

RESEARCH ON FACTORS AFFECTING THE QUALITY OF ACCOUNTING INFORMATION SYSTEMS AT PUBLIC HOSPITALS IN HANOI

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ABSTRACT

The article studies the factors affecting the quality of accounting information systems in public hospitals in Hanoi. The study surveyed 360 subjects, conducted reliability testing of the scale, exploratory factor analysis EFA and correlation analysis, and multivariate regression. The research results show that information technology factors, organizational culture, employee training and education, employee commitment to the organization, support from senior management, and manager knowledge are factors affecting the quality of accounting information systems. The article has proposed a number of recommendations to help improve the quality of accounting information systems for public hospitals in Hanoi.

Keywords: *Accounting information system; Public hospital; Quality of accounting information system.*

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ABBREVIATIONS

| | |
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| AIS | Accounting Information System |
| IT | Information Technology |

1. INTRODUCTION

Autonomy is an inevitable trend and an important condition to promote the development of public service units. However, when implementing autonomy, hospitals need to ensure fairness in health care for everyone. The quality of medical examination and treatment must be improved, and patients need to have access to increasingly better medical services, with higher quality

and reasonable prices. In addition to the task of social security policy, hospitals must also ensure spending on professional activities, especially spending on human resources, which requires hospitals to balance revenue and expenditure, ensuring management of the unit's revenue sources. Due to many years of dependence on funding from the State budget, all activities of public hospitals must comply with regulations on the use of the State budget, and there is no initiative in managing revenue and expenditure from service revenue sources. The organization of fee collection is not yet tight and flexible, the data on fee collection, costs of using materials, chemicals, drugs... for patients are mainly done manually, not automatically retrieved from the hospital management software to the accounting software. This has made the AIS at public hospitals less flexible, accounting information is mainly for reporting purposes. More specifically, the quality control of accounting information has not been focused on by hospitals. Hospital accounting only stops at controlling books and financial reports to ensure compliance with accounting regulations, checking the quantity and time provided by accounting subjects. Controlling the quality and reliability of information provided on reports has not been of concern to hospitals.

In the context of operating under an autonomous mechanism, public hospitals need to quickly improve management tools to suit reality. The AIS is one of the important tools, providing complete and timely accounting information. The AIS not only supports decision making, planning, organization, leadership, operation and control but also plays a role in analyzing, forecasting and preventing risks. Many decisions are made based on information from the AIS, serving as the basis for effective and reasonable resource allocation, helping the organization achieve high efficiency.

To meet the need for using accounting information in the context of comprehensive financial autonomy, public hospitals need to organize a high-quality AIS. This system must provide useful information so that managers can make effective and timely decisions.

Traditional AIS are often accompanied by a large accounting team, where accounting work is performed manually through a system of vouchers, accounts, detailed and general accounting books, along with separate processes for each transaction. The 4.0 technology revolution has brought about significant changes in the operating environment, especially in technology, with the presence of modern hardware and software, updated and connected both internally and globally. In the IT environment, many traditional accounting functions have been merged and incorporated into new systems, requiring a combination of technological and accounting knowledge. The application of information technology in accounting has significantly improved the quality of accounting work as well as accounting information. Therefore, public service units in general and public hospitals in particular need to improve the quality of accounting information systems in the new context, ensuring the provision of high-quality accounting information [2, 3]. To achieve this, public hospitals need to identify factors affecting the quality of AIS.

Therefore, the general objective of the study is to identify factors affecting the quality of AIS. From there, propose solutions to improve the quality of AIS at public hospitals in Hanoi.

2. LITERATURE REVIEW

Studies on AIS are often based on different fundamental theories, so the influencing factors are also mentioned differently in each study.

According to contingency theory, there is no effective management style in all situations, so managers need to be flexible in the process of managing the business, the role of managers in finding and overcoming limitations will help the business achieve the set goals. Managers, users of information from the AIS, are closely related to this system. Accounting information from the AIS is created to meet the information needs of managers to support business decision making [5]; The perception of managers and business owners also affects the quality of the information system [8], in this study, factors related to business management will be mentioned including the support of

senior managers and the knowledge of managers; Rapina [14] conducted a quantitative study by surveying accounting staff in 33 cooperatives in Bandung, Indonesia to determine the extent to which factors such as management commitment, organizational culture, and organizational structure affect the quality of AIS. The study also measured the impact of AIS, management support, organizational culture, and organizational structure on the quality of accounting information; Using a quantitative research method, Nurhayati determined that management commitment and managers' knowledge (including professional level of AIS through education, training, and experience) have a significant impact on the successful implementation of AIS. This study used the ANOVA tool in SPSS to test the hypothesis and determine the relationship; Indahwati [11] proposed two hypotheses: management commitment affects the quality of AIS and user authority affects the quality of AIS; Senior management commitment is an important factor to ensure the successful implementation of AIS, without this commitment, the implementation of information systems will fail [1, 13,15] found that top management commitment significantly affects the implementation of AIS. Top management plays an important role in setting goals and supporting changes in work habits, procedures and reorganization of AIS in the organization. Furthermore, Laudon and Laudon also argued that management commitment affects the implementation of AIS through the support of users and technical information service staff; Luong Duc Thuan [17] also emphasized that effective implementation of an information system requires commitment from top management; In Vietnam, Vu Thi Thanh Binh [4] argued that the effectiveness of the installation program depends on the level of commitment from top management, which determines the success of the application program. Support from senior managers can motivate employees to develop positive attitudes towards AIS, thereby improving the quality of the system; Many studies have shown the influence of management involvement on the design and effectiveness of information systems [6, 9]. These authors measured the effectiveness of the AIS based on five components of accounting information quality: completeness, accuracy, timeliness, clarity and ease of use. The management factor was assessed through aspects such as knowledge, participation and support of management or owners. The study used exploratory analysis and multiple regression with the support of SPSS 20 software, over 169 collected

