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THE EFFECT OF ACCOUNTING INFORMATION QUALITY ONTHE DECISION - MAKING PROCESS OF VIETNAMESE ENTERPRISES

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The purpose of this study is to determine the influence of accounting information quality on the decision - making process of Vietnamese manufacturing enterprises. The sample was collected from a survey of senior executives, chief accountants and accountants of 77 manufacturing enterprises in the cities: Hanoi, Hai Duong, Bac Ninh, Hai Phong, Ninh Binh in December 2019. There were a total 265 participants in this study. 177 usable questionnaire responses (66.7%) were used to test the research hypotheses with SPSS 22.0 software. The analysis results show that all four qualitative characteristics of accounting information in the proposed research model have a positive impact on the enterprise's decision-making process. In which, effectiveness is the most influential factor, followed by efficiency, timeliness, security and safety. From the results, the study has proposed recommendations to improve the quality of accounting information, better support to the decision-making process of Vietnamese enterprises in the context of the Industrial Revolution 4.0.

Keywords: *accounting information quality, the decision - making process.*

1. Introduction

Accounting information quality and users' information needs are one of the issues that attract attention in corporate governance and researchers. The previous studies confirm the positive relationship between the accounting information quality and the decision-making process of users. However, most studies often mention to improve the quality of financial accounting information to support decision-making of the users such as shareholders, banks, investors on the stock market etc. These studies didn't focus on the managers, who use accounting information for decision-making in the business operating process.

The Industrial Revolution 4.0 is in onset, affecting all sectors and fields of the economy, society and the environment all over the world with the fastest rate in history. Science technology, including management science, accounting and auditing science have been developing strongly with new requirements and tasks. In the field of accounting and auditing, the appearance of Cloud Computing, Big data, Artificial Intelligence, Blockchain, etc. has changed the process, method of collecting data, processing, analyzing and providing accounting information fundamentally. These changes will affect the accounting information quality. However, compared to the requirements of the economic management mechanism, Vietnamese accounting also revealed many limitations such as the quality of information, access to international accounting standards, the qualification of accountants and the development of the accounting service market (Dang Van Thanh, 2019).

The study will answer the question: In the context of Industrial Revolution 4.0, which qualitative characteristic of accounting information is important to improving the quality of the information. To answer this question, we have aggregated and analyzed the information quality measurement perspective as a basis for proposing a research model for impact level of qualitative characteristic of accounting information to the decision-making process in enterprises. From the research results, we have given some suggestions to promote the quality of accounting information for Vietnamese enterprises in the context of the Industrial Revolution 4.0.

The remainder of the paper is structured as follows: section two discusses the Theoretical Framework about the relationship between accounting information quality and the decision-making process of the enterprises. The literature review, research model and hypotheses are discussed in sections three and four respectively. Section five presents the research methodology. Finally, the research results and discussions are presented in section six.

2. Theoretical framework about relationship between accounting information quality and the decision - making process

The relationship between quality of accounting information and the decision-making process is a complex issue (Atkinson et al., 2001). Here are some related theories that explain this relationship:

2.1. Resource-Based view

Resource - Based view was proposed by Wernerfelt (1984), relied on an earlier study by Penrose (1959). It really has a strong influence since the 1990s. According to this point of view, like other factors (labor, capital...), information is a resource affecting the development of businesses. Accounting information is designed to cater for different needs of businesses with four aspects: wide range, timely, integrated and synchronized. The accounting department provides information (about products, finance, market...) to functional departments in the enterprises. Based on that, users in other departments can process information, convert into knowledge, and then make decision.

2.2. Decision Theory

Decision Theory has been developed since the mid-20th century. It has been applied in many different fields of research and aimed at solving the problem as decision-making. According to Brim et al. (1962), Decision Theory is the main theory explaining the impact of accounting information quality on the decision-making process of users, including managers. Decision-making is selecting alternative from among set of alternatives to solve the particular problem (Djamasbi, Strong, & Dishaw, 2010). According to this theory, the decision-making process is carried out in 5 steps: (1) Define the Problem; (2) Collect relevant information; (3) Identify the solution; (4) Develop and implement the solution; (5) Evaluate the results. Thus, collecting and evaluating information are important steps of the decision-making process. To make the reasonable decisions, managers need a lot of information. The quality of the decision largely depends on the quality of the information that the managers have been provided. The more accurate information, the more relevant decision will be made (Ismail, 2009; Nooraie, 2011).

