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## **Chapter 1**

### **ABOUT THE RESEARCH TOPIC**

#### **1.1. Reasons for choosing a topic**

Autonomy is an inevitable trend and an important prerequisite for promoting the development of public service units. The assignment of autonomy to public service units according to Decree No. 60/2021/ND-CP of the Government regulating the financial autonomy mechanism of public service units is a precise policy of the Party and the State. This policy has promoted and created opportunities for public service units to develop, gradually assert themselves, and enhance positivity, initiative, and creativity in financial and unit assets management. It effectively uses funding sources, increases revenue, saves expenses, thereby gradually reducing State subsidies, improving income for workers in the unit, and at the same time strengthening the infrastructure, improving operational efficiency to meet the emerging demands of society, and to keep up with new trends.

Financial autonomy is an indispensable requirement in the process of societal movement and development, as well as the mobilization and development of public service units in general and public service units in the health sector in particular, especially medical examination and treatment facilities. The hospital has discretion over expenses and can utilize legal revenue to fund initiatives which perform medical examinations and treatments. Medical examination and treatment facilities, in particular, which can cover their own investment and recurring expenses, are authorized to set the price of medical examination and treatment services.

However, hospital autonomy must not only ensure patients' access to better and more affordable medical care, but also the quality of medical examination and treatment must be improved. In addition to the task of managing social security policies, hospitals must also ensure spending on professional activities, especially spending on human resources. Hospitals must balance revenue and expenditure, to ensure efficient revenue management. Due to many years of dependence on funds allocated from the state budget, all activities of public hospitals must comply with regulations on the use of the state budget. These

regulations prevent hospitals from being proactive in managing revenue and expenditure from service revenues. Organizing hospital fee collection is also neither stringent nor flexible. Data on hospital fees, costs for supplies, chemicals, pharmaceuticals, and so on for patients are mostly collected manually rather than automatically from hospital administration software linked to accounting software. This has reduced the flexibility of public hospitals' accounting information systems, which are now mostly used for reporting purposes. Hospitals, in particular, have failed to prioritize the quality management of financial information. Hospital accounting consists only of regulating books and financial reports to guarantee compliance with accounting regime laws, as well as verifying the quantity and timing of accounting object supply. Hospitals have shown little interest in controlling the quality and trustworthiness of information presented in reports.

Public hospitals that operate on their own must fast develop innovative management solutions that fit real-world scenarios. Accounting information system (AIS) is one of the effective tools that provides complete and timely accounting information. The AIS is critical not just in decision making, planning, organization, leadership, administration, and control, but also in analysis, forecasting, and risk prevention. Many decisions rely on information collected from the AIS, and they serve as a foundation for decisions to allocate resources efficiently and appropriately, resulting in high efficiency for the company.

To obtain accounting information that meets the needs of use in the context of comprehensive financial autonomy, public hospitals are required to organize an AIS with necessary content to provide useful information for patients and thus enable administrators to make effective and timely decisions.

Traditional AIS is associated with the multi-person accounting structure; accounting work is conducted manually with a system of records, accounts, specific accounting books and generic ones; and distinct regulatory processes for each accounting operation. The 4.0 technology revolution has also led to significant changes in the operating environment, especially the technological element with modern, updated hardware and software having internal and global connectivity. In the IT environment, many traditional accounting functions have been consolidated and incorporated into new systems, requiring a combination

of technical and accounting knowledge. The integration of information technology in accounting has greatly enhanced the quality of both accounting work and accounting information. Therefore, public service units in general and public hospitals in particular need to improve the quality of AIS in the current circumstances, and ensure the accounting information provided is of high quality (Alsharayri, 2012; Anggraini, 2012). To do that, public hospitals need to identify the factors that affect the quality of the AIS.

Based on the above issues, the author has chosen the topic: "***Accounting information system in public hospitals in Hanoi***" as the research content of the thesis. The thesis is centered on studying the current status of the AIS at public hospitals in Hanoi by examining the existing use of AIS elements and then developing and testing a model of influencing factors on AIS quality. Based on an assessment of the existing situation and the identification of factors affecting AIS quality, the thesis will propose recommendations to improve AIS quality at public hospitals in Hanoi.

## **1.2. Objectives of the study and Research questions**

### ***1.2.1. Research objectives***

- *General objectives*: Research the current status of the AIS application and identify factors affecting AIS quality to provide recommendations to improve AIS quality at public hospitals in Hanoi.