survey forms. The results showed that all three aspects of the management factor affected the effectiveness of the AIS. This proves that the management factor is an important factor for the quality of the AIS and plays an important role in the implementation and development of the AIS in each enterprise. Therefore, future studies on the quality of the AIS should not ignore the influence of the management factor; Based on the contingency theory, Vu Thi Thanh Binh [4] built a model of factors affecting the quality of AIS in small and medium-sized enterprises in Hanoi. Through analyzing empirical evidence, the study showed that five factors in the model all affect the quality of AIS, including: (1) Business environment, (2) Enterprise structure, (3) Information technology, (4) Managerial participation in implementing accounting information systems, (5) Accounting team. Notably, IT factors and manager participation have the strongest influence on the quality of AIS. Specifically, IT has the greatest influence on the quality of information processing, while manager participation has the strongest impact on the quality of accounting information.

According to the information processing theory, Ismail and Malcom [12] used this theory in their study of the quality of AIS in 214 small and medium-sized manufacturing enterprises in Malaysia. The study used cluster analysis to differentiate the enterprises into two groups: the group with high responsiveness and the group with low responsiveness. Then, the hypotheses were tested by comparing these two groups according to each influencing factor. The proposed factors include: the complexity of AIS, management knowledge, management commitment, internal experts, external experts and enterprise size. The results of the study showed that factors such as the complexity of AIS, management knowledge of accounting and information technology, the use of experts from associations and accounting firms, and the presence of an information technology team, all affected the level of AIS's responsiveness; Sacer and Oluic [16] study on the impact of IT infrastructure on the quality of information systems in medium and large enterprises in Croatia showed that an appropriate IT infrastructure can bring many benefits, including cost reduction, information quality improvement, and productivity enhancement; Similarly, Taber et al. found a significant relationship between IT infrastructure (including software, hardware, database) and the effectiveness of AIS in private educational institutions in Jordan. Indahwati [11] also pointed out

that IT infrastructure affects the quality of AIS. Nowadays, the application of IT in AIS has become widespread, therefore, choosing the appropriate IT infrastructure is a decisive factor for the effectiveness of AIS. Developing and improving IT infrastructure is a top priority in overall IT management; Fardinal asserted that the suitability of the components related to the AIS is very important to develop a strong internal control system (ICS) in an organization; A strong ICS is essential, especially in a technological environment, to minimize the risks associated with the AIS [16]; In a study on the impact of information technology on the quality of AIS, Meiryani [13] examined the impact of IT use in state-owned enterprises in Indonesia. Using a questionnaire survey method and data analysis through SEM PLS structural model, the results showed that the IT factor has a very small impact (0.84%) on the quality of AIS. The reason may be that the equipment and use of IT in AIS in these organizations is not effective, leading to the quality of AIS not being significantly improved. This result shows that IT is only one of many factors affecting the quality of AIS. To improve the quality of AIS, it is necessary to identify and evaluate which factors have the most significant impact and include them in the research model, from which appropriate measures can be proposed; In a study on the relationship between the level of IT equipment and the quality of AIS in enterprises of different sizes, Vu Thi Thanh Binh [4] found that large-scale enterprises have a better level of IT equipment, including systems and technology applications for accounting work, than small and medium-sized enterprises. From there, the author concludes that the quality of AIS in large-scale enterprises is often higher than that in small and medium-sized enterprises; In the context of applying information technology in enterprises, Vu Quoc Thong and Tran Thi Tuong Vi [20] used both qualitative and quantitative research methods to identify factors affecting the quality of AIS in enterprises in An Giang province. The authors collected 220 survey questionnaires and 199 were valid. The research results showed that there are six factors affecting the quality of AIS in an information technology environment: (1) data quality, (2) accounting staff qualifications, (3) IT infrastructure, (4) managers' accounting knowledge, and (5) internal control system.