2.3. The Cost - Benefit Theory

The Cost- Benefit Theory was first mentioned in an irrigation project in 1808 by Albert Gallantin when he compared benefits and costs. This theory shows that the benefits gained from using accounting information should be considered in relation to the costs of collecting, processing and analyzing information. The author believes that this theory will affect the relationship between accounting information quality and the decision-making process of enterprises in two aspects: (1) the use of resources (human, technical...) for collection, processing and analysis information and (2) the benefits of accounting information provided. The benefits of accounting information for users (managers, investors and related parties...) and must always consider and balance the relationship. This is to ensure that the costs are not greater than the benefits. In the decision-making process, businesses with different sizes have different requirements for information. With the small-sized businesses, the number of decisions is not much, the need of information is simple, investing in a modern accounting system with complex techniques will not be appropriate because benefits exceed investment expenses. Meanwhile, large-scale enterprises need appropriate & complex information, it is acceptable to invest a compatible cost to ensure the quality of accounting information.

3. Literature review

3.1. Accounting information quality and the decision - making process

Lesca et al. (1995) surveyed the use of accounting information in the decision-making process and the role of accounting information quality in the knowledge and strategic management of enterprises. The results have shown that more and more organizations believe that the quality of accounting information is s an important factor to the success of an organization. Especially, in the context of global integration, information quality is a major factor affecting the sustainable development of enterprises. If the information is useful, the organization will operate effectively. On the contrary, if the information is not of sufficient quality, it will bring many risks to enterprises (Ismail, 2009; Redman, 1992; Laudon & Laudon, 2012; Komala, 2012). As a result, organizations focus on having valuable information (Laudon & Laudon, 2012).

Gelinas et al (1999) said that accounting information is considered an effective tool for providing useful information for the decision-making process of enterprises. Accounting information influences decision-making process in two ways: either directly as input to decisions, or indirectly by influencing the behavior of managers. The quality of accounting information is the key foundation that helps managers make decisions, especially strategic ones (Tickell, 2010; Hall, 2011). The role of accounting information for decision-making process is shown in two aspects: facilitating decision-making and influencing decisions (Marshall & Paul, 2014).

With the Resource-Based, the previous studies have explained the relationship between the quality of accounting information and the decision-making process of enterprises. Accordingly, accounting information is considered a strategic resource, one of the competitive advantages of a business and an important part of management information. Accounting information also may help managers understand their tasks more clearly and reduce uncertainty before making their decisions (Choe, 1996). The quality of decision-making process construct is composed of items such as: helps managers to connect and allocate resources more efficiently, manages budgets better, reduces the time of decision- making... Therefore, it is necessary to design and develop an evaluation model by determining the influence of qualitative characteristics of accounting information on decision-making processes. It will answer the question: *Which qualitative characteristics should enterprises focus on to improve the quality of accounting information in the current context?*

3.2. Accounting information quality measures

Quality of information affect on managerial decision-making. Information quality is the desir-

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able characteristics of the management information system outputs (De Lone & McLean, 1992). There are a lot of measures for the information quality, with 2 basic approaches: objective and subjective:

The objective approach is based on regulations the professional organizations and associations. They have given views to define the standards for measuring accounting information quality as follows:

In 1966, American Association of Accountants (AAA) published a report on the fundamental theory of accounting in order to establish the basics of accounting theory. In which, AAA considered that: relevance, verifiability, freedom from bias and quantifiability are considered as standards to ensure useful accounting information. The AAA's publication (1966) set the first basis for the researches on accounting information quality later. However, it is still limited that a complete list qualitative characteristics of accounting information related to the quality of accounting information is not provided (Snavely, 1967).

According to the Financial Accounting Standards Board (FASB, 1993), the quality of accounting information is measured by the ability to make a difference, and users can understand and make decision through estimate the outcome in the past, present or future (2010). On this point of view, FASB (1993) has given two groups of characteristics on requirements for the quality of accounting information: Primary qualities include relevance and reliability; Secondary qualities include consistency and comparability.