- *Specific objectives*:

- (1) Summarize the theoretical basis for AIS applied in public service units;
- (2) Analyze and evaluate the current status of AIS application at public hospitals in Hanoi;
- (3) Testing factors affecting AIS at public hospitals in Hanoi;
- (4) Provide recommendations to improve AIS quality at public hospitals in Hanoi to meet information requirements to serve the autonomy of public hospitals in Hanoi.

### ***1.2.2. Research Questions***

The following questions must be addressed in the thesis in order to meet the study objective:

1: How is the AIS being used right now in Hanoi's public hospitals? Which issues are present and what are the root causes of those issues?

2: Which factors affecting AIS quality and How much do these factors affect the quality of AIS at public hospitals in Hanoi?

### **1.3. Subjects and scope of research**

#### ***1.3.1. Subjects***

The research object of the thesis is AIS at public hospitals in Hanoi, with specific research objects focusing on the elements that make up the accounting information system and quality. AIS and factors affecting AIS quality in public hospitals in Hanoi.

#### ***1.3.2. Scope of research***

The thesis approaches AIS based on six components: people, hardware, software, processes, data and internal control system. The thesis also examines factors of accounting information system quality and factors affecting AIS quality.

- Location: The topic focuses on surveying public hospitals in Hanoi comprising 73 hospitals, including: Bach Mai Hospital, Viet Duc Hospital, Hanoi Medical University Hospital, National Children's Hospital, Hanoi Lung Hospital, Central Lung Hospital...

- Time: The thesis conducts research and surveys at public hospitals in Hanoi from January 2023 to August 2023. Secondary data is taken from public hospitals in Hanoi over the years 2021-2023.

### **1.4. Research Methodology**

The thesis uses qualitative research methods combined with quantitative research to serve the research process. Qualitative research was undertaken, which included interviews and the solicitation of expert opinions to create a survey questionnaire on the state of using AIS elements, criteria for evaluating AIS quality, factors affecting AIS quality, and typical case studies. Quantitative research was conducted through distributing surveys to collect data by selecting samples and sending surveys directly to subjects related to the organization of AIS at public hospitals in Hanoi, then use the SPSS26 software tool to verify data, measure and confirm factors affecting the quality of AIS.

## **1.5. Contributions of thesis**

### ***1.5.1. Theoretical contributions:***

The qualities of public service units and AIS inside these units have been made clearer by the thesis. Six components have been used in the thesis to approach and research AIS: people, hardware, software, processes, data, and internal control system.

On the basis of contingency theory, information processing theory, management behavior theory, innovation diffusion theory and inheritance theoretical modelling combining the theoretical model of UTAUT (Unified Theory of Acceptance and Use of Technology) (Vankatesh et al. , 2003), the thesis proposes to build a model to research factors affecting AIS quality at public hospitals in Hanoi.

### ***1.5.2. Practical contributions***

The thesis has reflected and clarified the current status of AIS at public hospitals in Hanoi, identified and measured factors that affect AIS quality at public hospitals in Hanoi. The thesis has proposed a model representing the relationship between factors affecting AIS quality at public hospitals in Hanoi.

Based on the development orientation of the health sector, the thesis makes recommendations to enhance AIS quality at public hospitals in Hanoi.

The research results of the thesis can be used as a reference for learning and scientific research in fields related to information systems and accounting information systems, as well as suggestions for students. Public hospitals in Hanoi in particular, and public service units in general, may apply to organize, build and deploy accounting information systems for their units to meet management requirements, and to improve operational efficiency in today's fiercely competitive context.

## **1.6. Research results**

The thesis has clarified more about AIS in public service units through an approach with six constituent elements. On that basis, combined with the characteristics of public service units in general and public hospitals in Hanoi in particular, a theoretical framework has been established on the content of

accounting information systems in public service units as well as public hospitals in Hanoi.

The thesis has surveyed, analyzed and evaluated the current situation, especially pointing out the shortcomings and causes of the shortcomings in the organization of accounting information systems at public hospitals in Hanoi.

Combining qualitative and quantitative research methods, the thesis tested a model of 6 factors affecting AIS quality at public hospitals in Hanoi:

- (1) Information technology,
- (2) Senior management support,
- (3) Manager knowledge,
- (4) Unit culture,
- (5) Employee commitment to the hospital,
- (6) Training and Training unit staff.

Among them, the information technology factor has the most influence.

Based on the research results, the author makes recommendations to enhance AIS quality at public hospitals in Hanoi.