Another approach is to use multiple theories, as in the study by Sabherwal et al. [15], the authors conducted a complex study to assess the quality of information systems and their influencing factors. This study

integrated many foundational theories, including Delone & McLean's model of information systems success (D&M), technology acceptance theory (TAM), theory of reasoned action (TRA), and acceptance and use of technology (UTAUT) model, to construct independent and dependent variables in the research model. The results of the study showed that many hypotheses were confirmed. However, some hypotheses about the interactions between the components measuring the quality of AIS were rejected. In particular, the study discovered a number of new relationships that were not mentioned in the initial hypotheses, including: experience positively affects user participation, user attitudes significantly positively affect system quality, and system quality positively affects system usage; Luong Duc Thuan [17] in his study evaluating factors affecting the quality of AIS in Vietnam relied on many different theoretical perspectives to determine the attributes of quality of AIS. The author identified the influencing factors as user participation, external experts, and organizational structure. Using a combination of qualitative and quantitative research methods, the author tested the hypothesis by multiple linear regression analysis and found that only user participation and organizational structure affected the quality of AIS, with almost the same level of impact. However, this study has limitations in that it was only conducted in Ho Chi Minh City, was conducted in a short period of time, and had a small sample size. Further studies are needed to find other influencing factors to test the relationship with the quality of AIS in the Vietnamese market; Nguyen Thi Thuan [18] applied various theories, including information processing theory and diffusion of innovation theory to study the quality of AIS. The research results showed that factors such as employee training and education, information technology, corporate culture, employee commitment, senior management support, and manager knowledge all have a positive impact on the quality of AIS. These factors play an important role in improving the performance of traffic construction enterprises in Vietnam.

3. METHODOLOGY

3.1. Theoretical basis

In this study, the author uses foundational theories such as contingency theory, information processing theory, managerial behavior theory and innovation diffusion theory to identify factors affecting the quality of AIS of public hospitals in Hanoi.

Contingency theory is considered to be relevant in the field of management research. When applied to the study of AIS, this theory suggests that in order to meet the requirements of enterprises, there needs to be a reasonable adjustment between environmental factors and enterprise structure. Many studies based on contingency theory have identified factors affecting the quality of AIS. These studies have shown that both factors belonging to the enterprise and the business environment have a significant impact on the quality of AIS. From this, it can be seen that AIS need to be designed to be flexible and adaptable to changes in the surrounding environment. In the context of public service units and public hospitals transitioning to a fully autonomous mechanism, adjusting AIS to suit is essential. Furthermore, with the development of the 4.0 industrial revolution, public service units need to quickly adapt to new technologies. Contingency theory provides an important foundation for studying factors affecting the AIS.

Information processing theory. In mid-1973, information processing theory was first introduced by Galbraith. This theory refers to the requirements and capabilities of information processing, as well as the compatibility between these two factors to achieve optimal efficiency for the enterprise. Organizations need to regulate information to cope with environmental uncertainty, thereby improving the decision-making process. Nguyen Thi Thuan (2021), based on information processing theory, pointed out that IT is a factor affecting the quality of AIS in traffic construction enterprises. The author emphasized that IT plays an important role in data processing and information provision in AIS. In the context of the 4.0 industrial revolution, public hospitals are also gradually applying IT to their operations. Therefore, this study also uses information processing theory to select factors affecting the quality of AIS at public hospitals in Hanoi.

Management behavior theory. Simon introduced the Managerial Behavior Theory, emphasizing that the core issue in management is making appropriate decisions. The Managerial Behavior Theory mainly focuses on changing managers' behavior to make important decisions that are appropriate to actual conditions. In the study of Nguyen Thi Thuan [18], this theory was applied to select factors such as employee commitment to the enterprise, support from senior management, and manager knowledge as factors affecting the quality of AIS. For public service units,

especially public hospitals in the process of autonomy, the role of managers becomes increasingly important. Public service units constantly improve their operations to enhance competitiveness and operational efficiency. Therefore, behavioral management theory is an important fundamental theory in studying factors affecting the quality of AIS in public hospitals.

Innovation diffusion theory. According to Rogers, there are three main factors that influence the ability of an organization to accept innovation, such as implementing BSC: (1) Personal characteristics of managers: Managers play an important role in committing and supporting the organization to adopt innovation; (2) Organizational characteristics: The structure and culture of the organization greatly influence the dissemination and implementation of new ideas. An organization with good connection, sharing and communication between departments will find it easier to accept innovation; (3) External characteristics of the organization: In addition to internal factors, external factors such as a highly competitive environment can also promote the organization to accept and apply new initiatives. Applying this theory, the author studies the factors affecting the quality of the AIS in public service units, focusing especially on the personal characteristics of managers [18].

Technology Acceptance Model. The quality of AIS is assessed through users' perceptions of output information, and is also measured by the extent to which it meets users' needs in providing information necessary for the decision-making process. Therefore, the quality of AIS is often expressed through perceptions of ease of use and usefulness of the system. According to the Technology Acceptance Model (TAM) proposed by Davis, factors such as perceptions of ease of use and usefulness of technology influence attitudes toward using technology, which in turn leads to actual adoption of technology. The TAM model is based on the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) developed by Ajzen. The author applies the Technology Acceptance Model (TAM) to identify factors affecting the quality of AIS in public hospitals in Hanoi. When economic units perceive the usefulness and ease of use of the current AIS, it will influence their intention and behavior to use the system.