In 2001, the International Accounting Standards Board (IASB) introduced qualitative characteristics of accounting information quality in The Conceptual Framework for Financial Reporting, including: relevance, reliability, understandability and comparability. By the end of 2010, the first phase of the IASB and FASB Convergence Project was completed. The issues related to the qualitative characteristics of useful accounting information were agreed upon. In this project, two Fundamental qualitative characteristics of accounting information are relevance and faithful representation; four Enhancing qualitative characteristics that increase the quality of accounting information including: comparability, verifiability, timeliness and understandability. In The Conceptual Framework for Financial Reporting (2013, 2018), the qualitative characteristics of useful accounting information do not change compared with the views expressed in the IASB and FASB Convergence Project (2010).

According to view of information technology management (CobiT 2019), the requirements for accounting information include accuracy and completeness. In addition, reliability, safety and security, balance of cost-benefits, etc. are also important. Therefore, the quality of accounting information is assessed through 7 standards, including: efficiency, effectiveness, confidentiality, integrity, availability, compliance and reliability.

In Vietnam, the concept of "qualitative characteristics" of information has not been mentioned. However, the accounting information quality measures is presented in the Vietnamese Accounting Standards No. 01 (VAS 01 - General Standard) with 6 requirements: faithful representation, objectivity, completeness, timeliness, understandability and comparability. Materiality is considered an accounting principle. The requirements for relevance and reliability are not given but instead of faithful representation, objectivity and completeness.

The subjective approach is from the perspective of the users of information. In this view, the standards for measuring the quality of accounting information also vary and depend on the demands and purposes of the different users (managers, shareholders, customers, tax...). To support managers in making reasonable decisions, the information should to be accurate, complete or contain all the

Table 1: *Accounting information quality measures (According to the professional organizations)*

Accounting information quality measures	AAA	FASB	IASB	IASB &FASB	COBIT	VAS
Relevance	x	x	x	x	x	
Reliability		x	x			
Understandability	x		x			x
Faithful representation				x		x
Comparability			x			x
Timeliness					x	x

Source: Summarized by the author

details required, presented in the same format, available quickly and timely, easy to access, and easy to understand. Table 2 shows the information quality measures which have been mentioned in previous studies:

Table 2: *Sumary of Accounting information quality measures (in previous studies)*

Authors	Accounting information quality measures
(Wang & Strong, 1996)	Completeness, Believability, Objectivity, Accuracy, Reputation, Value-added, Ease of understanding, Timeliness, Appropriate, Accessibility, Interpretability, Representational consistency, Relevancy, Concise representation, Access security
DeLone & McLean (2003)	Completeness, Understandability, Personalization, Relevance, Security
Xu et al (2003)	Accuracy, Completeness, Consistency, Timeliness
Sedera, Gable, & Chan (2004)	Usability, Understandability, Relevance, Consistency,
McLeod (2007)	Relevance, Accuracy, Timeliness , Completeness,
Al Hakim (2007)	Accuracy, Relevance, Clear, Completeness, Consistency, Free of erro, Understandability, Objectively, Timeliness, Safety
Petter, DeLone, & McLean (2008)	Relevance, Understandability, Accuracy, Consistency, Completeness, Timeliness, Usability
Stuart et al (2009)	Reliability, Consistency, Timeliness, Prediction
Al-Mamary & Aziati (2013)	Accessibility, Accuracy, Consistency, Relevance, Completeness, Understandability, Easy of explaining, Objectively, Integrity, Security, Timeliness, Relevance
Eldison Paulo et al (2014)	Accuracy, Reliability, Timeliness, Understandability, and there is a balance between qualitative characteristics

Source: Summarized by the author

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After overviewing relevant researches, we found that:

(1) There are a lot of qualitative characteristics of accounting information. These measures differ from one researcher to another. This comes from different goals and contexts. It is clear that, the requirement for accounting information for the managers is not like the information provided to others, such as banks, shareholders, customers, suppliers, etc.).

(2) Some common measures for information quality that used/adopted by the professional organizations and previous researchers. These often focus on the following requirements:

• Intrinsic data quality: Accuracy; Reputation; Objectivity; Reliability.

