model and validating and proving the hypotheses.

Also, according to the reviews made from the past researches inside and outside the country, the weakness in presenting an integrated and comprehensive model by considering the effective factors from various aspects including the required requirements, implementation fields and new tools. In the field of information systems, it is evident that this research tries to address the conceptual and operational development in the field of improving the accounting information system for optimal financial reporting.

4 Accounting Information Quality (AQ)

The following four scales are used to measure the quality of accounting information:
A) Accrual items (ACCURAL), which is obtained using the D&D model [12].

In this model, accruals of the company in the current period are matched with its cash flows in the previous period, the current period and the next period. The model used is:

$$\Delta\text{Total Current Accrual} = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + \varepsilon$$

TotalCurrentAccrual Δ: Total changes in current accruals is equal to changes in current assets in year t minus changes in current liabilities in year t, minus changes in cash and cash equivalents in year t plus changes in short-term liabilities with interest in year t. This measure is calculated for each year, using the information of the last five years. CFO_t represents current year's operating cash flows.
CFO_{t-1} represents the operating cash flows of the previous year.
CFO_{t+1} represents next year's operating cash flows.
The residual of the model means the unrealized cash flows that depend on the expected accruals. It is the residual standard deviation of all observations of the accrual model. A larger standard deviation of the residual indicates both a lower quality of accruals and a lower quality of accounting information.

B) Profit smoothing (smoot): the five-year standard deviation ratio of net profit to operating cash flow.

C) Profit stability (stabale): regression of return on assets divided by return on assets of the previous period [5], whose model is:

$$ROA_t = \alpha_0 + \alpha_1 ROA_{t-1} + \varepsilon$$

In this model, ROA represents return on assets in period t, and its regression coefficient shows the level of profit stability, and an increase in the coefficient indicates more stability of profit. This criterion is also calculated using the information of the last five years.

D) Profit predictability (predict): residual standard deviation from regression model 4:

$$ROA_t = \alpha_0 + \alpha_1 ROA_t + \varepsilon$$

E) Comprehensive Index of Accounting Information Quality (TAQ): To measure the quality of accounting information, we also use a comprehensive variable of accounting information quality [10]; thus, for all company-year observations, a unique accounting information quality index is calculated, which is the sum of the previous 4 variables of information quality. Then they are decimated and each comprehensive variable in the year is given a rank between 0 and 9, and finally, we summarize the values of each ranking to obtain the quality index of accounting information, and the smaller value of the rank indicates the better quality of accounting information.

Comparison between the characteristics of accounting information systems and the ability to analyze the task.
The contrast between the characteristics of accounting information systems and the ability to analyze the task was evaluated in different assumptions and the following regression model was used to test the mutual effects.

(1) The ability to analyze the task + scope of information (Equation (4.1)).

$$P = b_0 + b_1 X_1 + b_2 Y_1 + b_3 X_1 Y_1 \tag{4.1}$$

(2) Ability to analyze the task + timeliness of information (Equation (4.2)).

$$P = b_0 + b_1 X_1 + b_2 Y_2 + b_3 X_1 Y_2 \tag{4.2}$$

(3) Ability to analyze tasks + gather information (Equation (4.3)).

$$P = b_0 + b_1 X_1 + b_2 Y_3 + b_3 X_1 Y_3 \tag{4.3}$$

P represents the performance of accounting information systems, regression coefficients, and analyzability Task $i = 2$ (and characteristics of accounting information systems (domain$i = 1$, timeliness $i = 2$ and aggregation and contrast of effects between integration $i = 3$) and characteristics of accounting information systems, satisfaction of financial and operational managers with the performance of accounting systems [12].

Types of accounting information quality models, accruals quality models:
The profit quality index is one of the indicators related to the quality of accounting information, which is measured through the quality of accruals of the company. This model is presented by [12] and its line equation is as follows:

$$\Delta WC_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \varepsilon. \tag{4.4}$$

In this regard, we have: (AWC): expressing the net changes in non-cash working capital in the current year (t) compared to the previous year (1-t) (which is the total accruals), (1-CFO): operating cash flow In the previous year, (CFO): operating cash flow in the current year and (CFO): operating cash flow in the next year, $\mathcal{E}$: also indicates the error values of the experimental model.