3.2. Research model and research hypothesis

Based on the research overview and foundational theories such as contingency theory, information

processing theory, management behavior theory, innovation diffusion theory, technology acceptance model, 6 factors were selected for research: (1) information technology, (2) employee training and education, (3) organizational culture, (4) employee commitment to the organization, (5) support from senior management, (6) knowledge of managers". To analyze the factors affecting the quality of AIS and find solutions to improve the quality of AIS in public hospitals in Hanoi, the group of authors developed a research model (Figure 1) based on the inheritance from the research of Nguyen Thi Thuan [18].

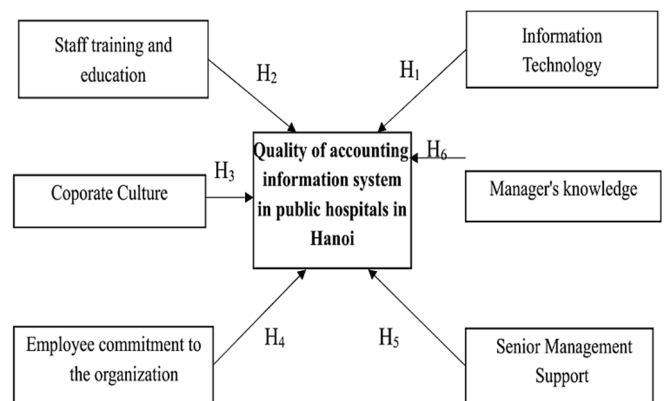


Figure 1. Factors affecting the quality of AIS in public hospitals in Hanoi

(1) Information Technology

Dehghanzade et al. divided IT into two main categories: hardware and software. Software is the set of operations that instruct hardware to perform specific tasks. Xu states that software includes all the processes for collecting information. According to Romney and Steinbart, IT includes computers and other electronic devices used to store, retrieve, transmit, and manipulate data. Meanwhile, Keen defines IT as any form of technology used to create, store, exchange, and use information in various forms. Applegate et al. divide IT into three main components: network-related technology, transaction processing technology, and IT-related infrastructure. Raymond and Paré assessed the level of sophistication of IT in management information systems based on the nature, complexity and interaction between the use and management of IT in the enterprise. According to them, this level of sophistication includes both the use and management of IT. Ismail and Malcolm [12] applied in the context of the AIS of small and medium enterprises and found that due to limited resources, small and medium enterprises are often less capable of managing IT, therefore, the sophistication of IT in these enterprises is only considered from the perspective of IT

use and mainly focuses on the level of sophistication in the application of technologies as well as the complexity of information. Some studies have considered the level of investment in IT through the computerization of information systems. The diversity and application of IT in production and business activities have brought many benefits to enterprises. IT plays an important role because its adoption and application helps the accounting information system operate more effectively in providing information, thereby bringing competitive advantages to businesses, improving convenience and user satisfaction. Furthermore, IT has changed the accounting method from manual recording to using computer systems, affecting the way accounting information systems operate, from preparation, processing to presentation and provision of information, contributing significantly to the accuracy and timeliness of accounting information and the quality of AIS [16], improving information processing procedures in the system. IT also supports businesses in making business decisions, helping managers filter and condense information more effectively, avoiding information overload, thereby improving the quality of decision making and reducing the cost of providing information from the system to users, improving the quality of information output from the system (Louadi, 1998). At the same time, the application of computer technology also promotes the use of information systems such as AIS. Other empirical studies also show the influence of factors such as hardware and software on the quality of accounting information systems [12, 13]. Thus, IT plays an important role in designing, applying, implementing and improving the quality of accounting information systems in enterprises. In this study, the IT factor is measured through the variable of IT application level. Previous studies have shown that effective IT application helps to process business operations faster, accounting information is accurate, timely and forms are better standardized. Based on the theoretical basis and results of previous empirical studies, the author proposes the following hypothesis:

H1: Information technology has a positive impact on the quality of AIS.

(2) Employee training and education

According to Choe [6], training and education of employees is a form of investment in the transfer of knowledge about information systems, including basic concepts of information systems, skills, techniques,

organizational abilities and knowledge about specific products related to information systems. Gibb stated that training is the process of acquiring the skills, knowledge, habits and attitudes needed to perform various tasks in running a business. Training programs for AIS in an organization can help improve the current system, develop new systems or support more accurate decision making. According to Livari, to develop AIS, an organization needs to invest in training and education of system users. This will help improve the quality of AIS. Therefore, the author proposes the following hypothesis:

H2: Employee training and education positively impact the quality of AIS.