• Contextual data quality : Value-added; Timeliness; Relevancy; Completeness;

• Representational data quality: Interpretability; Representational; Consistency; Understandability; Faithful representation.

There is little research on requirements related to security and safety. But, in the Industrial Revolution 4.0 and economic integration context, the accounting information system has many changes. The upcoming of information systems and technologies that make it possible for managers to use real-time data from the marketplace when making decisions (Laudon & Laudon, 2012). Furthermore, data warehouses are growing and the direct access of information from various sources by information users is improving rapidly (Lee et al., 2002). These trends increase the need for high-quality information in business. The quality of accounting information is not just about the nature, the context and the expression as traditional accounting. Issues related to accessibility and security of information are very important (Chuc Anh Tu, 2015).

The purpose of this study is to explore the impact of qualitative characteristics of accounting information on the decision-making process of enterprises. The people who use accounting information are mentioned in this study are managers and chief accountants. Accounting information provided to them is managerial accounting information. It is only used for the decision-making process. Therefore, it not only reflects the transactions that happened in the past, but also the forecast information. Management accounting information should comply with a various number of characteristics including verifiability, objectivity, timeliness, comparability, reliability, understandability and relevance if it is to be useful in planning, control and decision-making. Each criteria of management accounting information is to satisfy the management need for information useful for planning, controlling and decision making. However, these criteria also face conflict amongst one another. The conflict between criteria will happen when satisfying a criterion affects another criterion being difficult to fulfill as they are in collision with each other. For example, accounting information requirements associated with the timeliness, predictive value and feedback value, while the predictive value of accounting information may be due to a lack of verification, so that the reliability is reduced; on the contrary, if always insisted truthfully, then wait until the conditions are ripe when the accounting information may have lost its predictive value. As the reliability and relevance cannot have both, one can only depending on the degree of emphasis by choosing one of the two, leading to a different accounting treatment. One of the most typical is the right choice of accounting measurement attributes.

In order to establish research models, we interviewed about the requirements for accounting information quality with 5 experts who are working as senior executives and chief accountants. They supposed that accounting information will be really useful for managers if it is fully evaluated in all three aspects: requirements for quality, requirements for security and economic efficiency. The results of direct interviews and group discussions are the basis for us to propose research model. The accounting information quality measures we choose in this research model include:

First, criteria related to quality:

Effectiveness: The information is considered useful if it is relevant to the user; timely, accurate and consistent according to accounting methods and useful for decision making. Table 3 shows the criteria for evaluating the effectiveness of the information valuable information is easily dispersed and violated. For these reasons, the issue of information security and safety is becoming more and more urgent. This requirement guarantees information is protected in order to to avoid unauthorized access and use.

Third, criteria related to efficiency:

Efficiency: related to ensuring the use of resources (people, equipment, infrastructure, software...) in the process of collecting, processing and creating information. This efficiency is expressed in money on a basis determined by the results of the comparison between the benefits obtained from the accounting information provided and the costs spent on implementation.

Table 3: *Criteria to evaluate the Effectiveness of information*

NO	Characteristics	Description
1	Reliability	Accounting information is regarded as true and credible
2	Accuracy	Accounting information is accurate, honest, neutral and faithfully represents what it purports to represent.
3	Completeness	Accounting information fully reflects opportunities and risks for businesses to make decisions, not omitted and duplicated
4	Relevancy	Accounting information influences the economic decision of users by helping them evaluate past, present or future events or confirming, or correcting there past evaluations.

