INTENTION TO APPLY TOTAL QUALITY MANAGEMENT IN PETROLEUM AND LIQUEFIED PETROLEUM GAS IN VIETNAM'S ENTERPRISES

T.D.THAO
Dai Nam University, Vietnam[a]

V.D.T.PHUONG
Petrolimex Gas Corporation JSC, Vietnam[b]

B.C.PHUONG
Thang Long University, Vietnam[c]

N.A.TUAN
International School, Vietnam National University, Vietnam[d]

P.V.MINH, D.M.TU
Dai Nam University, Vietnam[a]

The purpose of this study is to point out the factors that promote and hinder the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam. The study was conducted based on survey data of 486 petroleum and liquefied petroleum gas enterprises in Vietnam with the respondents being members of the business leadership or the person in charge of quality management and collected during the period from October 2020 to February 2021. The results show that the factors: (1) perception of the effectiveness of TQM; (2) perceived ease of use of TQM; (3) perceived effectiveness of TQM compared to the old system; (4) the size of charter capital has a positive effect; (5) the size of the labor force has a negative effect on the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam. The study also shows that the more modern the leaders in petroleum and liquefied gas enterprises in Vietnam are, the easier it is to make decisions to apply TQM. And vice versa, if they are traditional people, they will hinder intention to apply TQM in business.

Keywords: TQM, application intention, quality management, petroleum business in Vietnam, liquefied gas business.

JEL: L15, Q35, M11, L20, L71.

Postal addresses: [a] Dai Nam University, Phu Lam, Ha Dong, Ha Noi, Vietnam; [b] Petrolimex Gas Corporation JSC, No 1 Kham Thien St., Kham Thien Ward, Dong Da District, Hanoi, Vietnam; c Thang Long University, Nghiem Xuan Yem Road Hoang Mai District, Hanoi, Vietnam; [d] International School, Vietnam National University, 79 P.Ngụy Nhu Kon Tum, Lang sinh viкn Hacinco, Thanh Xuan, Hanoi, Vietnam.

https://doi.org/10.21638/spbu18.2021.406

INTRODUCTION

Vietnam's petroleum and liquefied petroleum gas market was formed in the early 1990s and has undergone significant changes and has tended to increase rapidly over the past 10 years. However, along with that is the situation of fake gasoline, smuggled gasoline, illegal extraction of gas etc, affecting competition, quality of goods and endangering users and society. To ensure the quality management of this product, Vietnam has applied many different solutions, in which emerged the application of quality management systems such as ISO9000 or Total Quality Management (TQM). However, according to our research, studies on TQM application often go in two directions: (1) the factors affecting the effective application of TQM (the input of TQM) and (2) the impact of TQM to the activities of the enterprise (output of TQM). These two research directions are in the context of organizations that have applied TQM, without considering the factors affecting an organization's acceptance of TQM application, because organizations need to evaluate whether the option should or should not apply this system to your organization.

To study the intention to adopt new technology or a new form of management, many studies use Davis's [Davis, 1989]. Technology acceptance model (TAM), but all seem to ignore the comparison with the old system (in application). To the knowledge of the authors, there are relatively few studies that compare the effectiveness of the old system with itself. Because clearly, organizations only accept the new system when there is a feeling that the new system is superior to the old system. The application of the TAM model has been extended by some authors by adding new factors, but no author has considered the factors that belong to the perception of decision makers if they are traditional or modern when adopt new technology or management practices. Although, the factor of self-perception is a factor that has been confirmed to have a strong impact on people's decisions and shows a tendency to easily accept new things or not. This is the factor that the authors predict that will complement the TAM model very well in the research on accepting new technologies or management methods of organizations. This is also the theoretical contribution of this study to strengthen the theoretical basis for studies on the intention to accept new technology or new management methods in different fields.

Intention to apply and use any application is important in every industry [Al-Rahmi et al., 2019]. In order to continuously improve product quality and quality management, organizations need to constantly learn and apply new technologies or new management methods [Saoula et al., 2019]. The ability to recognize and innovate is very important for organizations to apply new technology or new management system, it determines the quality, competitive advantage and sustainable development of the business [Al-Rejal et al., 2019]. Therefore, this study applies the TAM model and expands the model to consider some factors affecting the intention to apply the TQM, and the factors affecting the perception of the ease of use of TQM. In this study, we also consider factors such as business characteristics, leadership characteristics affect the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam is appropriate and necessary.

