

# **MEASUREMENT OF THE APPLICATION OF ACCOUNTING INFORMATION SYSTEM IN GARMENT FIRMS IN VIETNAM - AN EXPERIMENTAL STUDY**

**Truong Van Tu**

*School of Accounting and Auditing, National Economics University*

Received on 16/3/2021, accepted for publication 14/5/2021

**Abstract:** The strong development of 4.0 Industrial Revolution has been putting impact on typical features and operating environment of enterprises. Accordingly, accounting information system (AIS) is among the most greatly affected aspects. This study was carried out to measure the application of accounting information system based on its components in garment firms in Vietnam. The research data was collected from accountants and managers of 103 firms in Vietnam, which was processed with SPSS 22 software. Thanks to descriptive statistics, the research findings revealed that there were differences within garment firms in applying accounting information system based on its components. This helps in laying the foundation for managers to establish a qualified accounting information system, which would guarantee information supply for users.

**Keywords:** Accounting information system; garment firms; information technology; internal control.

## **1. Introduction**

Currently, in the context of pressure on information cost, garment firms spend majority of their budget on expenses related to the information system. Therefore, most organizations concentrate on developing the information system to support decision making process, communication and knowledge management. Accounting information system (AIS), as a crucial and vital part of information system and the result of wide application of modern information technology and communications, has been more and more expanded with larger impacts and further contributions to the improvement of business performance.

Garment should be regarded as a crucial sector in the economy because it greatly contributes to national development. In the past long run, the average export growth of this sector was 20%/year, making up 16% - 18% of total national industrial value, which accounted for approximately 15% of total export turnover and created jobs for more than 2 million employees. In the plan for industrial development towards 2020 - 2030, the garment sector is still recognized as one of vital components in the industrial frame of Vietnam. However, garment firms have been facing big challenges and difficulties in their development pathway. Certain troubles are related to their weak competitiveness, inappropriate human resource employment, limited material supply. These have negatively affected the growth and development of these firms.

With the general objectives of providing scientific basis for the application of AIS with modern approaches compatible with garment firms in Vietnam, and supplying useful information for managers to effectively evaluate business performance and management responsibilities of each department. This research is meaningful not only in

terms of macro aspect for policy makers in their adjustment of regulations on garment firms; but also in regard of direct impacts on the firms because this study helps them acknowledge the values that AIS brings about and improve their business operation, management efficiency, as well as financial control and investigation. From another perspective of information usage, this study is meaningful to financial information users like investors, banks and credit organizations.

## **2. Literature Review**

Accounting Information Systems (AIS) are a tool which, when incorporated into the field of Information and Technology systems (IT), were designed to help in the management and control of topics related to firms' economic-financial area (Grande, 2011).

AIS is made up with different components which have close and complex relationship. As mentioned above, depending on specific research objectives and scope, the AIS can be approached with different perspective such as an accounting practice section, a circle and an information system, etc. Based on particular approach, the AIS focuses on its certain aspects. In fact, there has been no research providing a comprehensive generalization about all components of the AIS. Due to that background and this research scope, the author selected the access to components of AIS based on the idea by M. Romney et. al, 2012. Accordingly, there are 6 components of the AIS as the followings (1) human resource, (2) procedure and instruction, (3) database, (4) hardware, (5) software and (6) internal control. James A. O'Brien and George M. Marakas (2010) declared that all of those components have mutual relationship with each other and they support one another to achieve the same target through the transformation process from the inputs into outputs. Therefore, from the viewpoint of those academics, that access can provide a quite comprehensive insight into the AIS and lay the foundation for its analysis and design in all enterprises in general and garment firms in particular in the current setting.

### **2.1. Human resource**

Human resource in the AIS refers to the system users. Barney and Wright (1998) pointed out that it is likely that human resource is the driver of sustainable competitive advantage of enterprises. James A. O'Brien and George M. Marakas (2010) mentioned users' participation and managers' support as decisive factors of the success in applying AIS. Experts possibly using AIS might include accountants, advisors, business analysts, managers, financial director and auditors (Fontinelle, 2011). With the same idea, Luna - Arocas and Camps (2012) indicated that the human resource has great influence on the efficiency of the firms.

### **2.2. Procedure and instructions**

Procedure and instructions for AIS application refer to measures of data collection, storage, query and processing. Optional approaches include traditional and automatic methods. The data is explored from internal sources (eg: staff) and external ones (eg: online orders). Procedure and instructions are encoded as AIS software; they should be provided to the staff through training courses and materials. Procedure and instructions should be consistently obeyed for the best result (Fontinelle, 2011).