### **1.7. The structure of the research**

The structure of the research includes 5 chapters:

Chapter 1. Introduction

Chapter 2. Research overview and theoretical basis of accounting information systems in public service units

Chapter 3. Research Procedures and Research Methodology

Chapter 4. Research results on current status of AIS at public hospitals in Hanoi

Chapter 5. Discussion research results, proposed solutions and recommendations



## Chapter 2

# OVERVIEW OF RESEARCH AND THEORETICAL BASIS OF ACCOUNTING INFORMATION SYSTEMS IN PUBLIC SERVICE UNITS

### 2.1. Research overview

In this article, the thesis has provided an overview of the following contents:

*Overview of research on accounting information systems. This content is summarized in two parts:*

- Research on cyclical AIS
- Studies on AIS according to its constituent elements
- Components of AIS

*Overview of research on AIS quality. This article summarizes:*

- General studies on AIS quality
- Research on factors affecting AIS quality
- Research AIS at public service units

*Based on the research overview, the thesis has discovered research gaps including:*

*Regarding research approach:* Research focuses on general theory of accounting information systems according to many different information system approaches such as according to the accounting cycle, and the constituent elements of the information system.

*Regarding research subjects:* The works have comprehensively researched AIS in general, for businesses, public service units, and schools, but the public hospital system is particularly still currently limited.

*About the research context:*

- With the characteristics of public service units in general and public hospitals in particular, which are gradually shifting to an autonomous mechanism, AIS quality affects the performance of the units. AIS quality is reflected in the usefulness of information to information users. Therefore, the human factor is one of the factors that needs to be clarified in AIS. However,

previous studies approaching AIS in public service units followed the information processing cycle.

- Previous studies in public service units have not been researched in the new context with the development of science and technology. Therefore, studies approaching AIS according to its constituent elements have not clearly shown the role of software and hardware in information technology. Especially during the 4.0 industrial revolution, the role of software applied in the AIS organization is very necessary. Therefore, there needs to be a clear division of information technology elements into hardware and software.

- The quality of accounting information systems and factors affecting the quality of AIS in public hospitals have not been mentioned. This is the gap where the thesis will test the factors affecting AIS quality in public hospitals in Hanoi in the near future. From there, we will make recommendations and conditions to implement solutions. Solutions to perfect the accounting information system to improve the quality of AIS for public hospitals in Hanoi in the near future.

## **2.2. Theoretical basis for accounting information systems in public service units**

### ***2.2.1. Theoretical basis for public service units***

Clause 1, Article 2 of Decree 60/2021/ND-CP states: "*Public service units are entities created by capable State agencies in compliance with the law; they possess legal standing, a seal, and private accounts as required by the law, and they can offer public services or support state administration.*"

According to different criteria, public service units are identified into many different types.

*According to the field of operation*, public service units are divided into the fields of health, culture, education...

*According to the unit's role in the state financial management system*, public service units providing public services are divided into level 1, level 2, and level 3 budgeting units.

*According to the source of public service revenue*, public service units providing public services are divided into public service units with revenue and public service units without revenue.

*According to the level of financial autonomy:* public service units are divided into 4 groups (Decree No. 60/2021/ND-CP).

*Operational characteristics of public service units*

*Financial management of public service units*

Currently, the financial management mechanism in public service units tends to follow a mechanism of complete financial autonomy. Public service providers will calculate all costs according to the market mechanism. However, not all public service units in all fields must immediately comply with this Decree. While the Decree stipulating the autonomy mechanism of public service units in each specific field has not been issued or amended, public service units in each field can continue to implement the autonomy mechanism. The old regulations stipulated autonomy and self-responsibility for performing tasks, organizational structure, payroll and finances for public service units.

### ***2.2.2. Accounting information system in public service units***

Accounting information system refers to the integration of system components that process financial data into financial information to create useful and necessary financial information for users in decision making. Role of accounting information system:

- Is a tool to help businesses evaluate operational efficiency (Budiarto & Prabowo, 2015).

- An effective information provision tool: AIS will help improve the decision-making process of information users. AIS provides information promptly, accurately and in different ways with relevant reports that help improve decision making.

- Is a tool for managing public service unit's activities

- Providing conditions for building sustainable business development: In the context of increasingly scarce resources, accounting information systems help businesses maintain operations.

Elements constituting AIS: AIS is a system consisting of many constituent elements that are very closely related, intimate but equally complex: People, Software, Hardware, Data, Procedure, and Internal control.