Matching Expenses with Income:

One of the principles of financial identification and reporting is matching expenses with revenues. Reconciliation means that the expenses incurred in each period should be deducted from the revenues recognized in the same period. In other words, the costs are correctly identified in the same period created and not transferred to previous and subsequent periods. The degree of matching between costs and revenues is determined through the model of [12] as follows:

$$REV_t = \beta_0 + \beta_1 EXP_{t-1} + \beta_2 EXP_t + \beta_3 EXP_{t-1} + \varepsilon. \tag{4.5}$$

In this regard, we have: (REV_t) represents the total income from the sale of goods and services for the current year, (EXP_{t-1}), (EXP_t and (EXP_{t-1}), represent the total expenses in the previous year, the current year, and the next year, respectively.

Profit Timeliness:

And one of the important features for profit relevance is the timeliness of profit reporting. Profits are loaded with information that is provided to investors in a timely manner. The timeliness of profit is determined through the model of Kotari and Zimmerman as follows:

$$R_t = \beta_0 + \beta_1 \Delta NI_t + \beta_2 NI_t + \varepsilon \tag{4.6}$$

and in this regard, we have: (R_t): represents stock returns, and (ANI_t) and (NI_t) represent the changes in the current year's net profit compared to the previous year and the current year's net profit, respectively.

Quality of Accrual Items

The quality of accruals is another criterion for profit management. The measurement of the pattern related to this criterion is presented by [12] as follows:

$$TACC_t = \beta_0 + \beta_1 1/Asset_{t-1} + \beta_2 CFO_{t-1} + \beta_3 CFO_t + \beta_4 CFO_{t-1} + \varepsilon. \tag{4.7}$$

In this regard, we have: $(TACC_t)$: total accruals, (CFO_{t-1}): operating cash flow in the previous year, (CFO_t): operating cash flow in the current year and (CFO_{+1}): operating cash flow in the next year and $(t\mathcal{E})$: indicates the error values of the experimental model. The variable (1-Assett/t) has also been added in order to control the size of the company and reduce the heterogeneity of the variance of the address value of the experimental model. This empirical model is used as an indicator of profit quality and profit management. In order to calculate the error values, relation number (4.7) should be separately for each industry and each year, which means that if there are 12 industries in his research during the period of 2009 to 2015 (6 years), the said model should used 72 times (6812). Mechanicols (2002) presented another index by modifying the model [12], whose model is as follows:

$$TACC_t = \beta_0 + \beta_1 1/Asset_{t-1} + \beta_2 CFO_{t-1} + \beta_3 CFO_t + \beta_4 CFO_{t-1} + \beta_5 \Delta Sales_t + \beta_6 PPE_t + \varepsilon. \tag{4.8}$$

McNichols added two control variables to the previous model. Therefore, in this regard, we have: hSalast: sales changes in the current year compared to the previous year and PPE: representing the sum of fixed assets (property, machinery and equipment) $|LT$ is. All the variables in the experimental model are divided by the total assets at the beginning of the year. Profit managment values will be equal to the residuals obtained from the estimation of the mentioned model at the cross-sectional level of the data and separately for each industry and in each year [8].

The first empirical model for the estimation of optional accruals was presented by Jones (1991). The model was presented as follows:

$$TACC_t/A_{t-1} = \beta_0 + \beta_1 1/A_{t-1} + \beta_2 \Delta REV_t/A_{t-1} + \beta_3 PPE_t/A_{t-1} + \varepsilon \tag{4.9}$$

In this regard, we have: $(TACC_t)$: indicating the total accrual items, (1-/At1) indicating dividing the number 1 by the total assets at the beginning of the year, $(AREV_t)$ changes in the total sales revenue of the current year compared to the previous year and (PPE_t) indicating the total assets fixed (property, machinery and equipment) is gross (before deducting accumulated depreciation). A: also shows the error values of the experimental model. Of course, Jones believed that non-discretionary accruals (NDA) can be calculated as follows shows:

$$NDA_t = \beta_1 1/TA_{t-1} = \beta_2 \Delta REV_t + \beta_3 PPE_t \tag{4.10}$$

On the other hand, discretionary accruals (DA_t) are equal to:

$$DA_t = TACC_t - NDA_t = \varepsilon. \tag{4.11}$$

Therefore, (DA_t): discretionary accruals, (E_t): are the same model error values. The error values or residuals resulting from the estimation of the experimental model indicate unusual accrual items, which are optional accrual items. Jones has calculated the total accrual items in the balance sheet method through the relationship number (4.12).

$$TACC = (\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD) \tag{4.12}$$

In this regard, we have: $(TACC_t)$ representing total accruals, (2CA) representing changes in current assets in the current year compared to the previous year 1-ACash, (CA-CA) indicates the changes in the cash balance in the current year compared to the previous year, CLd: indicates the changes in current liabilities in the current year compared to the previous year and STD: indicates the changes in the current share (part) of long-term debts in the current year compared to the previous year [8].