(3) Corporate culture

Corporate culture is a set of values and norms that are shared and accepted within an organization, helping all members understand what behaviors are acceptable. According to George and Jones, corporate culture is a unique feature of each business, creating differences between businesses. Corporate culture can explain phenomena in organizations such as leadership style, level of bureaucracy, hierarchy, human resource management methods, and ways of building strategies. Livari believes that corporate culture describes the beliefs, values, and norms shared among members of the organization, formed through the process of learning and shaping from habits and behaviors. Senin defines corporate culture as a system of basic assumptions, created, discovered or developed by a group of people when dealing with issues related to the internal and external environment of the enterprise, and then communicated to new members. Corporate culture represents social knowledge and consensus among members. Corporate culture plays an important role in creating competitive advantage, is a set of values and rules shared by individuals and groups in the organization. It contributes to the difference between enterprises, is considered as the tradition and unique assets of the enterprise, and is a management tool that brings competitive advantage. Based on the results of some previous studies, the author proposes the following hypothesis:

H3: Corporate culture positively affects the quality of AIS.

(4) Employee commitment to the organization

Commitment represents the power of an individual to participate in an organization, where managers at all levels collaborate to define work goals, assign

responsibilities, and carry out committed activities. Employee commitment to an organization is the extent to which employees believe in and accept the goals of the organization, and desire to maintain their commitment to the organization. According to Cooper, employee commitment is not only participation but also a persistent effort to maintain the behaviors necessary to achieve the goals of the organization. The author stated that this commitment reflects employees' feelings about identifying and actively participating in the organization. In short, employee commitment to an organization can be understood as an emotional attachment, in which employees believe in and accept the goals of the organization, as well as desire to stay with the organization for a long time. This is an important factor in determining the working behavior of employees, and at the same time shows their sense of responsibility for their obligations in the organization. From that, the author proposes the following hypothesis:

H4: Employee commitment to the organization positively impacts the quality of AIS.

(5) Senior management support

Accounting information is generated from the AIS to meet the needs of managers in making business decisions [5], and the perceptions of managers and business owners can influence the quality of the information system [8]. In this study, the corporate governance factor that will be mentioned is the support of senior management in the implementation of the AIS. This support includes the actions and tasks that managers demonstrate, as well as their psychology related to the implementation of the project or system [15]. The key role of business owners in the implementation of the AIS is also very important. For an AIS to be successful, support from top management is an important influencing factor. Managerial commitment, such as participation in an AIS project, can help align the accounting information system more closely with the company's goals and strategies. In addition, managers have the authority to ensure that AIS-related projects are allocated adequate resources. Support from management also encourages employees to develop positive attitudes toward the implementation of AIS, thereby improving the quality of the system. Many studies have shown the impact of management support on the design and outcomes of information systems [6,9]. Hirschheim argued that management support during the development and implementation of a system will

improve system quality and improve user satisfaction, thereby reducing the need for system changes. Choe [6] also found a relationship between user participation and information quality of AIS. Sabherwal et al. [15] also confirmed that user participation has a positive impact on system quality and perceived usefulness and satisfaction. From these studies, it can be affirmed that the role and participation of managers in the implementation of AIS has a significant impact on the quality of AIS, therefore, the author proposes the following hypothesis:

H5: Senior management support positively affects the quality of AIS.

(6) Manager's knowledge

Many studies have emphasized that managers' knowledge and commitment play an important role in the implementation of AIS. A thorough understanding of existing technologies and updates on new technologies will help managers choose the right technology solution for their business. To enhance managers' knowledge of AIS, learning through education, training, and experience is very important. Sabherwal et al. [15] also argued that experience in the field of AIS is a key factor. According to Ambrosini and Bowman, managers' knowledge is measured through two aspects: Internal knowledge, including what is stored in the human mind, personal expertise, creativity and innovation formed by external influences; External knowledge, which is knowledge that can be codified, applied to machines and easily converted into a more understandable form. Based on the theories and results of research works, the author hypothesizes:

H6: Managers' knowledge positively affects the quality of AIS.

3.3. Research methods

To conduct the study, the authors applied quantitative research methods by designing a survey to collect data, selecting samples and sending the survey directly to subjects related to the use of AIS in public hospitals in Hanoi. The data was then verified, measured and confirmed the factors affecting the quality of AIS using SPSS 26 software.

To collect information for the study, the author surveyed the subjects including the Board of Directors, Chief Accountants, Heads of Finance and Accounting Departments and accountants of hospitals. The author distributed the survey directly and sent it via Google Docs to collect information from 73 public hospitals in Hanoi under the Department of Health. The author distributed

400 survey forms, collected 376 forms, of which 16 were invalid, and the remaining 360 were valid. This number of valid forms met the requirements for the size of the research sample.

The questionnaire includes:

Part A: General information related to the surveyed subjects

Part B: Information related to the components of the AIS and the quality of the AIS. Specifically:

(1) Questionnaire on the components of the AIS;

(2) The quality of the AIS and factors affecting this quality. After completing the questionnaire based on the results of interviews and preliminary surveys, the questionnaire was tested with 10 managers and accountants at the University of Medicine and Pharmacy Hospital and 10 managers and accountants at the Central Dermatology Hospital. The collected results were then used to eliminate duplicate questions, questions with multiple meanings or unclear questions. After testing and editing, the survey form was deployed to conduct a large-scale survey.