### **2.2.3. Basic theories**

*Contingency theory*

*Information processing theory*

*The theory of behavior in management*

*Theory of innovation diffusion*

*Model of Technology Acceptance*

### **2.2.4. The quality of accounting information systems**

AIS quality is the synchronous interaction between components in the process of performing the functions of collecting, processing, storing and providing accounting information that meets standards in the information processing process as well as as accounting information standards and bring satisfaction to users.

From the research overview, the author proposes the following factors affecting AIS quality:

- (1) Information technology,
- (2) Staff training and education,
- (3) Culture in the unit,
- (4) Commitment of employees to the unit,
- (5) Support of senior management,
- (6) Knowledge of managers.

## Chapter 3

### RESEARCH FRAMEWORK AND METHODOLOGY

#### 3.1 Research framework

To be able to answer the research objectives, the thesis approaches from the following perspectives:

1: From an overview of domestic and foreign research projects on accounting information systems in public units, the author found a gap that needs research.

2: Research the theoretical basis of accounting information systems in administrative and public service units, including theoretical basis on constituent elements, AIS quality, and factors affecting AIS quality.

3: Analyze the current status of AIS operations at public hospitals in Hanoi, evaluate the quality and thereby determine the factors affecting the quality of the AIS at public hospitals in Hanoi nowadays.

4: Propose solutions and recommendations to improve the accounting information system at public hospitals in Hanoi City to improve the quality of AIS.

#### 3.2. Propose model and research hypotheses

The variables in the proposed model are described and inherited from previous studies, and are summarized in the following table:

Encoding symbols of variables to put into SPSS26 software for data processing.

Variable type	Variable name	Symbol
Dependent variable	AIS quality	CL
Independent variables	Information technology	CN
Independent variables	Staff training and education	HL
Independent variables	Culture in the unit	VH
Independent variables	Commitment of employees to the unit	GB
Independent variables	Support of senior management	QL
Independent variables	Knowledge of managers	MK

*Source: Author suggested from research overview*

Research hypotheses:

H1: Information technology positively impacts AIS quality

H2: Staff training and education have a positive impact on AIS quality

H3: Culture in the unit positively impacts AIS quality

H4: Commitment of employees to the unit has a positive impact on AIS quality

H5: Support from senior management has a positive impact on AIS quality

H6: Knowledge of managers has a positive impact on AIS quality

### **3.3 Methodology**

The research method that the author uses in the thesis is quantitative and qualitative methods. Before doing quantitative research, the author conducted qualitative research to check the appropriateness of the research model as well as determine the questionnaire to use for quantitative research. Quantitative research aims to test the model's hypotheses, from which the results will be evaluated and solutions proposed.

## Chapter 4

### CURRENT STATUS OF ACCOUNTING INFORMATION SYSTEM AT PUBLIC HOSPITALS IN HANOI

#### 4.1. General overview of public hospitals in Hanoi

##### *4.1.1 Operating characteristics*

Currently, in Hanoi there are 73 public hospitals, including 22 hospitals under the Ministry of Health; 7 hospitals under other ministries such as the Ministry of National Defense, the Ministry of Public Security, the Ministry of Transport, and the Ministry of Agriculture; and 44 hospitals under the Hanoi Department of Health (Appendix 01). Including: 39 general hospitals and 34 specialized hospitals. Among the 73 public hospitals in Hanoi, 3 out of 6 nationwide hospitals in the country are ranked special grade (Bach Mai Hospital, Ho Chi Minh City Hospital). Viet Duc Friendship, Central Military Hospital 108), 22 hospitals are ranked I, 39 hospitals are ranked II and only 9/73 hospitals are ranked III.

##### *4.1.2 Characteristics of management organization and financial management decentralization*

On the basis of their duties and to perform well the task of caring for and protecting people's health, public hospitals in Hanoi organize a management structure suitable to the operating characteristics of their units. Through survey research, it has been shown that most public hospitals in Hanoi organize their management structure according to an online-functional model.

##### *4.1.3 Oriented development*

In recent years, Vietnam has been building and developing a medical examination and treatment network in accordance with the country's socio-economic development conditions, improving the quality of medical services on a par with advanced countries. advances in the region, meeting the increasing demand for medical examination and treatment, aiming for fairness, efficiency and development in the provision and use of medical services. Resolution No. 15-NQ/TW, dated May 5, 2022, of the Politburo, on directions and tasks for developing Hanoi Capital to 2030, with a vision to 2045, determining the construction of a medical system advanced and modern economy, focusing on developing a number of fields to approach world technology levels.