From the above arguments, this study will apply the extended TAM model to consider several influencing factors (including factors belonging to business characteristics, characteristics of management decision makers) to the intention to apply the total quality management system (TQM) in liquefied petroleum gas (LPG) enterprises in Vietnam.

Accordingly, this study consists of six main contents: (1) Introduction; (2) Literature review; (3) Methodology; (4) Results and discussion; (5) Conclusion and recommendations; (6) The limitation of the study and further research.

1. LITERATURE REVIEW

1.1. Studies on TQM

1.1.1. Research on the role of TQM in organizational activities

These studies emphasize that applying TQM will help improve organizational performance [Huarng, Chen, 2002]. The more rigorously organizations apply TQM standards, the more effective the quality of their products [Ahire, Waller, Golhar, 1996]. Some other studies examine the extent of the impact of TQM components on the performance of enterprises. Accordingly, the application of TQM can be divided into two parts, namely hardware (regulations, technical tools of TQM, etc.) and software (development of human resources of organizations applying TQM). These two main components of TQM have different effects on firm performance [Rahman, Bullock, 2005]. On the other hand, the application of TQM did not significantly affect job position conflicts and employee satisfaction [Guimaraes, 1996]. In addition, the level of TQM application also strongly (positively) affects the performance of the organization, especially when businesses tend to be interested in supporting between colleagues or employee, this influence increases [Joiner, 2007]. Organizational culture also has a positive effect in moderating the relationship of TQM's positive impact on business performance [Alghamdi, 2018] and TQM has a moderating effect on the relationship of the human resources management system on organizational performance [Al-Dhaafri, Al-Swidi, Yusoff, 2016]. Besides, these studies indicate success or failure in the application of TQM, specifically:

1.1.2. Research on factors affecting the application of TQM

The application of TQM is most effective only when organizations do it formally and over the long term [Ahire, Waller, Golhar, 1996]. These studies focus on the factors and the extent and direction of their impact on the successful adoption of TQM for organizations [Huarng, Chen, 2002; Nasim, 2018]. The cause of failure to apply TQM can be (1) half-hearted implementation of TQM [Ahire, Waller, Golhar, 1996]. (2) objections from middle management, disagreement among employees, or inappropriate training program design [Edwards, Sohal, 2003]; (3) the ability of managers to understand and communicate about effectiveness, and the reasons for applying TQM are not convincing [Beer, 2003]. Accordingly, to apply TQM effectively, it is necessary to follow a seven-step process: (1) select a course for assessment; (2) select criteria for evaluation; (3) conduct course assessments; (4) prepare a report of the audit results; (5) implement an action plan for continuous improvement; (6) monitoring the action plan; and (7) continuous improvement [Venkatraman, 2007; Nawelwa, Sichinsambwe, Mwanza, 2015].

In addition, there are many factors affecting the effectiveness of TQM application such as, context factors, organizational origin, size of the organization etc, long-term relationship with suppliers [Leonard, Sasser, 1982; Lascelles, Dale, 1989; Flynn, Schroeder, Sakakibara, 1994; Dilawo, Salimi, 2019]. National or global firm size does not affect the ability to adopt TQM effectively [Sila, 2007].

Thus, these studies assume that the application of TQM will bring efficiency to organizations M. Terziovski and D. Power [Terziovski, Power, 2007], the authors only focus on studying the factors affecting the effective application of TQM. From the review results, it can be seen that, both of the above research directions on TQM mainly focused on before the 2010s and were conducted in Western developed countries. Few recent studies on TQM have been conducted in the developing countries of West Asia and Southeast Asia with an emphasis on the role TQM plays in organizational operations. Surprisingly, there is a lack of studies on the factors affecting the intention to apply TQM, especially in the context of

product quality has to face several problems, namely counterfeit goods, counterfeit goods, fire safety, etc., and the conditions for applying TQM are not immediately met by all enterprises.

1.2. Theoretical basis

1.2.1. Theoretical framework for system acceptance

The TAM technology acceptance model has been applied in many studies on the application of new technology or new management arousal, and at both the individual and organizational levels [Davis, 1989]. It is a new theory developed based on the theory of rational behavior to explain any human behavior in general, including the behavior of accepting something [Ajzen, 1991].