4. RESULTS AND DISCUSSION

The analysis of factors affecting the quality of the AIS at public hospitals in Hanoi was carried out by estimating the regression equation to determine the influencing factors. Before performing the estimation, the author checked the reliability of the scale by analyzing the Cronbach's Alpha coefficient and verified the validity of the scale through exploratory factor analysis (EFA). The results from the quantitative data analysis steps will be presented in detail in the following sections.

Descriptive statistics of research variables

The research variables in the model when applied to public hospitals in Hanoi are presented in Table 1. Table 1 provides information on the minimum, maximum, average and standard deviation values of the independent variables, including: Information technology, Coporate culture, Employee training and education, Employee commitment to the organization, Senior management support, and Manager's knowledge, as well as the dependent variable of AIS's quality.

The survey results in Table 1 show that the survey participants believe that the IT factor is the factor that has the greatest impact on the quality of the AIS in the hospital. The factor with the lowest average score in the descriptive statistics table is the training and education of

accounting staff. This result is consistent with previous surveys on the status of the components of the AIS. These are the points that need to be improved to improve the quality of the AIS in the future.

Table 1. Descriptive statistics results of variables in the research model

| Numerical order | Variable name | Min | Max | Average | Standard deviation |
|-----------------|--|------|------|---------|--------------------|
| 1 | Quality of AIS (CL) | 2.67 | 4.14 | 3.28 | 0.242 |
| 2 | Information Technology (CN) | 2.85 | 5.0 | 3.50 | 0.550 |
| 3 | Coporate culture (VH) | 2.0 | 5.0 | 3.28 | 0.596 |
| 4 | Employee training and education (HL) | 2.0 | 5.0 | 3.12 | 0.529 |
| 5 | Employee commitment to the organization (GB) | 2.0 | 4.8 | 3.31 | 0.491 |
| 6 | Senior management support (QL) | 2.0 | 5.0 | 3.30 | 0.587 |
| 7 | Manager's knowledge (MK) | 2.0 | 5.0 | 3.27 | 0.596 |

Source: Author's data processing synthesis

In addition to looking at the mean values of the criteria, the standard deviation of each group of indicators also provides important information. The standard deviation of the quality indicator of the AIS is quite small (0.242), indicating a high consensus among the responses. In contrast, other indicators such as coporate culture and manager's knowledge have a large standard deviation (0.596), indicating a dispersion in the responses. This may indicate that the survey respondents have different expectations or levels of understanding of coporate culture and manager's knowledge.

Scale test results using Cronbach's Alpha reliability coefficient

After collecting the data, they were entered into an Excel spreadsheet, removing outliers and indicators with no values or invalid values. Next, the data were analyzed using SPSS26 software through the following steps: (1) checking the reliability of the scale using the Cronbach's Alpha method; (2) performing exploratory factor analysis (EFA); (3) conducting regression testing to determine the main factors affecting the quality of the AIS.

For the reliability test of the scale using Cronbach's Alpha, the author performed several times to identify and eliminate inappropriate variables. The final results, after

eliminating unnecessary variables, are presented in the results Table 2.

Table 2. Summary of results of scale reliability analysis

| Numerical order | Scale | Cronbach's Alpha | Variable type |
|-----------------|---|------------------|---------------|
| 1 | Quality of AIS: CL1, CL2, CL3, CL4, CL5, CL7, CL8, CL9 | 0.880 | CL6 |
| 2 | Information Technology: CN1, CN2, CN3, CN5, CN6, CN7 | 0.867 | CN4 |
| 3 | Coporate culture: VH1, VH2, VH3, VH4, VH5 | 0.887 | |
| 4 | Employee training and education: HL1, HL2, HL3, HL4, HL5 | 0.893 | |
| 5 | Employee commitment to the organization: GB1, GB2, GB4, GB5 | 0.697 | GB3, GB6 |
| 6 | Senior management support: QL1, QL2, QL3, QL4 | 0.710 | QL5 |
| 7 | Manager's knowledge: MK1, MK2, MK3, MK4, MK5 | 0.975 | |

Source: Author's data processing synthesis

According to Nunally, a good scale should have a Cronbach's Alpha reliability of 0.7 or higher. Hair et al. also stated that a scale that ensures unidimensionality and reliability should have a Cronbach's Alpha threshold of 0.7 or higher. However, with the nature of a preliminary exploratory study, a Cronbach's Alpha threshold of 0.6 is acceptable. The higher the Cronbach's Alpha coefficient, the higher the reliability of the scale. For the variable Employee commitment to the hospital, Cronbach's Alpha is $0.697 > 0.6$ and the observed variables GB1, GB2, GB4, GB5 have total variable correlations > 0.3 , so the scale is reliable, the observed variables all have good explanatory meaning for the GB factor.

Results of scale testing by exploratory factor analysis (EFA)

As mentioned above, after evaluating the reliability of the scale using Cronbach's Alpha coefficient, the author eliminated 5 observed variables, leaving 37 observed variables and indicators that all satisfied the reliability requirements.