### **2.3. Database**

McLeod Jr and Schell (2001) supposed that a database is a collection of folders and all data of the firms. A narrower definition of a database is its recognition as the collection of data under the control of database management software.

The data in AIS covers all information related to reality of accounting in a firm. Any business data linked with accounting should be the subject for processing of AIS. The data in AIS depends on the nature of business activities. It can also be found in general diary, inventory data, employment information, timekeeping, ledger, price list, report on expense fluctuations, sales, management cost (Fontinelle, 2011).

### **2.4. Software**

James A. O'Brien and George M. Marakas (2010) declared that software includes all instructions in the process of information collection. General definition about software not only refers to the collection of programs so-called manual of computer hardware and control but also means the collection of instructions regarded as essential procedure for information processing. Resources of the software are comprised of software system, application software and procedure.

### **2.5. Hardware**

Hardware is a technical tool to collect, process and communicate the information. Most hardware equipments are crucial to any firm, which should be comprised of personal computer, server, printer, surge protection device, router, storage and electricity supplier. In addition to expenses, other elements for consideration in choosing hardware should include speed, storage capacity, expansibility and upgradability.

### **2.6. Internal control**

According to Fontinelle (2011), the internal control of AIS covers different measures to protect important data. Simple measure might be password and complex one is nhận dạng biometric identification. AIS needs internal control to fight against illegal access into the computer and limit access of authorized users, including the firm insiders. It also prevents illegal access to personal folders and allows selected access only. Alvin A. Arens, Randal J. Elder, and Mark S. Beasley (2010) supposed that an internal control system includes policies and procedure designed to supply managers with the certainty of achieving firms' targets. These policies and procedure are often so-called control, which refers to the internal control of an entity.

## **3. Data and research method**

The questionnaire was sent to 103 medium and large firms in 3 regions of the country. The number of valid responses was 103/103 firms. Because the accounting model in medium and large garment firms is relatively the same, the sample results could be inferred for all medium and large garment firms in Vietnam.

The author used in-depth interview, phone call, direct observation of books and infrastructure to collect, process and provide accounting information in two typical garment firms related to the research contents. These two firms were:

- Hoang Thi Loan textile and garment joint stock company, representing for medium size.

- Garment 10 joint stock company, representing for large size.

Regarding data processing tools, the research utilized descriptive statistics, SPSS and other approaches like generalization, gathering, synthesis, analysis, logical thinking, statistics and comparison to figure out specific conclusion and propose appropriate solutions.

#### 4. Research findings

##### 4.1. Information about sample

The author conducted a survey with 103 garment firms in Vietnam and collected 103 valid responses to questionnaire. Descriptive statistics was used to provide the reality of applying AIS in garment firms as well as key features of the research subject.

The descriptive statistics showed that expertise and qualification of the research participants were at high level. In particular, there were 92 people graduating from university and post-graduate programs (89.3%), only 10 respondents holding diploma degree (9.7%). These numbers resulted from the fact that respondents to the questionnaire were people at high positions in the surveyed firms, who managed and made decisions about the firms' activities.

According to the survey results related to the position of the respondents, it was revealed that those with high positions and rights to make decisions were members of management board (23.3%), heads of departments (33%), accountants (24.3%), members of administrative board (19.4%).

**Table 1: Descriptive statistics results**

##### Expertise

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 (intermediate level)	1	1.0	1.0	1.0
	2.00 (college completion)	10	9.7	9.7	10.7
	3.00 (university completion)	62	60.2	60.2	70.9
	4.00 (post-graduate completion)	30	29.1	29.1	100.0
	Total	103	100.0	100.0	

##### Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 Administrative board	20	19.4	19.4	19.4
	2.00 Management Board	24	23.3	23.3	42.7
	3.00 Heads of departments	34	33.0	33.0	75.7
	4.00 Accounting department	25	24.3	24.3	100.0
	Total	103	100.0	100.0	

**Age**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	2.00 (30-39)	31	30.1	30.1	30.1
	3.00 (40-49)	46	44.7	44.7	74.8
	4.00 (50-59)	26	25.2	25.2	100.0
	Total	103	100.0	100.0	

**Working experience**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	2.00 (5-10 years)	10	9.7	9.7	9.7
	3.00 (10-15 years)	49	47.6	47.6	57.3
	4.00 (15-20 years)	44	42.7	42.7	100.0
	Total	103	100.0	100.0	