Second, criteria related to security:

Timeliness: This is the feature that represents information available for current and future business. In other hand, accounting information must be provided constantly, at any time depending on the request of managers: irregular, daily, weekly, monthly... Therefore, to ensure the availability and timeliness of information provided, requires the necessary resources involved

Security and safety: This criteria is considered one of the most important characteristics of accounting information quality because it directly affects the competitiveness of enterprises. Managers are very concerned about the requirements of security and safety to keep internal information confidential from competitors. Currently, information technology and social networks are developing strongly,

4. Research model and hypotheses

After overviewing related studies, we propose a research model for the impact of four qualitative characteristics of accounting information on the enterprise's decision-making process, including: Effectiveness; Timeliness; Security and safety; Efficiency. The theoretical framework was developed in (figure 1)

The research hypotheses are stated as follows

- *H1: The effectiveness of accounting information has an impact on the enterprise's decision-making process.*
- *H2: The timeliness of accounting information has an impact on the enterprise's decision-making process.*

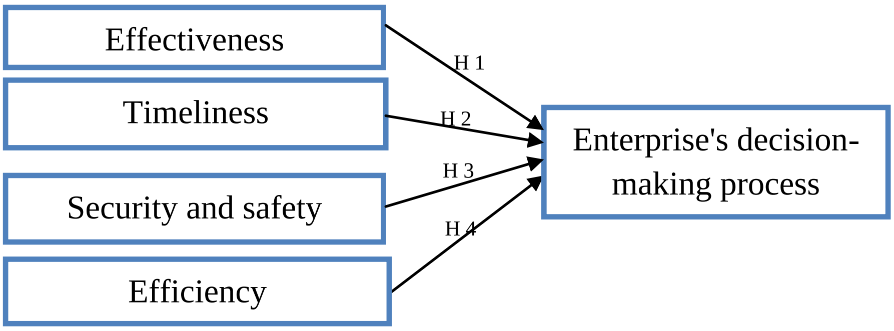

Figure 1: *Theoretical framework of the study*

◆ *H3: The security and safety of accounting information has an impact on the enterprise's decision-making process.*

◆ *H4: The efficiency of accounting information has an impact on the enterprise's decision-making process.*

5. Research methodology

5.1. Designing questionnaire and selecting scales

The questionnaire includes 19 measurement questions for the independent and dependent variables in the proposed research model. The answer is measured by a Likert scale with 5 levels, the lowest is "1 - Strongly disagree" to highest "5 - Strongly agree". These questions are based on the questions used in the previous studies that have been carried out before and translated from English to Vietnamese. Respondents will also base on the actual situation of their business to choose the appropriate answer.

To test the suitability of the questions, we investigated the pilot testing by sending questionnaires to the managers, financial directors and chief accountants of 9 manufacturing companies in Hanoi. With 43 collected questionnaires, we have checked the reliability of the scale with Cronbach Alpha and Corrected Item-Total Correlation. Both of these two coefficients need the requirements: Cronbach Alpha of the independent and dependent variables are greater than 0.7, the Corrected Item-Total Correlation of observed variables are greater than 0.3 (Hair et al., 2010). After that, we officially surveyed on a large scale with the enterprises of the research object. The questions (corrected) in the research model are described in Table 4 below:

5.2. Sample and data collection method

In order to ensure that the respondents have relatively sufficient knowledge to answer the survey questions, the study selected potential respondents: senior executives and chief accountants in the enterprises with different scales. They are knowledgeable about accounting and often use accounting information for decision - making.

Therefore, after adjusting the survey questionnaire and identifying the object of the survey, during 3 months (from October to in December in 2019), we conducted an investigation to collect data with two methods: (1) print the survey form and send them directly to senior executives and chief accountants in the enterprises; (2) Send the survey via email using the google docs tool. Then researchers continue to ask them to send the questionnaire link to other colleagues

A total of 77 manufacturing enterprises in Hanoi City, Hai Phong, Hai Duong and Bac Ninh, and Ninh Binh provinces agreed to participate in our survey. In which, there are 56 private enterprises (72.72%) and 21 state enterprises (27.28%). There are 31/77 enterprises (40.25%) that we surveyed with capital size over 100 billion VND, the rest (59.75%) are businesses with capital size below 20 billion and from 20 billion to 100 billion VND.