5 Background Research

In this research, with an emphasis on internal and external studies conducted in the field of accounting information systems, the background of studies related to the subject is presented in summary form in Table 1:

Table 1: Background of Internal and External Research Related to the Research Topic

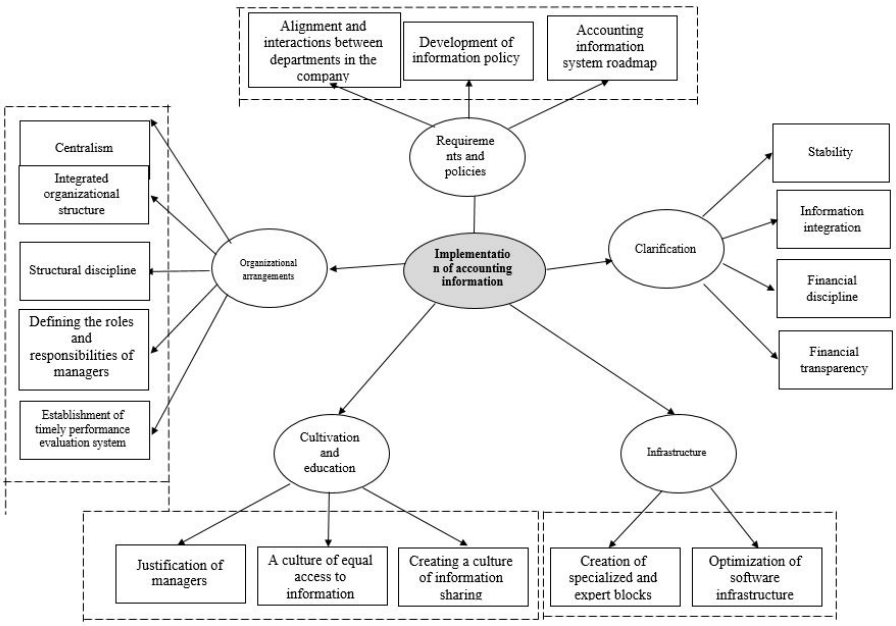
Research findings	Research Methods	Year	Research fellow	Research title
It is possible to estimate the model based on the neural network and customer expectations, customer satisfaction, innovation, social success, employee satisfaction, competitive advantage influence the optimal selection of accounting information systems.	Structural equation	2018	[13]	The role of success factors of companies on the optimal selection of accounting information systems in PES company
There is a significant relationship between accounting information system and financial performance according to the mediating role of accounting process performance in Yazd Social Security Organization.	Survey study and questionnaire tool	2017	[25]	Investigating the relationship between accounting information system and financial performance with regard to the mediating role of accounting process performance in social security organization of Yazd
Accounting information system can affect the value of companies in the form of management accounting techniques and be useful and effective in advancing the goals of the organization.	Multivariate regression	2017	[6]	Investigating the efficiency of accounting information systems and its role in the efficiency of the company's performance
Accounting information system has a positive and significant relationship with organizational performance in terms of service quality, user satisfaction, system quality and information quality.	Correlation test	2016	[24]	Investigating the impact of accounting information system on organizational performance in Maskan Bank
Accounting management information system can directly or indirectly affect good governance through information quality as a mediating variable.	Structural equation	2019	[17]	Investigating the effect of accounting management information system on quality and good governance in the organization

6 Research conceptual model

7 Research methodology

Considering the subject of the research, which is the design of the accounting information system model, it should be said that the current research is a descriptive research in terms of its nature and method. A mixed method is used in this research. The mixed research method is a combination of quantitative and qualitative methods, which are divided into interwoven, descriptive and exploratory categories. In this research, the qualitative method is first used to identify the components and variables of the model, then the quantitative method is used to determine the relationship between the factors and components in the form of the model. Therefore, the research used is descriptive mixed.

Continue of Table 1				
Accounting information system significantly affects the success of the bank.	Correlation test	2017	[20]	Investigating the effect of accounting information systems on the success of banks
The accounting information system has a significant effect on the company's efficiency in matters related to budgeting, financial planning, auditing and financial control of the company.	Assumption test	2017	[29]	Investigating the effect of accounting information system on the efficiency of tasks in government organizations in Malaysia
Accounting information system significantly affects management performance and organizational performance. Through the use of accounting information systems, the information obtained will be more useful for making decisions in order to achieve the company's goals and objectives, which will improve the company's performance.	Correlation test	2016	[2]	Investigating the effect of accounting information system on organizational performance in small and medium enterprises in the United Arab Emirates



8 Summarizing the components of the research according to the background of the research and the meta-combination method

In order to discover new and basic themes and metaphors from the background of the research, in a systematic approach through the combination of researches, the metacombination technique has been used as follows. In metasynthesis, qualitative data are used for synthesis, interpretation and secondary analysis for a single subject. The importance of metasynthesis is in providing a systematic approach, resolving contradictions, deeply understanding the cumulative state of knowledge and discovering new topics. Noblet and Heyer's three-stage model has been used in this research. The steps of the mentioned method include selection of studies, combination of translations and presentation of synthesis [2].