**4.2. Organization of AIS in garment firms**

Results of survey related to AIS applying processes in garment firms:

**Table 2: AIS applying process in garment firms**

<b>Processes</b>	<b>Survey results</b>
1. Expenditure	103/103
2. Salary	103/103
3. Fixed asset	103/103
4. Manufacturing	103/103

**Source:** Survey result

According to the questionnaire results of 103 responses in 103 garment firms, 100% of them fully applied all processes in AIS. However, data mapping for these processes was not appreciated. This is illustrated in Table 3:

**Table 3: Data mapping for AIS application in garment firms**

<b>Processes</b>	<b>Survey results</b>
1. Data mapping of expenditure	0/103
2. Data mapping of salary	0/103
3. Data mapping of fixed asset	0/103
4. Data mapping of manufacturing	0/103

**Source:** Survey result

Results about data mapping of process in AIS showed that 100% garment firms neither organized nor introduced data map to accounts.

### **4.3. Reality of organizing components of AIS**

#### *Human resource organization*

Following is the result of survey on the organization of human resource in AIS in garment firms.

**Table 4:** Human resource factors for AIS application in garment firms

<b>Human resource factor</b>	<b>Survey results</b>	<b>Percentage</b>
1. AIS designers	103/103	100%
2. AIS developers	0/103	0%
3. AIS supporters	21/103	20.39%
4. AIS users	103/103	100%

**Source:** Survey result

AIS developers: because most firms did not establish AIS based on a systematic design, their team of AIS developers did not work independently. The interview revealed that 100% surveyed firms lacked specialists for AIS development.

AIS supporters: survey results demonstrated that 82/103 firms (79.61%) did not have AIS supporters because according to financial director, chief accountant and general accountant, most reports were completed by accountants or related departments on the request of managers. The survey also showed that 21/103 firms (20.39%) had AIS supporting system. They were firms having been using ERP, which has been really new. Then, these supporters were mainly working with instructing channels related to accounting.

### **4.4. Data organization**

Results of questionnaire and interviews with financial directors, chief accountants and general accountants showed that:

*“Most garment firms have been organizing data based on hierarchical data model”*

**Table 5:** AIS data organization in garment firms

<b>Questions</b>	<b>Mean of 103 firms</b>	<b>Number of firms with mean &lt; 3</b>	<b>Number of firms with mean &gt; 3</b>
1. To what extent does the identification of activities for AIS data collection satisfy the requirement for data?	3.35	43/103	60/103
2. To what extent does the identification of subjects for AIS data collection satisfy the requirement of management?	3.54	39/103	64/103

Questions	Mean of 103 firms	Number of firms with mean < 3	Number of firms with mean > 3
3. To what extent does the identification of resources for AIS data collection match with business features?	3.63	34/103	69/103
4. To what extent do the financial papers' contents satisfy the requirement of information in regard of each activity's data for AIS information?	3.84	28/103	75/103
5. To what extent do the financial papers' contents satisfy the requirement of management in regard of each activity's data for AIS information?	3.82	28/103	75/103

Source: Survey results

#### 4.5. Software organization

Followings are results of survey and in-depth interview with financial directors, chief accounts and general accountants about the software having been applied to organize and process AIS data:

**Table 6:** Current software for organizing and processing AIS data in garment firms

Category	Results	Percentages
1. Excel	27/103	26.21%
2. Accounting software	65/103	63.11%
3. ERP	11/103	10.68%

Source: Survey result

Based on the results from survey with 103 firms, 27/103 (26.21%) had been applying excel, 65/103 (63.11%) had been using accounting software, 11/103 (10.68%) had been employing ERP to organize and process accounting data in general and AIS data in particular.

#### 4.6. Hardware organization

Results of interview with financial directors, chief accountant and general accountant in garment firms showed reality of organizing the infrastructure of information technology (hardware) which have been used to manage and process AIS data. This proved that:

*“Most garment firms paid great attention to the infrastructure of information technology. This kind of infrastructure serving accounting purpose in general and AIS in particular was equipped quite completely, which satisfied all criterion for AIS operation.”*