We sent 265 questionnaires and received 203 ones (76.6%). However, only 177 questionnaires

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Table 4: *The study variable*

Factor/ Study Variable	Sources	Code	Observation variables
Effectiveness	Jonas &Blanchet (2000) Ferdy & Suzanne (2009), COBIT (2006)	EFC1	Accounting information is regarded as true and credible
		EFC2	Accounting information is accurate, honest, neutral and faithfully represents what it purports to represent.
		EFC3	Accounting information fully reflects opportunities and risks for businesses to make decisions, unomitted and unduplicated
		EFC4	The accounting information provided must be appropriate and useful to evaluate the financial performance
Timelines	Gaeremynck (2003), (2007), Al Hakim (2007), Willekens (2008)	TME1	Information is always updated promptly
		TME2	Accounting reports (day, month, quarter ...) are prepared fully and systematically
		TME3	Accounting information for decision making is readily available upon request
Security and safety)	Suzanne (2009), COBIT (2006), Al Hakim (2007)	SES1	Enterprises have regulations and control the right to access accounting information for each individual and related department
		SES2	Legal users can connect, search and access information easily
		SES3	Accounting information is kept securely, cannot be accessed and disclosed without authorization.
		SES4	Information is only allowed to be deleted, edited, supplemented or destroyed by authorized persons and must ensure the accuracy of its transmission.
Efficiency	COBIT (2006)	EFE1	The use of resources (people, equipment, infrastructure, software ...) in the process of collecting, processing and creating information is reasonable.
		EFE2	The benefits gained from using information are always greater than the costs of collecting, processing and creating the information
		EFE3	Accounting information relevant to each manager's specific decision-making situation.
		EFE4	Accounting information can be easily processed to subsequent users
The effect of accounting information quality on the decision - making process (Making decision)	Kieso et al (2007), Xu (2009), Ismail (2009), Gafarov (2009), Hall (2011), Komala (2012), Omar A Alshikhi and Bandar M. Abdullah (2018)	MKD1	Manage the budget for activities better
		MKD2	Allocate resources more economically and efficiently
		MKD3	Reduce the time of decision- making
		MKD4	Improve the quality of decision-making process

were used for analysis purposes. The descriptive statistical analyses are performed with the support of SPSS 22.0

6. Results of data analysis and discussion

6.1. Descriptions of the research sample

Classification results of research samples is as follows:

- All respondents are administrators, financial directors, chief accountants of surveyed enterprises.

- Regarding gender: male is 54.80%, female is 45.20%. Thus, there is no big difference in the sexes of the respondents.

- Age group, the respondents who are managers over 30 years old account for the largest proportion. The number of managers who answered under 30 years old accounts for no more than 10%.

- In terms of experience, the majority of respondents have more than 10 years working experience (46.90%), 37.85% of respondents have 5 - 10 years' working experience and only 15.25% of them have working experience less than 5 years. Over 60% of the respondents have postgraduate qualifications and only 36.16% have university degrees.

6.2. Reliability and validity analysis

The results of the reliability analysis showed that all independent and dependent variables in the research model have Cronbach's Alpha groups from 0.648 to 0.850. Also all observed variables had Corrected Item- Total Correlation greater than 0.3. All of these indicators are greater than the minimum to ensure convergence, reliability and distinctiveness of factors (Hair et al,2 010) should be included in the analysis in the next steps.

6.3. Exploratory Factor Analysis (EFA)

To test the reliability of observed variables, we used Cronbach's Alpha and Corrected item-total correlation. The analytical results are presented in the following table:

Table 5: *Test results of Cronbach's Alpha coefficient*

Variables	**Cronbach's Alpha**
Effectiveness (EFE)	0.850
Timelines (TME)	0.815
Security and safety (SES)	0.648
Efficiency (EFC)	0.754
The decision - making process (MKD)	0.803

Exploratory Factor Analysis (EFA) with Principal Axis Factoring and Promax rotation showed that the observed variables in each factor is unidirectional scale and the 15 observed variables are compatible with the data. The KMO coefficient is 0.713, greater than 0.5, the Barlett test has a p-value less than 0.05, the Eigenvalue coefficient > 1, factor loading > 0.5 (table 6)

6.4. Regression analysis and testing of research hypotheses

Before testing the research model by multiple regression analysis, we considered the correlation between variables in the model by using Pearson's Correlation coefficients to quantify the severity of the relationship between the independent variables: Effectiveness (EFE), Timelines (TME), Security and safety (SES), Efficiency (EFC), with dependent variable, The decision - making process MKD. The results showed that the dependent variable correlated with other research variables and the correlation coefficients were statistically significant from 0.174 to 0.562.