Next, the author will evaluate the observed variables using the exploratory factor analysis (EFA) technique.

When performing the EFA steps, the author obtains specific results presented in the data Table 3.

The results of the EFA exploratory factor analysis for the variables showed that the KMO value = 0.819 satisfied the condition $0.5 < 0.819 < 1$. The Bartlett's test result had $p\text{-value} = 0.000 < 0.05$, showing that the variables are related to each other and the EFA analysis is suitable for the sample data.

Table 3. KMO and Bartlett's Test

| | | |
|--|----------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.819 |
| Bartlett's Test of Sphericity | 5330.855 | 2.325E4 |
| | 406 | 465 |
| | .000 | 0.000 |

These six factors are independent variables that affect the quality of the AIS. The specific results are presented in Table 4.

Table 4. EFA analysis results for independent variables

| | Factors | | | | | |
|-----|---------|-------|-------|-------|-------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CN6 | 0.802 | | | | | |
| CN3 | 0.777 | | | | | |
| CN5 | 0.764 | | | | | |
| CN1 | 0.757 | | | | | |
| CN2 | 0.746 | | | | | |
| CN7 | 0.736 | | | | | |
| HL3 | | 0.897 | | | | |
| HL4 | | 0.858 | | | | |
| HL5 | | 0.820 | | | | |
| HL2 | | 0.765 | | | | |
| HL1 | | 0.756 | | | | |
| VH3 | | | 0.898 | | | |
| VH2 | | | 0.830 | | | |
| VH4 | | | 0.791 | | | |
| VH1 | | | 0.779 | | | |
| VH5 | | | 0.769 | | | |
| MK5 | | | | 0.837 | | |
| MK1 | | | | 0.819 | | |
| MK2 | | | | 0.805 | | |
| MK4 | | | | 0.752 | | |
| MK3 | | | | 0.727 | | |
| QL4 | | | | | 0.729 | |

| | | | | | | |
|-----|--|--|--|--|-------|-------|
| QL3 | | | | | 0.703 | |
| QL2 | | | | | 0.700 | |
| QL1 | | | | | 0.688 | |
| GB5 | | | | | | 0.791 |
| GB2 | | | | | | 0.769 |
| GB4 | | | | | | 0.759 |
| GB1 | | | | | | 0.636 |

Source: Author's data processing synthesis

Results of correlation analysis, multiple regression

As mentioned in the research method section, one of the contents of the model is to evaluate the factors affecting the quality of AIS in public hospitals. As discovered in the EFA exploratory factor testing section above, the author found that there are 6 independent variables that can affect the quality of AIS. To test the hypotheses, the author performed a correlation test of

Table 5. Results of correlation testing of variables in the model

| | | CN | QL | HL | GB | VH | MK | CL |
|----|---------------------|---------|---------|---------|---------|---------|---------|----|
| CN | Pearson Correlation | 1 | | | | | | |
| | Sig. (2-tailed) | | | | | | | |
| QL | Pearson Correlation | 0.159** | 1 | | | | | |
| | Sig. (2-tailed) | 0.002 | | | | | | |
| HL | Pearson Correlation | 0.165** | 0.351** | 1 | | | | |
| | Sig. (2-tailed) | 0.002 | 0.000 | | | | | |
| GB | Pearson Correlation | 0.245** | -0.058 | 0.133* | 1 | | | |
| | Sig. (2-tailed) | 0.000 | 0.268 | 0.012 | | | | |
| VH | Pearson Correlation | -0.078 | 0.091 | 0.099 | 0.005 | 1 | | |
| | Sig. (2-tailed) | 0.141 | 0.083 | 0.061 | 0.917 | | | |
| MK | Pearson Correlation | 0.037 | 0.090 | 0.062 | 0.112* | 0.371** | 1 | |
| | Sig. (2-tailed) | 0.483 | 0.090 | 0.242 | 0.034 | 0.000 | | |
| CL | Pearson Correlation | 0.489** | 0.415** | 0.353** | 0.292** | 0.335** | 0.413** | 1 |
| | Sig. (2-tailed) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | |

Table 6. Regression results of independent and dependent variables of the research model

| Model Summary ^b | | | | | |
|----------------------------|--------------------|----------|-------------------|----------------------------|---------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | 0.764 ^a | 0.584 | 0.577 | 0.49409 | 1.723 |

a. Predictors: (Constant), MK, CN, HL, GB, VH, QL

b. Dependent Variable: CL

| Coefficients ^a | | | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|--------|-------|-------------------------|-------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| | (Constant) | -1.231 | 0.229 | | -5.381 | 0.000 | | |
| | CN | 0.332 | 0.031 | 0.393 | 10.809 | 0.000 | 0.893 | 1.120 |
| | QL | 0.248 | 0.034 | 0.271 | 7.239 | 0.000 | 0.840 | 1.190 |
| | HL | 0.129 | 0.036 | 0.133 | 3.546 | 0.000 | 0.842 | 1.187 |
| | GB | 0.149 | 0.033 | 0.163 | 4.503 | 0.000 | 0.900 | 1.111 |
| | VH | 0.231 | 0.038 | 0.230 | 6.147 | 0.000 | 0.843 | 1.186 |
| | MK | 0.236 | 0.033 | 0.263 | 7.037 | 0.000 | 0.845 | 1.183 |

a. Dependent Variable: CL

the variables, then performed a regression test to determine the beta coefficient to determine the influencing factors and the level of influence. The results of the correlation test of the variables in the model are presented in Table 5.