**Table 7:** Organization of AIS hardware in garment firms

Questions	Mean of 103 firms	Number of firms with mean < 3	Number of firms with mean > 3
1. To what extent does the equipment of Central Processing Unit (CPU) for AIS satisfy job requirements?	3.93	24/103	79/103
2. To what extent does the equipment of mainboard for AIS satisfy job requirements?	3.78	28/103	75/103
3. To what extent does the equipment of RAM for AIS satisfy job requirements?	3.85	25/103	78/103
4. To what extent does the equipment of HDD for AIS satisfy job requirements?	3.78	27/103	76/103
5. To what extent does the equipment of input facilities (mouse, keyboard, etc) for AIS satisfy job requirements?	3.82	24/103	79/103

Source: Survey result

#### 4.7. Internal control organization

Results of interview with financial directors, chief accountant and general accountant in garment firms showed reality of organizing the internal control. This proved that: “Most firms paid attention to the internal control system. The large ones run this internal control system while due to poor conditions, the rest medium ones could only implement control measures in accordance with internal control contents”

**Table 8:** Results of certain contents in internal control in garment firms

Questions	Mean of 103 firms	Number of firms with mean < 3	Number of firms with mean > 3
1. To what extent does the firm set clear regulations about code of ethics and inform all departments about it?	3.91	24/103	79/103
2. To what extent does the control environment reflect the firm nuance?	3.83	25/103	78/103
3. To what extent is the risk evaluation helpful in assisting managers in assessing influencing factors on risk of the firm’s objective achievements?	3.85	25/103	78/103

Source: Survey result



#### 4.8. Application of AIS components in garment firms

The table **One-Sample Test** revealed that value of sig was lower than 0.05, so, the mean of participants in response to 6 components was 3. Results of table **One - sample statistics** indicated that the average value of investigated components fluctuated from 3.29 to 3.45, which was greater than 3. This illustrated the agreement of participants with these 6 components in the AIS of garment firms.

**Table 9: One-Sample Statistics**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
DL	103	3.2913	1.04442	0.10291
QT	103	3.2913	1.17683	0.11596
NSD	103	3.3981	1.19918	0.11816
PC	103	3.4078	1.13273	0.11161
PM	103	3.3301	1.07911	0.10633
KSNB	103	3.4466	.92597	0.09124

**Table 10: One-Sample Test**

	<b>Test Value = 3</b>					
	<b>t</b>	<b>Df</b>	<b>Sig. (2-tailed)</b>	<b>Mean Difference</b>	<b>95% Confidence Interval of the Difference</b>	
					<b>Lower</b>	<b>Upper</b>
DL	2.830	102	0.006	0.29126	0.0871	0.4954
QT	2.512	102	0.014	0.29126	0.0613	0.5213
NSD	3.369	102	0.001	0.39806	0.1637	0.6324
PC	3.653	102	0.000	0.40777	0.1864	0.6291
PM	3.105	102	0.002	0.33010	0.1192	0.5410
KSNB	4.895	102	0.000	0.44660	0.2656	0.6276

#### 5. Conclusion

The garment sector in Vietnam has been benefiting from numerous opportunities but still confronting challenges during economic integration process, especially since Vietnam participated in WTO.

Currently, in the context of diversity and complexity of business activities, the development of information technology, appliance software and accounting software have become effective and precise supporting tools. Also, due to the requirement of garment activities with optimizing inputs, the information technology has to be effectively applied. Software helps firms quickly and safely deal with information; providing timely and effective accounting reports. Therefore, garment firms should complete their AIS on a scientific basis. In order to explore and make use of all

information technology's utilities, users should have specialized accounting knowledge, thoroughly understand software using techniques and deeply comprehend garment activities. Consequently, this study partially helped in solving troubles in garment firms in Vietnam. With the research scope, this study provided:

- An exploration and explanation to basic concepts of AIS in garment firms based on the application of information technology in accounting.
- Presentation of fundamental contents linked with AIS in garment firms based on the approach of AIS components as well as their relations.
- Addition to AIS theories for the identification of influencing factors on AIS
- Generalization of AIS in reality in order to give comments and state strengths, weaknesses as well as causes.
- Perspective, requirement, direction and proposals to complete AIS in garment firms.