Selecting 5 factors on regression to evaluate the suitability of multiple regression models by the Enter method. The value of each factor used to run the regression is the average of the observed variables of that factor. The regression results show the model's relevance to the research data with an adjusted R^2 coefficient = 0.751 with a significance level of 0.05. This shows that 4 independent variables explained 75.1% of the change of the dependent variable.

Table 6: *Results of EFA analysis*

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.713
Bartlett's Test of Sphericity	Approx. Chi-Square	860.986
	df	105
	Sig.	.000
	Total Variance Explained	0. 62756

Observed variables	Component			
	1	2	3	4
EFE2	.903			
EFE4	.866			
EFE1	.789			
EFE3	.759			
EFC4		.861		
EFC2		.756		
EFC1		.720		
EFC3		.706		
TME3			.883	
TME1			.862	
TME2			.809	
SES4				.782
SES2				.750
SES1				.708
SES3				.538

Table 7: *Correlation matrix between variables*

	The average value	Standard deviation	**EFE**	**EFC**	**TME**	**SES**	**MKD**
EFE	***3.955***	***1.201***	1	.021**	.012**	.173**	.493**
EFC	***4.123***	***1.093***	-	1	.113**	.028**	.562**
TME	***3.923***	***1.333***	-	-	1	.048**	.311**
SES	***3.566***	***1.279***	-	-		1	.174**
MKD	***4.0175***	***0.628***	-	-	-	-	1

(Source: Authors' calculation with SPSS 22.0)

(**) The correlation is significant at the 0.01 level

Next, the research will conduct a regression analysis. Regression analysis will determine the extent of the impact of independent variables on the dependent variable. With a defined regression equation that gives the best predictive equation for a set of variables, besides that, test research hypotheses with 95% confidence. The research hypothesis will be accepted correctly if the significance level (sig.) <0.05 (Hoang Trong and Chu Nguyen Mong Ngoc, 2008). We have a research model to study the influence of accounting information quality on the decision – making process of Vietnamese manufacturing enterprises with the expected equation as follows:

$$MKD = \beta_0 + \beta_1 EFE + \beta_2 TME + \beta_3 SES + \beta_4 EFC + \varepsilon$$

The analysis results in Table 9 show *all four qualitative character-*

Table 8: *Evaluating the suitable level of paradigm*

Model Summary[b]				
Paradigm	**Coefficient R**	**Coefficient R^2**	**Adjusted R2 coefficient**	**Estimate the standard error**
1	.867[a]	.751	.745	.25395
a. Predictors: (Constant), EFE, TME, EFC, SES				
b. Dependent Variable: MKD				

Table 9: *Regression model results*

Coefficients[a]								
		The system has not standardized		Standardized coefficient	t	Sig.	Multicollinearity statistics	
		B	Standard deviation	Beta			Acceptability of the variable	Magnification coefficient of variance (VIF)
1	Constant	.205	.176		1.162	.247		
	EFC	.389	.025	.599	15.549	.000	.987	1.013
	TME	.158	.017	.358	9.285	.000	.987	1.013
	SES	.148	.022	.265	6.811	.000	.969	1.032
	EFE	.262	.020	.521	13.415	.000	.970	1.031
Dependent Variable: MKD								

istics of accounting information in the research model (including Effectiveness, Timelines, Security and safety, Efficiency) *have a positive impact on the enterprise's decision-making process* and statistically significant in the analysis model with sig. <0.05, VIF > 1, so it can be concluded that there is no multicollinear phenomenon between these 4 factors.

The linear regression equation showing the impacts of *qualitative characteristics of accounting information on enterprise's decision-making process is built as follows*:

MKD = 0.205 + 0.262EFE + 0.389 EFC + 0.158 TME + 0.148 SES

The relationship between the dependent variable and 4 independent variables is positively because Beta coefficients for independent variables > 0. From the regression equation, we show:

Efficiency (EFC) which has the most influence on *enterprise's decision-making* process with the Beta coefficient is 0.389. Positive signs of Beta coefficient mean the relationship between Efficiency (EEC) and *enterprise's decision-making process* is a positive relationship, it mean that if other factor do not change, Efficiency increase 1 unit, the quality of decision-making increased to 0.389 units. Hypothesis H4 is accepted correctly.