## **4.2. Qualitative research results**

As stated in the research method section, after reviewing theory and previous research works on the elements constituting the AIS, the author conducted in-depth interviews with those who are working at the public hospitals in Hanoi.

Based on the overall research results and in-depth interview results summarized in Table 4.1 above and Appendix 3a, the author designed a questionnaire to serve a large-scale survey. The questionnaire consists of 2 main parts:

- General survey of respondents and work agencies
- Questions about AIS in hospitals. This section includes:
  - Criteria for evaluating the quality of AIS
  - Factors affecting the quality of AIS

After being tested, the questionnaire was edited to serve a large-scale survey. The specific large-scale survey table is presented in Appendix 3b.

## **4.3. Quantitative survey results on the current status of AIS in public hospitals in Hanoi**

### ***4.3.1. Human situation***

Survey results (Table 4.2) show that 100% of public hospitals in Hanoi organize their structure according to a centralized model, organizing a central accounting department to carry out all accounting work from making estimates, organizing the hospital fee collection department to bookkeeping, processing documents, preparing financial reports, analyzing economic activities. The accounting staff at public hospitals in Hanoi are people with expertise suitable for the job but lack personnel with expertise in information technology. This is a current inadequacy problem in the accounting structure of these units.

### ***4.3.2. Current status of hardware***

Hardware, including all the equipment and technical means used to process information. Mainly there are computers, peripheral devices used to store and input and output data, and telecommunications networks used to transmit data. More than 90% of public hospitals in Hanoi (Table 4.5) have invested in servers to implement hospital management software and accounting software. However, there are still some hospitals that have not focused on investing in servers for accounting software and hospital management software.



Hospitals have equipped computer systems for accounting staff and servers that basically meet the current needs of the hospitals, but the level of equipment is still inconsistent and fragmented, leading to ineffectiveness. Operational efficiency is not high.

#### ***4.3.3. Current status of software***

The accounting software has met the requirements quite well according to Circular 107/2017/TT-BTC guiding the administrative accounting regime with a good and relatively good implementation rate. However, the use of software at hospitals is not consistent, leading to data management that is not connected or interconnected in patient management as well as the medical examination and treatment process. Some hospitals use hospital management software that is not synchronized (using multiple software from different providers in different departments causes waste and ineffectiveness, data is not connected between departments).

#### ***4.3.4. Current status of data***

The results of a survey of the current status of accounting data at hospitals in Hanoi show that the data is updated and reported relatively promptly, and the board of directors or users of decentralized accounting information can view reports on the number of patients, number of examinations, patient advances, payments and outstanding balances, track revenues and expenditures for each medical examination and treatment service activity, and compile statistics on the number of patients. Number of doctors examining and number of medical examination and treatment services by departments.

#### ***4.3.5. Current status of the process***

At public hospitals, the accounting process includes the following steps: Making estimates, receiving funds from the state budget (if any), organizing revenues from medical examination and treatment activities, other service sources and expenditures, funding from state budget sources and revenue sources of the unit, finalization of funds, preparation of final settlement reports, and, financial reports submitted to superiors for approval.

#### ***4.3.6. Current status of the control system***

Currently, 100% of public hospitals in the area have AIS control. However, the actual survey results show that 68/73 public hospitals (accounting for 93.1%) of public hospitals are organized at a good level in controlling input information, the rest are at a poor or medium level. Only 15/73 hospitals perform output control well.

#### **4.4 Factors affecting AIS quality in public hospitals in Hanoi**

The analysis of factors affecting the quality of AIS in public hospitals in Hanoi is carried out through estimating a regression equation, thereby indicating the factors affecting the quality. Before estimating the regression equation, the author tested the scale according to two criteria: the reliability of the scales (through Cronbach's Alpha coefficient analysis) and the authenticity of the scale (through exploratory factor analysis – EFA). The results of the specific quantitative data analysis steps are in the sections below.

##### ***4.4.1. Statistical results describe the research variables***

Descriptive statistical results also provide initial information about factors affecting the quality of a hospital's AIS. 70% of respondents believe that information technology factors (including equipment, stable and controllable accounting software, LAN/Internet, storage devices, etc.) have the greatest influence on AIS quality in hospitals.

##### ***4.4.2. Results of testing the scale using Cronbach's Alpha reliability coefficient***

After being collected, the data is entered into an Excel spreadsheet. Outliner values, invalid indicators or invalid values are removed. Then, the data was run using SPSS22 software according to the following steps: (1) check the reliability of the scale using Cronbach Alpha; (2) EFA inspection; (3) Regression test to determine the factor that has the greatest influence on AIS quality.