According to the rational behavior model (TRA), people's behavior derives from their attitudes towards that behavior. If people have a positive attitude to support a certain behavior, they will also consider society's attitude, or if their relatives support or not, which is called the subjective norm. The influence of attitudes and subjective norms will create an intention to perform a behavior, expressed by a plan or possibility that someone, in a certain context, will perform a certain behavior. Therefore, the intention to perform the behavior is the best explanation of itself [Ajzen, 1991].

Although both TPB (extended model of TRA) and TAM explain intention to adopt the system, TAM model explains better than TPB [Ndubisi, 2006]. Therefore, inheriting from the TRA model, Davis has developed a technology acceptance model to explain whether a person or an organization accepts a certain system [Tang, Chen, Wu, 2010]. According to which the behavior of accepting a new system of an organization or individual is still largely influenced by the intention to accept that system. In turn, the intention to accept the system is influenced by the attitude towards that system [Davis, 1989]. Two important components that Davis added in the TRA model changed into the technology acceptance model are the perceived system efficiency and the perceived ease of use of the system [Davis, 1989].

After many revisions, the final technology acceptance model, TAM, was proposed by Davis et associate in which the attitude factor towards the use of the system was no longer included in the model [Venkatesh, Davis, 1996]. The authors also predicted that there would be many variables affecting the perceived effectiveness and perceived ease of use of the system. From this model, other researchers have suggested an extension of the technology acceptance model with four main development directions including: contextual factors; external factors affect the perceived "effectiveness of the system" and the perceived ease of use of the system; elements from other theories; and using other measurement tools [Marangunić, Granić, 2015]. Over time, the application of the technology acceptance model has shown that it is a relatively flexible model and has been applied by research in a variety of fields ranging from individual decisions to individual decisions organizational decisions [Mortensona, Vidgen, 2016].

1.2.2. Enterprise TQM application intent

According to F. Davis, the intention to accept the system will determine whether an individual or an organization will use the system [Rauniar et al., 2014]. This is an important factor determining whether an individual or a group will use a system [Ong, Kathawala, Sawalha, 2015]. Davis' concept of system application intention is derived from Fishbein and Ajzen's concept of behavioral intention in the TRA model and later TPB. Accordingly, the intention to accept the system is understood as the level of effort, trying to accept the use of the system [Ajzen, 1991; Tang, Chen, Wu, 2010]. The stronger the intention to accept the system, the higher chance that an in-

dividual or organization will accept that system [Ajzen, 1991; Tang Chen, Wu, 2010]. Whether a system is implemented or not, depends directly on the intention to adopt the system, who decides to implement the system [Walker, Johnson, 2008; Sheikhshoaei, Oloumi, 2011]. Intention to adopt the system is strongly influenced by perceived effectiveness and perceived ease of use and is almost not influenced by attitude towards the system [Ndubisi, 2006].

Thus, the concept of intention to accept a total quality management system (TQM) in this study is understood as the degree to which an individual/organization is willing and intends to make efforts to apply the management system holistic quality into your organization.

1.2.3. Factors affecting the intention to apply TQM in enterprises

1.2.3.1. Feelings about the efficiency of the system

The perceived effectiveness of the system positively affects the acceptance of individuals to use decision support systems in organizations [Elbeltagi, McBride, Hardaker, 2005]. Such as, when the students feel that the e-learning system is effective, the intention to accept the use of the e-learning system will be increased [Ndubisi, 2006]. However, studies on IT system acceptance by librarians at universities in Tehran [Sheikhshoaei, Oloumi, 2011]; Research on maintaining the quality management system ISO 9000 [Ong, Kathawala, Sawalha, 2015] has shown a low level of impact of perceived effectiveness on the intention to accept the system. In contrast, the study of [Klein, 2007] confirmed, perceived effectiveness has the strongest impact on the intention to accept the system of patients. In addition, there are a number of other studies with similar conclusions [Mariani, Curcuruto, Gaetani, 2013; Brezavšček, Šparl, Žnidaršič, 2014]. Thus, the studies on the intention to accept the system in different professions have not really consistent results.