The important point is that usually the categories and factors resulting from supercombination with the factors mentioned in. The model that the researcher refers to at the beginning of the formation of the conceptual model is different. Therefore, in order to avoid rework, the results of this stage have been applied in the conceptual model.

The number of categories extracted from the background of the research includes 25 items. In the following, using exploratory factor analysis, the most important factors have been extracted, and using confirmatory factor analysis, research modeling has been done [17].

9 Society and Statistical Research Sample

The statistical population, in the first part of the research, in which the questionnaire tool was used to identify the priority factors and the relationships of these factors, includes the managers, experts and experts of Tehran Stock Exchange companies. Purposive sampling method has been used for sampling, and therefore, the statistical sample size according to Cochran's formula is equal to 267 people.

For the second part of the research, the data collection tool is structured interview in order to complete the primary model. In this part of the research, the statistical community is experts in more specialized sectors, such as sectors related to information technology and digital transformation. Therefore, the statistical population of the second part is different from the first part of the research.

10 Research Tool

10.1 Method of Collecting Information

The data collection tools included interview text and researcher-made questionnaires, which were distributed among the statistical sample of the research in order to validate the dimensions and components of the research. In terms of content, it was tried to make the questionnaires according to the theoretical foundations of the research and the opinions obtained from the experts through interviews and to avoid vague and unclear items. In order to gain public trust, a pilot study was conducted among 15 people from the research community with the same characteristics as the research samples, and considering that the Pearson correlation coefficient of 0.83 was obtained, the necessary validity of the questionnaire was confirmed.

10.2 Information measurement tool

In order to measure the research indicators in the second (quantitative) stage, a questionnaire based on the designed model was used. At this stage, after setting up the questionnaire, by presenting it to 5 professors as well as relevant experts, it was taken into consideration to check the face validity of the measurement tool. In research, the concept of society includes all the people to whom the research results are supposed to be generalized, and also the nature of the research determines the scope of the society.

The indicators identified in the questionnaire along with the sources are in the form of Table 2:

In this research, the statistical population consisted of all the employees who work in the information technology departments of listed companies, which according to the calculation of the sample size with Cochran's formula, there are 276 people as the research sample. Estimated. Among the statistical sample, the number of people between the age range of 20 to 30 years is 89 people, equal to 33.3%, between the age range of 31 to 40 years, 85 people are equal to 31.8%, and between the age range of 41 to 50 years, 79 people are equal to 6. 29% and 14 people aged 50 and above are equivalent to 5.2%; The number of people with work experience of 5 to 10 years, 65 people equal to 24.3%, the number of people with work experience of 11 to 15 years, 53 people equal to 19.9%, the number of people with work experience of 16 to 20 years, 53 people equal to 19.9% and the number of people with work experience of 21 to 25 years is 46 people, equivalent to 17.2%, and the number of people with work experience of 26 to 30 years is 50 people, equivalent to 18.7%; The number of people with bachelor's education is 123 people equal to 46.1%, the number of people with postgraduate education is 126 people equal to 47.2%, the number of people with doctoral education is 18 people equal to 6.7%.

10.3 Interview protocol

In order to discover the relationships between the factors and the sub-criteria of each factor, the following steps were considered in the direction of preliminary modeling and perceptual mapping of experts:
Determining the selection criteria of experts, which includes the necessary mastery and expertise in the field of information systems and having a master's and doctorate degree.

Table 2: Indexes of the questionnaire

Sources	Indicators	component
[19]	Accounting information system roadmap	Requirements and policies
[20]	Formulation of risk information policy	
[3]	Alignment and interdepartmental	
	interactions in the company	
[22]	centralism	Organizational arrangements
[20]	Integrated organizational structure	
Interview with experts	Structural discipline	
Interview with experts		
Interview with experts	Defining the roles and responsibilities	
	of manager	
[2]	Establishment of timely	
	performance evaluation system	
Interview with experts	Freeze stability	clarification
[26]	Information integration	
[17]	Financial discipline	
Interview with experts	Financial transparency	
Interview with experts	Creating a culture of information sharing	Cultivation and education
[28]	A culture of equal access to information	
Interview with experts	Justification of managers	
Interview with experts	Optimization of software infrastructure	Infrastructure
Interview with experts	Creation of specialized and expert blocks	

Research findings

Model adequacy test

Bartlett's test of sphericity is a test used to check the adequacy of samples in exploratory factor analysis is used If P-VALUE is less than 0.05 in the output of the software, such an inference can be made showed that at the 5% error level or 95% confidence level, the null hypothesis is rejected and the quality of the model is confirmed [20].