##### ***4.4.3. Results of testing the scale using exploratory factor analysis (EFA)***

The results of EFA exploratory factor analysis for the variables show that the KMO value = 0.819 satisfies the condition of  $0.5 < 0.819 < 1$ . The results of Bartlett's test with p-value = 0.000 < 0.05 show that the variables are related to each other and the EFA analysis is appropriate for the sample data.

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.819
Bartlett's Test of Sphericity	5330.855	0.0002325
	406	465
	.000	.000

*Source: Author's compilation of data processing*

The results showed that there were 7 variables extracted with the total variance extracted (TVE) explained by the 7 variables greater than 50%. The eight factors include:

The dependent variable (Quality-CL) has 8 indicators: CL1, CL2, CL3, CL4, CL5, CL7, CL8, and CL9 ; Independent variable 1 (Technology-CN) has 7 indicators CN1, CN2, CN3, CN4, CN5, CN6 and CN7; Independent variable 2 (Culture-VH) has 5 indicators including: VH1, VH2, VH3, VH4, and VH5; Independent variable 3 (Training-HL) has 5 indicators: HL1, HL2, HL3, HL4, HL5 ; Independent variable 4 (Commitment-GB) has 5 indicators, including GB1, GB2, GB3, GB4, GB5; Independent variable 5 (Management support-QL) has 4 indicators, including QL1, QL2, QL3, QL4; Factor 6 (Management knowledge-MK) includes 5 indicators MK1, MK2, MK3, MK4, MK5. The six independent variables are factors that affect AIS quality.

#### *4.4.4. Identify factors affecting AIS quality*

From the regression results we can build a standardized regression equation as follows:

$$CL = -1.231 + 0.332CN + 0.248QL + 0.129HL + 0.149GB + 0.231VH + 0.236MK$$

The regression results also show us that the information technology (CN) factor has the greatest impact on AIS quality. Next to the technological factor is the factor of senior management support - a factor that significantly affects AIS quality. This support is not only about information requirements, but also about planning work steps, investing in facilities, recruiting personnel, etc. Next comes

management knowledge, being able to understand the manager. Highly qualified managers will require fast, complete and timely accounting information, so the quality of accounting information must meet this high requirement.

Cultural factors of the hospital and initial and periodic professional training for workers are also very important and affect the quality of AIS. And the research results also show that the accountant's commitment factor also contributes to AIS quality, although at a significant level, but the level is not as high as the 5 factors above. This result can be considered the basis for the thesis to propose solution recommendations in chapter 5.

## Chapter 5

### DISCUSSION RESEARCH RESULTS AND RECOMMENDATIONS

#### 5.1. Discussion research results

##### 5.1.1. Result

Through a survey research on the current status of the AIS at public hospitals in Hanoi, the main results are as follows:

Regarding the cycle, the AIS in public hospitals plays an important role as an enterprise for profit (Wilkinson et al., 2000; Alsharayri, 2012; Soudani, 2012). The AIS in public hospitals still includes the stages of collecting, processing and providing information to information users. This result is consistent with the studies of previous scholars abroad (for example, Hall, 2011; Senin, 2011; Susanto, 2013), or domestically (Hoang Van Ninh, 2010; Tran Thi Nhung, 2016 ; Nguyen Hoang Dung, 2017; Nguyen Thi Mai Le, 2021).

Regarding the constitutive elements of the AIS, research shows that, in public hospitals, six elements are still used and have the same meaning as businesses with profit goals, similar to the theoretical basis (Romney and Steinbart, 2015) and consistent with research results on Vietnam (for example, Vu Ba Anh, 2015 ; Dang Thi Thuy Ha, 2016 ; Nguyen Thi Thanh Nga, 2017)

Regarding the quality of the AIS, the analysis results have supported the research hypotheses related to the evaluation criteria of the AIS. This result is also consistent with Fardinal (2013), Fitriati and Mulyani (2015), Susanto (2017), Huynh Thi Hong Hanh and Nguyen Manh Toan (2013).