The next factors that influence *enterprise's decision-making* process are the characteristics related Effectiveness (EFE), Timelines, (TME), Security and safety (SES), with Beta coefficient of 0.262, 0.158 and 0.148 respectively. When these factors increase 1 unit, the remaining elements are not changed the the quality of *decision-making* increased to increased to 0.262, 0.158 and 0.148 units, respectively, meaning that the hypotheses H1, H2 and H3 are accepted correctly.

7. Conclusion

The quality of accounting information guarantees that *enterprise's decision* has been made in a timely and consistent with the goals. The study have helped the business identify which qualitative characteristic of accounting information should be focused on to make accounting information more useful.

Among the 4 qualitative characteristics mentioned in this study, the efficiency is assessed as the greatest impact on the decision-making process of enterprises. This characteristics mentions the relation between benefits obtained from accounting information and costs spent in collecting, processing, analyzing and providing information. The qualitative characteristics related to Effectiveness, Timeliness, Security and safety also have a positive influence on the decision-making process of enterprises. The effectiveness and timeliness of accounting information is reflected in the following aspects: reliablilty, accuracy, objectivity, completeness, relevance, timely... These are the basic principles and requirements of accounting, focus on financial accounting. These requirements are being complied. In the context of economic integration, we should converge with the world in many fields, especially accounting, management and financial management. Therefore, the requirements related reliability, accuracy, relevance, objectivity, completeness became more important.

The qualitative related security and safety (SES) has little influence on the decision-making process of enterprises. This result is quite similar to one survey published in 2016 by Information Security Magazine (USA). According to this study, many businesses do not care about database security, 33.7% of the 597 respondents argued that it is not really necessary to focus on database security and only 11.9% rated it is very important. Therefore, these businesses did not focus on controlling information access. As a result, the information was not safe and secure. In the context of the Industrial Revolution 4.0, digital technology and social networks has been developing strongly. The emergence of management software and accounting software has radically changed accounting. However, businesses have been facing the risk of information insecurity. The safety and security of the information must be paid more attention.

Also in this study, we have compared qualitative characteristic of accounting information metioned by *professional organizations* and Vietnamese accounting standards (VAS 01 - Framework). When we issued VAS 01 in 2002, we had consulted with international accounting standards (IAS). But up to now, after nearly 20 years, some requirements are becoming outdated. The delay in updating new regulations will affect the economic integration process, including the convergence of Vietnam's accounting with international accounting in the trend of globalization. Therefore, in the process of completing the legal framework on accounting, Government Agencies cannot ignore the revision and updating of the contents related to the quality of accounting information.

Due to limited time and the survey sample, the study only examines the impact of 4 qualitative characteristic representing 4 standard aspects of information on enterprise's decision-making process in the context of the Industrial Revolution 4.0. The influence of other qualitative characteristic will be discussed fully and systematically in the next studies.◆

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Summary

Nghiên cứu đã được thực hiện tại 77 DN sản xuất trên địa bàn các Thành phố Hà Nội, Hải Dương, Bắc Ninh, Hải Phòng, Ninh Bình với 177 bảng hỏi sử dụng được từ 265 phiếu được gửi tới các nhà quản trị (NQT) cấp cao và những người phụ trách công tác kế toán nhằm tìm hiểu tác động của các đặc tính chất lượng thông tin kế toán (CLTTKT) đến quá trình ra quyết định của DN. Kết quả phân tích cho thấy cả 4 đặc tính CLTTKT trong mô hình nghiên cứu đề xuất đều có tác động cùng chiều với quá trình ra quyết định của DN với mức độ tác động lớn nhất là tính hiệu quả, tiếp đó là các đặc tính hữu hiệu, kịp thời, bảo mật và toàn vẹn. Từ kết quả nghiên cứu này, tác giả đã đưa ra một số khuyến nghị cần thiết nhằm nâng cao CLTTKT, đáp ứng tốt hơn cho quá trình ra quyết định của các DN Việt Nam trong bối cảnh cuộc Cách mạng công nghiệp 4.0.

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