10.4 Examining the fit of the research model

Cronbach's alpha and composite reliability and convergent validity The factor loadings of the items, which show the reliability of the measurement model, were also calculated by calculating the correlation value of the indicators of a structure with that structure, which if this value is equal to or greater than 0.4, it indicates the reliability is acceptable. In this research, factor loading values for all items are greater than 0.5 and are acceptable. Also, reliability is measured with two indices of Cronbach's alpha and composite reliability and construct validity with two indices of divergent validity and convergent validity. Validity and reliability of the measurement model is shown in Table 3.

Table 3: Convergent validity and reliability of variables

AVE	CR	Cronbach	Variable name
0.416	0.819	0.764 Requirements and policies	
0.869	0.961	0.921	clarification
0.732	0.875	0.614	Infrastructure
0.762	0.906	0.769	Cultivation and education
0.791	0.879	0.865	Organizational arrangements

Confirmatory factor analysis is used to measure the reliability and validity of the measurement scale. In the confirmatory factor analysis, the closer the factor loading is to one, it actually indicates that the questions of the questionnaire have a stronger relationship with the underlying variables, and if the standard factor loading is zero, it means that there is no relationship between the questionnaire questions and It is a constant variable. A negative factor load means the reverse of the effect of questionnaire questions on the latent variable. Fornell and Larcker [15] used two criteria for factor analysis, firstly, the factor loadings for the observed variables should be greater than 0.5, and secondly, the reliability of the sum of the variables expressing the desired factor should be greater than 6. The results of confirmatory factor analysis are shown in table number (4-21). All factor loadings of the variables are approximately

equal to 0.5 or higher than 0.5, and Cronbach's alpha coefficient, which indicates reliability or internal validity, is all higher than 0.6. So it can be claimed that the objects represent the agents. Based on the obtained results, it can be said that from the correlations and root of AVE, the validity and variance of the model at the structure level is confirmed in terms of the Fornell-Larker criterion.

11 Structural model test

To test the structural model of the research derived from the conceptual model of the research, the structural equation modeling technique was used. Figure 11 shows the model of the path coefficients of the hypothesis test of the research:

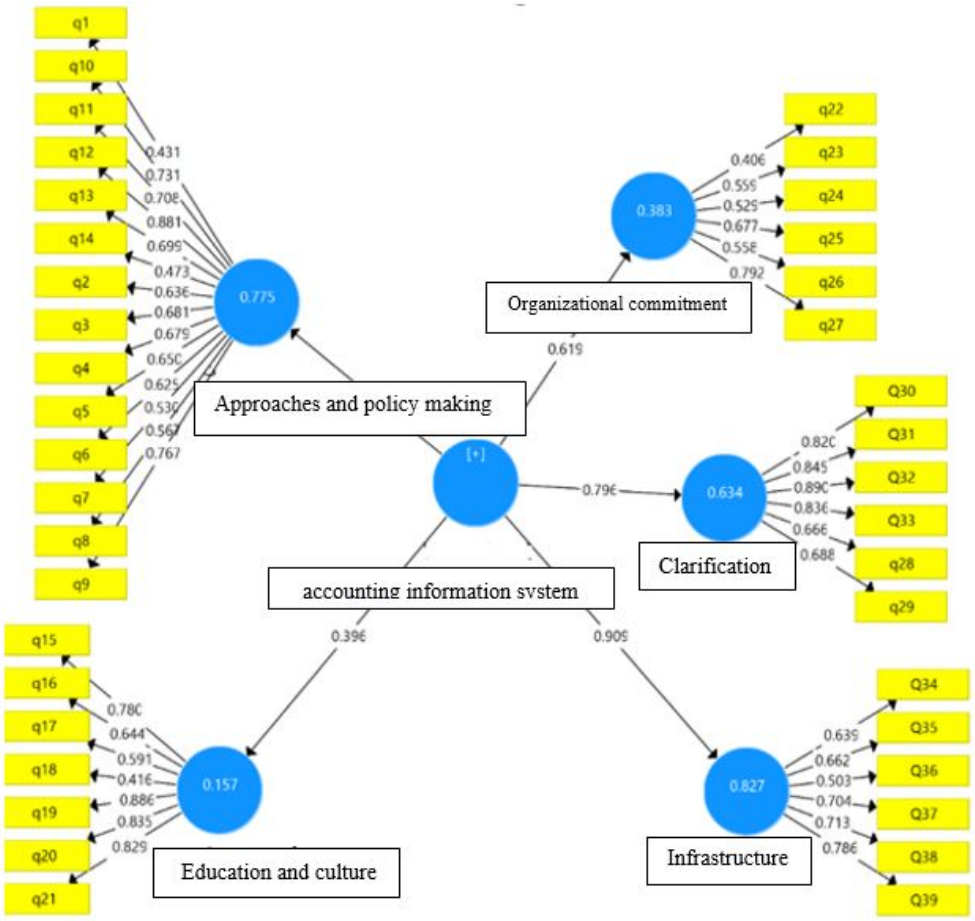


Figure 1: Standard coefficients model, structural model

To check the significance of path coefficients, the value of T statistic of each path should be shown. If the value of the T statistic at the confidence level of 0.95 percent is greater than 1.96, the path coefficient is significant. As shown in Table 4, all research hypotheses are confirmed.

As shown in the table, R2 values for different research constructs are acceptable. Also, according to the Q2 values of the predictive power of the research constructs, they have a medium or large predictive relationship, and in general, it can be said that the model has a good predictive power.

GOF criterion is used to check the overall fit of the model. This criterion is obtained from the square root of the common average of the reflective structures in the coefficient of determination of the endogenous structures:

$$GoF = \sqrt{communicating \times R2}$$

The average shared values of the constructs (AVE) is 0.698 and the average determination coefficient of the endogenous hidden variable is 0.741; therefore, the GOF value is equal to 0.651. Considering that three values, 0.01, 0.25, and 0.36, which are respectively introduced as weak, medium, and strong values for GOF, and obtaining a value of 0.398 shows the strong fit of the research model.

Table 4: Values of path coefficients and significant numbers of hypothesis testing

Result	meaningful	T statistic	Path coefficient	hypothesis
confirmation	0.001	182/55	0.880	Requirements and policies have a significant impact on the accounting information system.
confirmation	0.015	215/16	0.619	Organizational arrangements have a positive and significant effect on the accounting information system.
confirmation	0.027	497/24	0.796	Clarification has a positive and significant effect on the accounting information system.
confirmation	0.001	511/7	0.396	Education and culture building has a positive and significant effect on the accounting information system.
confirmation	0.022	186/87	0.905	Infrastructures have a significant impact on the accounting information system.

12 Discussion and conclusion

In this research, it started with the most important issue in many stock exchange and investment companies, which is the integration of information in order to create a level of channeled access to managers at different levels, employees and stakeholders including investors, customers and shareholders. Among the problems and challenges in the field of transparency, integration and adaptation in companies. After explaining the challenges and concerns in the field of accounting information system platforms, integrating, clarifying and adapting financial information with the knowledge gap theory approach, presenting the theoretical foundations of research and basic theories and models and explaining the process of studies related to management information systems. In the review and analysis of the theories, it was tried to examine the foundations and theories related to the management information system and how to design its mechanisms from the perspective of the knowledge gap theory. Also, in this section, the history, definitions, principles, models of the management information system were examined and the theories of the information system were examined and analyzed from the perspective of accounting, audit, management audit and strategic management theorists. In the next stage and in the qualitative part, using the qualitative content analysis method, he identified the dimensions and components affecting the implementation of the accounting information.

In the first stage of the research, after stating the theoretical foundations and background of the research, the researcher reviewed the studies that existed in the field of information systems and also by using a questionnaire, the opinions of university experts, managers and information system experts system, emphasizing the knowledge gap theory. In the quantitative part and according to the main objectives of the research, the impact and effectiveness of the research variables in the proposed research model were analyzed using the regression method.regarding the components and sub-components of the implementation of the accounting information system were obtained. According to the survey of experts, validation and verification of components and indicators was done. Also, according to the content of each of the components and sub-components that generally form the effective dimensions on the implementation of the accounting information system, the researcher, with his own conclusion and the confirmation of the experts, classified its content from the point of view of the nature of influence, which includes 1- requirements and policy-making, which includes the components of the accounting information system roadmap, formulation of the information policy and alignment and interdepartmental interactions in the company, and 2-organizational arrangements including the components of centralization, integrated organizational structure, structural departmental discipline, defining roles and Responsibilities of managers and establishment of timely performance evaluation system; 3-Culturalization and training, which includes creating a culture of sharing information, a culture of equal access to information, and justifying managers, and 4-Infrastructures, including optimizing software infrastructures and creating specialized and expertise blocks, and 5-Transparency, including stabilization. , integration of information, financial discipline and financial tightness. By performing structural equations, the researcher investigated the research hypotheses in the form of model fitting, and the results showed that the influence of infrastructure with 0.905, requirements and policy making with 0.880, and transparency with 796 respectively. 0.0, organizational arrangements with 0.619 and training and culture building with 0.396 have an effect on the accounting information system in listed companies.