Regarding the factors affecting the quality of the AIS, the thesis research also found the influence of culture, management, and organizational structure on the quality of the AIS similar to overseas research by Rapina (2014), and management knowledge Nurhayati (2014), Indahwati (2015), or Laudon & Laudon, 2015. The thesis research results are also consistent with the research of Vietnamese scholars such as Luong Duc Thuan (2019) ; Vu Thi Thanh Binh (2020), Le Mong Huyen & Tran Quoc Bao, (2017), Doan Thi Chuyen (2020) and especially Nguyen Thi Thuan (2021), although these studies are on for-profit enterprises, not hospitals like in this thesis.

Besides the general results mentioned above, the thesis has also found a number of strengths related to the AIS, including:

Regarding control system: Some hospitals have organized internal control in AIS. Although the control work only focuses on a few contents, it has shown that hospitals are interested in this work.

Regarding hardware and software in processing and providing accounting information: Hospitals have focused on investing in equipment and technical facilities to serve accounting work.

Regarding process: Public hospitals in Hanoi have also built accounting processes for major arising operations. However, depending on the conditions of each hospital, the level of detail may vary, or the level of computerization of operations may differ greatly between large and small hospitals, or urban and urban hospitals suburbs.

### ***5.1.2. Shortcomings that need to be overcome***

Besides the achieved results, AIS at public hospitals in Hanoi still has some of the following shortcomings:

Human: The accounting human resources of hospitals today, although they have high levels of accounting expertise, are limited in information technology skills.

Regarding software: Although the use of accounting software has actively contributed to improving the quality of accounting work, current accounting software is being used at public hospitals in the area. Hanoi has not yet fully supported the necessary functions of the accounting structure.

Regarding hardware: Some hospitals' hardware equipment for AIS is not synchronized, so it has certain impacts on accounting operations as well as AIS.

Regarding data: There are still hospitals that have not been able to track administrative accounting data.

Regarding processes: Processes have been developed but are not enough and have not been systematized.

Regarding the control system: The hospitals surveyed have not yet built a complete control system, only controlling a few stages such as receiving input information, and processing and providing information. Trust is not taken seriously.

### ***5.1.3 Reasons for the Shortcomings***

Through a field survey and consultation with experts at public hospitals in Hanoi City, the author found the causes of the shortcomings in the hospitals' AIS, including:

*Firstly*, the awareness of a small number of hospital leaders (small public hospitals) about the development and comprehensive implementation of accounting and AIS activities, and about the need to apply AIS In management and administration, some (not many) hospitals do not fully understand the role, necessity, etc. of accounting and AIS. *Second*, in some district hospitals, technical infrastructure (IT and communications infrastructure) has not been invested in a focused and synchronous way, with investment funds for IT infrastructure for information system has not been satisfactorily determined. *Third*, the qualifications of accounting staff in hospitals are still limited and slow to adapt to changes in work requirements.

## **5.2. Recommendations suggest improving AIS in public hospitals**

### ***5.2.1. Principles to follow when completing AIS elements***

AIS plays an important role in the success or failure of an organization, therefore requiring organizations to build and organize an AIS to provide information to effectively serve the organization's operations. best to achieve the goals set by the organization. In order for AIS to promote its role, when completing AIS in public hospitals in Hanoi, it is necessary to ensure the following principles:

- Compliance principles
- Matching principle
- Principle of feasibility
- Principle of savings and efficiency
- Principle to ensure comparability

### ***5.2.2. Recommendations to improve AIS in public hospitals***

On the basis of inheriting previous authors' study results on refining the economic information system, begin by approaching the existing condition of the economic information system at public hospitals in Hanoi, as reported in Chapter 4, and draw judgments about the current situation. Technical information system at these units; Current state of variables impacting the quality of technical information systems at public hospitals in Hanoi based on a study and survey of

73 public hospitals in the region Respecting the above-mentioned needs and principles for completing the AIS at public hospitals in Hanoi, the thesis provides a number of alternatives to improve the AIS at public hospitals in Hanoi in the future. The steps are as follows:

#### *5.2.2.1 Human*

*a) Encouraging manager participation* Managers must have a plan for deploying and developing the AIS. Managers should be more involved in the process of installing the AIS at the hospital, promptly resolving difficulties that develop during the implementation, such as interfacing with systems from other departments in the hospital.

*b) Enhancing the accounting team's capability and their attachment to the hospital*

*First*, improve professional qualifications for accountants.

*Second*, improve accountants' compliance.

*Third*, improve accountants' skills in using information technology systems

*Fourth*, increase the connection between accountant and hospital.

#### *5.2.2.2. Increase investment in information technology*

Public hospitals in the area need to pay attention to investing in information technology including basic equipment such as hardware, software and human resources.