## REFERENCES

- Azhar Susanto (2008). AISs: Developing Risk Control Structure. First Edition: Lingga Jaya. *International Journal of Scientific & Technology Research*.
- Fontinelle, A. (2011). Introduction To AISs. *Open Journal of Business and Management*.
- Grande, Elena Urquía, Raquel Pérez Estébanez, and Clara Muñoz Colomina (2011). The impact of Accounting Information Systems (AIS) on performance measures: empirical evidence in Spanish SMEs. *The International Journal of Digital Accounting Research* 11.1: 25-43.
- Ismail Noor Azizi và Malcolm King (2014). Factors influencing the alignment of AISs in small and medium sized Malaysian manufacturing firms. *Journal of Information Systems and Small Business*, Vol. 1(1-2), pp. 1-20.
- James A. O'Brien, & George M. Marakas (2010). *Introduction to Information Systems*. McGraw-Hill Irwin.
- Knežević Snežana, Aleksandra Stanković và Rajko Tepavac (2012). AIS as a Platform for Business and Financial Decision-Making in the Company. *Journal Management* (1820-0222), (65).
- Laudon, K. C., Laudon, J. P., Brabston, M. E., Chaney, M., Hawkins, L., & Gaskin, S. (2012). *Management Information Systems: Managing the Digital Firm, Seventh Canadian Edition (7th: Pearson)*.
- Mamić Sačer, I., & Oluić, A. (2013). Information technology and AISs' quality in Croatian middle and large companies. *Journal of Information and Organizational Sciences*, 37(2), 117-126.
- Marshall B. Romney, Paul Jhon Steinbart, Joseph M. Mula, Ray MC Namara, & Trevor Tonkin (2013). *AISs*. Pearson Australia.
- Nurhayati Nunung (2014). Influence of organizational commitment and Knowledge management on successful implementation of aiss in the employer pension funds held defined benefit pension plan (PPMP) Dipropinsi West Java, Indonesia. *International Journal of Economics, Commerce and Management*, No 2(12).

- Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. *European Journal of Information Systems*, 17(3), 236-263.
- Romney, M. B., Steinbart, P. J., & Cushing, B. E. (2000). *AISs* (Vol. 2). Prentice Hall Upper Saddle River.
- Romney, M., Steinbart, P., Mula, J., McNamara, R., & Tonkin, T. (2012). *AISs Australasian Edition*. Pearson Higher Education AU.
- Rapina (2014). Factors Influencing the Quality of AIS And Its Implications on The Quality of Accounting Information. *Research Journal of Finance and Accounting*, Vol. 5(2).
- Sacer Ivana Mamie, Ana Oluic (2013). Information technology and AIS's quality in Croatian Midle and large company. *Journal Original Scientific Paper*, Vol. 2(37), pp. 117-126.
- Saeidi, H., Prasad, G. B., & Saremi, H. (2015). The Role of Accountants in Relation to AISs and Difference between Users of AIS and Users of Accounting. *Bull. Env. Pharmacol. Life Sci*, 4, 115-123.
- Wilkinson, J. W., Cerullo, M. J., Raval, V., & Wong-On-Wing, B. (2000). *AISs-Essential Concepts and Applications*. John Willey and Sons. Inc., USA.
- Xu, H. (2009). Data quality issues for AISs' implementation: Systems, stakeholders, and organizational factors. *Journal of Technology Research*, 1, 1.

## TÓM TẮT

### ĐÁNH GIÁ VIỆC ÁP DỤNG HỆ THỐNG THÔNG TIN KẾ TOÁN TẠI CÁC DOANH NGHIỆP: NGHIÊN CỨU THỰC NGHIỆM TẠI CÁC DOANH NGHIỆP MAY VIỆT NAM

**Trương Văn Tú**

*Trường Đại học Kinh tế quốc dân*

Ngày nhận bài 16/3/2021, ngày nhận đăng 14/5/2021

Sự phát triển mạnh mẽ của Cách mạng công nghiệp 4.0 đã và đang tác động đến đặc điểm và môi trường hoạt động kinh doanh của các doanh nghiệp. Theo đó, hệ thống thông tin kế toán (HTTTKT) là một trong những bộ phận chịu nhiều tác động nhất. Nghiên cứu này được thực hiện nhằm đánh giá việc áp dụng HTTTKT thông qua các yếu tố cấu thành tại các doanh nghiệp may Việt Nam. Dữ liệu khảo sát được thu thập từ nhân viên kế toán, nhà quản lý của 103 doanh nghiệp may tại Việt Nam và được xử lý bằng phần mềm SPSS 22. Bằng phương pháp thống kê mô tả, kết quả chỉ ra rằng việc áp dụng các yếu tố cấu thành HTTTKT tại các DN may khác nhau. Điều này làm cơ sở cho các nhà quản lý xây dựng một HTTTKT có chất lượng, đảm bảo việc cung cấp thông tin cho người dùng.

**Từ khóa:** Công nghệ thông tin; doanh nghiệp may; hệ thống thông tin kế toán ; kiểm soát nội bộ.