Practical suggestions are presented in accordance with the challenges identified in the studied companies.

Table 5: Presentation of challenges and solutions

Row	current situation	Challenges
1	There is no good alignment between the strategy of accounting information systems and the macro strategies of the company.	It causes conflict between goals, strategies and weakens the governance view in the organization to the category of information system.
2	The accounting information system is located as an independent unit in the company's organizational structure.	It weakens the integrated connection between the micro and macro levels of the organization from a structural point of view and leads to the isolation of information systems actions.
3	Systemic and informational approach to organizational activities has not been institutionalized among the senior managers of the organization.	It causes lack of demand for knowledge from the senior managers of the company and weakens the governance view in the organization to the category of information systems.
4	There is no information and knowledge integration between the layers of the organization from the headquarters and subsidiaries and projects.	It causes weakness in the flow of knowledge processes (creation, transfer, sharing, application of knowledge) in organizational layers.
5	The organizational structure of the company in the headquarters and project department is not designed in an organic and team-oriented way.	Weakness in sharing information and lack of penetration of information between the micro and macro levels of the organization, and formal communication based on knowledge is not formed in the organization.
6	The roles and responsibilities of managers and experts based on knowledge activities in the organization are not defined correctly.	It causes managers and experts not to be accountable for knowledge activities, and knowledge-based formal communication is not formed in the organization.
7	There is no effective and desirable interaction and intersection between the key and main processes of the organization with the processes of information systems in the headquarters and subsidiaries.	It causes lack of penetration of the approach and goals of basic knowledge between the micro and macro levels of the organization.
8	Weakness in discourse creation and culture creation in the matter of information systems in the organization is evident.	It causes no change in the approach of managers and experts towards conducting knowledge activities in the organization.
9	The culture of teamwork is not institutionalized in the organization.	Weakness in sharing knowledge and lack of penetration of knowledge between the micro and macro levels of the organization and informal communication does not take place in the organization.
10	Communication channels have not been established for organizational interactions.	It slows down and restricts the flow of knowledge between the managers and experts of the organization at different organizational levels, and informal communication does not take place in the organization.
11	In the salary system of the company, the knowledge performance of the employees is not based on the salary coefficient.	It reduces the motivation of managers and experts and does not facilitate the implementation of the accounting information system among different levels of the organization.
12	In the forms related to the appointment and promotion of managers, academic performance is not questioned.	It causes the lack of selection of managers with the above-mentioned approach, facilitating the implementation of the accounting information system among different levels of the organization.
13	The reward system in the company is not organized based on the performance of the employees.	It reduces the motivation of managers and experts and does not facilitate the implementation of the accounting information system among different levels of the organization.

References

[1] N. Adibizadeh and S. Bani Fatemi Kashi, *The role of companies success factors on the optimal choice of accounting information systems in PES*, Quart. J. Comp. Stud. Financ. Manag. Account. **3** (2019), no. 4.

[2] M. Alnajjar, *Impact of accounting information system on organizational performance: A study of small and mid-sized enterprises in UAE*, Int. J. Account. Res. **4** (2016), no. 1, 1–7.

[3] R. Arab and M. Hosseinian, *Investigating the effect of accounting information systems on organizational performance*, Nat. Conf. New Account. Manag. Res. Third Millennium, 2017.

[4] M. Arefnezhad, M. Sobhani and T. Amirkhani, *Explain the factors affecting the success of information systems, with emphasis on the role of organizational learning and organizational factors*, J. Technol. Manag. **4** (2012), no. 13, 89–114.

[5] F. Azadivar, T. Truong and Y. Jiao, *A decision support system for fisheries management using operations research and systems science approach*, Expert Syst. Appl. **36** (2009), no. 2, 2971–2978.

[6] M.R. Bana Bafaroui, *Investigating the efficiency of accounting information systems and its role in the efficiency of the company's performance*, Second Nat. Conf. Modern Account. Manag. Res. Third Millennium, Tehran, 2017.