#### *5.2.2.3. The database system*

Public hospitals need to improve both the content of information collected and the method of collection. From analyzing the current situation, it can be seen that the organization of the document system in public hospitals has done quite well in the financial accounting area, however, documents for management accounting work still have many limitations. In addition, the use of many paper documents to collect data also slows down the process of circulating and using data.

#### *5.2.2.4 The internal control system*

To control and evaluate the quality of accounting information, hospitals need to control factors that affect the quality of accounting information. According to the author, factors affecting the quality of accounting information include: (1) Management board capacity; (2) Data quality.



#### *5.2.2.5. Processes*

Hospitals should focus on improving their management accounting processes. Review, revise, and augment procedures on a regular or periodic basis to verify that they are in line with current conditions and fulfill the unit's professional standards.

### **5.3 Conditions for implementing solutions**

#### *5.3.1 Recommendations to the State*

#### *5.3.2 Recommendations to the Ministry of Health*

### **5.4 Limitations and future research directions**

#### *5.4.1 Limitations of the topic*

In this study, the author found that there are certain limitations as follows:

*First*, the sample selection for the study is not generalizable and the research only focuses on investigating a period of time, so it has not fully and detailedly evaluated the constituent elements of AIS in the areas. Public hospital in Hanoi City.

*Second*, the characteristic factor of the medical profession in research has not been fully exploited, especially with the issue of specific AIS quality.

*Third*, due to time constraints and limited access to information, the research is limited in that it does not specifically present the operating procedures and techniques of AIS in public hospitals.

#### *5.4.2 Propose further research directions*

The author believes that the study of factors affecting the operation of AIS elements needs to be studied more deeply. The factors affecting AIS quality need to be studied in more detail by in-depth interviews with relevant subjects, so that there is a way to explain more deeply and closely to the existing problems in the unit. The thesis has not yet conducted research on hospital groups according to budget estimates (Central, local,...). The author considers these to be potential weaknesses and can be researched further in the future.

## CONCLUSIONS

The thesis has researched the theory and practice of AIS in public hospitals in Hanoi with the application of many different research methods such as collecting, processing, analyzing, synthesizing, and comparing data. data and achieved the following results:

*First*, the thesis has systematized and clarified theoretical issues about AIS in administrative and public service units and the constituent elements of AIS. Based on research on the accounting information needs of information users, the thesis has deeply researched AIS according to 6 constituent elements: people, software, hardware, data, processes and internal control.

*Second*, the thesis has systematized the theoretical basis for the quality of the AIS and the factors affecting the quality of the AIS. The thesis also chooses to use theoretical foundations to demonstrate the relationship between factors affecting the quality of the AIS.

*Third*, the thesis presented an overview of public hospitals in general and public hospitals in Hanoi in particular, accounting information needs, determine criteria for evaluating the quality of the AIS and also builds a model to test the factors affecting AIS quality.

*Fourth*, on the basis of theoretical and practical research on AIS at public hospitals in Hanoi City, applying knowledge and understanding of AIS, the author has proposed a number of complete solutions. Improve the use of AIS elements in public hospitals in Hanoi to improve the quality of AIS, thereby providing useful, timely, complete and honest information to users. especially unit managers in making decisions.

*Fifth*, the thesis has proposed basic conditions for the State and public hospitals in Hanoi City. Those are also recommendations to implement the proposed solutions. The thesis author hopes that the author's proposals in the thesis will be suggestions for administrative and professional units as well as public hospitals to research and apply to perfect AIS in their units, contributing to Improve the unit's operational capacity in the context of international integration and competition.

## LIST OF WORKS RELATING TO THE THESIS

1. Tran Thi Huong, Tran Thi Minh Xuan, (2023), Improving the Quality of the Accounting System in Public Hospital in Hanoi Under Ministry Health, *International Journal of Advanced Multidisciplinary Research and Studies*, No 3(6), pp.1107-1111.
2. Tran Thi Minh Xuan, Pham Duc Cuong (2023), Accounting information system in Vietnam Public enteties in the context of globalization anh the industrial revolution: A systematic literature review anh directions for future research, *International conference produceedings, Vietnam in partnership with gaints oppptunities and challenges*, December 2023, pp.613-630.
3. Tran Thi Minh Xuan, Pham Duc Cuong, Cao Thi Huyen Trang, (2023), A Study on Accounting Information system at Hanoi Public Hospitals, *Conference proceedings the 6th International conference of finance, accounting and auditing*, December 2023, pp 117-129.