The regression results are presented in the following Table 6.

From the regression results, the following standardized regression equation can be constructed:

$$CL \text{ (Quality of AIS)} = -1.231 + 0.332CN + 0.248QL + 0.236MK + 0.231VH + 0.149GB + 0.129HL$$

The t-test sig values of the independent variables are all less than 0.05, so all variables are statistically significant and have an impact on the quality of the AIS. The positive beta value means that the independent variables have a positive impact on the quality of the AIS. The regression results also show that the IT factor (CN) has the greatest impact on the quality of the AIS. Next is the support factor of senior management support - a factor that significantly affects the quality of the AIS. This support is not only about information requirements, but also about the steps of planning, investing in facilities, recruiting staff, etc. Next is the manager's knowledge, it can be understood that a highly qualified manager will require fast, complete, and timely accounting information, so the quality of accounting information must meet this high requirement. The corporate cultural factor is also very important and has an impact on the quality of the AIS. The research results also show that the factor of employee commitment to the organization and initial and periodic professional training for employees also contribute to the quality of the AIS, although at a significant level, but not as high as the above four factors. The research results are consistent with the research of some scholars such as Nguyen Thi Thuan [18], Vu Thi Thanh Binh [4]. To affirm the important role of the AIS in public hospitals, it is necessary to improve the quality of the system and enhance the quality of information generated from the AIS to meet the requirements of information users.

5. CONCLUSION AND RECOMMENDATIONS

Based on the analysis results, the author proposes some recommendations to help improve the quality of the AIS for public hospitals in Hanoi as follows:

- About people

+ Increase manager participation: Managers need to participate more in the process of implementing IT in hospitals, immediately solving problems arising during

the implementation of AIS such as linking with systems of other departments in the hospital.

+ Improve the capacity of the accounting team and the commitment to the hospital: (1) Improve the professional qualifications of accountants by having the public hospitals send their staff to fully attend training courses organized by the Ministry of Finance or the Ministry of Health or by having the hospitals conduct training directly in the hospital or inviting consultants to train and advise staff in updating knowledge and skills; (2) Improve the compliance of accountants by having the public hospitals monitor and periodically evaluate the implementation of procedures by staff, develop sanctions for violations of procedures, thereby improving the quality of the AIS in public hospitals. The public hospitals should establish a performance evaluation system such as establishing a KPI system for the accounting department and accounting positions to clearly define the functions and tasks of each accounting staff and ensure coordination among accounting positions; (3) Improve the IT skills of accountants, thereby helping the public hospitals to build a team of accountants with sufficient capacity and qualifications to use the AIS, avoid errors and fraud, and provide the most useful information to information users; (4) Increase the connection between the accounting team and the hospital by public hospitals researching, developing and issuing remuneration policies appropriate to the working capacity of employees. At the same time, public hospitals need to build a hospital culture that makes employees feel secure in their work and dedication, helping the hospital develop sustainably.

- Increase investment in IT facilities

Public hospitals need to be equipped with sufficient hardware and software to be able to deploy necessary applications for hospital operations such as: computer systems, setting up LAN, WAN systems, setting up internet connection systems, communication environments between departments within the hospital or being able to connect with external partners such as banks, customers, suppliers, etc., public hospitals can consult with experts inside and outside the hospital about IT applications that need to be deployed at the hospital, this will help improve the efficiency of IT equipment and help improve the quality of AIS.

- About the database system

The process of collecting accounting information is important in the operation of the AIS, helping the process of processing and providing information effectively. Therefore, to complete the process of organizing input

data at public hospitals, it is necessary to complete both the content of collected information and the collection method.

- About internal control system

To design the accounting information control process at public hospitals in Hanoi, hospitals need to control factors affecting the quality of accounting information including: management capacity and data quality, because the quality of accounting information is the output of the AIS to ensure that the accounting information provided by the AIS is most useful for users inside and outside the hospital.

- About processes

Public hospitals should focus on completing the following processes in the AIS process: Process for handling hospital fees of patients who are unable to pay or do not pay; Process for handling errors in hospital fee software; Process for guaranteeing and paying commercial insurance; Process for issuing and managing electronic invoices; Process for paying hospital fees without using cash (POS, QR); Process for exchanging and returning medical examination and treatment services; Process for importing and exporting materials, chemicals, drugs, etc.; Process for managing and monitoring funding sources for scientific research topics; Process for receiving, managing and using foreign aid, etc. Public hospitals should also regularly or periodically review, edit and supplement processes to ensure that they are suitable for actual conditions and meet the professional requirements of the organization.

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