[7] M.R. Bana Broubi, *Evaluate the efficiency of accounting information systems and its role in the performance of the company*, Second Nat. Conf. New Account. Manag. Res. Third Millennium, 2018.

[8] B. Bani Mahd, A.Yaqub Nejad and E. Vahidi Kia, *Product competitiveness and cost of equity*, Financ. Account. Audit Rres. **7** (2016), no. 26, 107–118.

[9] K. Beg, *Impact of Accounting Information system on the financial performance of Selected FMCG companies*, Asian J. Appl. Sci. Technol. **2** (2018), no. 3, 8–17.

[10] G.C. Biddle and G. Hilary, *Accounting quality and firm-level capital investment*, Account. Rev. **81** (2006), no. 5, 963–982.

[11] A. Darmansyah and T. Fitrijanti, *The effect of application computer-based accounting information system (CBAIS) on the quality of accounting information and managerial performance of sugar industries in Indonesia*, Int. J. Sci. Technol. Res. **4** (2015), no. 8, 349–354.

[12] P. Dechow, W. Ge and C. Schrand, *Understanding earnings quality: A review of the proxies, their determinants and their consequences*, J. Account. Econ. **50** (2010), no. (2-3), 344–401.

[13] N. Adibizadeh and S. Bani Fatemi Kashi, *The role of companies' success factors on the optimal choice of accounting information systems in PES*, Quart. J. Comp. Stud. Financ. Manag. Account. **3** (2018), no. 4.

[14] R. Fitrios, *Factors that influence accounting information system implementation and accounting information quality*, Int. J. Sci. Technol. Res. **5** (2016), no. 4, 192–198.

[15] C. Fornell and D.F. Larcker, *Evaluating structural equation models with unobservable variables and measurement error*, J. Market. Res. **18** (1981), no. 1, 39–50.

[16] A. Frezzati, *Analysis on information content of timeliness of accounting information tsing hua tong fang knowledge network*, (2011), 244–275.

[17] R.R. Gamayuni, *The effect of management accounting information system application on information quality and its implication on good government governance*, Int. J. Sci. Technol. Res. **8** (2019).

[18] M. Hafij Ullah, J. Khonadakar and S. Fahim, *Role of accounting information in strategic decision making in manufacturing industries in Bangladesh*, Glob. J. Manag. Bus. Res.: D Account. Audit. **14** (2014), no. 1, 9–22.

[19] W. Hadid and M. Al-Sayed, *Management accountants and strategic management accounting: The role of organizational culture and information systems*, Manag. Account. Res. **50** (2021), 100725.

[20] R. Kanakriyah, *The impact of accounting information systems on the banks success: Evidence from Jordan*, Res. J. Finance Account. **8** (2017), no. 17, 1–14.

[21] R. Karimi, *Investigating the effect of accounting information system in the decision-making process of managers*, First Int. Conf. Manag. Account. Econ. Soc. Sci., 2015.

[22] A. Khan, *Impact of accounting information system on the organizational performance: A case study of procter and gamble*, Star Res. J. **5** (2017), no. 12, 26–30.

[23] M. Philosophers and C. Brotherhood, *Investigating the effect of knowledge sharing behavior on organizational performance (Case study: Iranian Space Agency)*, Quart. J. Inf. Process. Manag. **32** (2016), no. 3.

[24] M.A. Mahmood, G.J. Mann and V. Zwass, *Impacts of information technology investment on organizational performance*, J. Manag. Inf. Syst. **16** (2000), no. 4, 3–10.

[25] M. Shawazi, *Investigating the relationship between accounting information system and financial performance with regard to the mediating role of accounting process performance in social security organization of Yazd*, Dissertation of Ardakan Azad University, 2017.

[26] S. Shuhidan, N. Mastuki and N. Wan Mohd, *Accounting information system and decision useful information fit towards cost conscious strategy in Malaysian higher education institutions*, Procedia Econ. Finance **13** (2015), no. 1, 885–895

[27] S.N. Soudani, *The usefulness of an accounting information system for effective organizational performance*, Int. J. Finance **4** (2012), no. 5, 136–145.

[28] R. Tavallaei and M. Mohammadzadeh Alamdaey, *Techniques and tools of research method in management*, Tehran, Iran: Jahad-e Daneshgahi, Amirkabir University of Technology, 2017.

[29] W.Z.W. Zakaria, N. Ilias and N. Wahab, *A survey on the impact of accounting information system on tasks efficiency: Evidence from Malaysian public sector agencies*, Int. Rev. Manag. Market. **7** (2017), no. 1, 183-190.