However, the perception of the effectiveness of the system affects an organization's or individual's intention to accept the system, in terms of the system not being used and facing the possibility of acceptance, the effectiveness of the system will be affected. The results of the system now have future implications. For the current system in use, the perception of the actual performance of the system will influence the intention to continue using the system. Similarly, for the selection of a replacement system, comparing the perceived performance of the new system with the actual performance of the old system will influence the intention to continue using the old system or to replace it with the new one [Xu, Quaddus, 2007]. Therefore, the perception of the effectiveness of the new technology or management and the perception of the effectiveness of the new technology or the new management compared to the current technology will be the factors affecting the intention to apply use TQM in business.

1.2.3.2. Feeling the ease of use of the system

Perceived ease of use of the system positively influences the adoption of decision support systems by individuals in organizations [Ndubisi, 2006]. Similar to the above result is a study on the intention to accept the information technology system of scholars, professors, lecturers..., of universities in Turkey, when perceived ease of use has a strong influence on intention to adopt an information technology system [Brezavšček, Šparl, Žnidaršič, 2014]. However, the results Klein's study found that perceived ease of use had no effect on patients' intention to accept the system [Klein, 2007]. Similarly, Walker's study also confirms that perceived ease of use has absolutely no impact on the intention of users to adopt the system [Ong, Kathawala, Sawalha, 2015]. In addition, some studies have shown a weak impact of perceived ease of use on the intention to adopt the system [Mariani, Curcuruto, Gaetani, 2013].

1.2.3.3. Feeling about yourself

The sense of self comes from the idea that we all have visions of what we want and what we really are. Self-perception varies across cultures and it affects intrinsic factors such as motivation to perform a behavior or perception of behavior [Markus, Wurf, 1987]. In Asian countries and especially Vietnam, traditional and collective people often affect their decisions, as self-perception is a key factor determine human behavior [Arnould, Price, Zinkhan, 2004]. Two types of self-perception as modern and traditional can exist in each Vietnamese at the same time, and this will influence their behavior [Mai, Kwon, Lantz, 2003]. Accordingly, the perception of oneself as a traditional person is the degree to which an individual's views are consistent with Confucian norms, values, and beliefs prior to the transformation of the Vietnamese economy. Perceiving oneself as a modern person is the degree to which an individual's views are consistent with the standards, values, and beliefs imported from developed countries after the transformation of Vietnam's economy [Mai, Smith, Cao, 2009]. People who perceive themselves as modern tend to be more open to change, more likely to be pioneers in purchasing, and accepting new products and systems. And they are often younger, more educated etc. Meanwhile, people who perceive themselves as traditional are identified as people who are less inclined to accept new things, and often not open to change. They are also older and less educated.

Therefore, we predict that people who perceive themselves as modern, because they are more open, more educated, will tend to accept and feel easier when exposed to the new system, particularly the new quality management system (TQM). In other words, they will perceive the new system as easier to use. In contrast, traditional people will find it more difficult to deal with the new system, or they will find it not easy to use. In addition, we also predict other personal characteristics of management decision makers such as: Gender of the decision maker, Qualification of the decision maker, Age of decision maker, Decision maker experience, may also have a certain influence on their decision to apply TQM in the organization.

1.2.3.4. Characteristics of the business

Several studies on quality management or corporate social responsibility for customers in which the quality assurance aspect according to the commitments announced by enterprises has shown that large enterprises often tend to tend to be more committed to quality, since they have a larger social impact than small businesses [Cowen, Ferreri, Parker, 1987]. The size of an enterprise usually is expressed in two main aspects, namely: the number of employees and the size of capital. These two factors are strongly influenced by the operating time or form of ownership of the enterprise, the longer the operating time of the enterprise, the larger the size of the enterprise [Zheng, Zhang, 2016] and the length of time. A firm's performance is often measured by the number of years it has been in business, and the form of ownership and sector of operation sometimes also determine the size of the firm's capital [Pasricha, Singh, Verma, 2018]. These factors often act as important control variables affecting strategic decisions of enterprises, including their commitments [Schouten, Graafland, Kaptein, 2014; Pasricha Singh, Verma, 2018; Shnayder, Rijnsoever, 2018]. Especially for petroleum and liquefied petroleum gas enterprises in Vietnam, which is a labor-intensive industry, toxic working environment, ownership form is shifting from completely state capital. To equitization, privatization, the field of operation of enterprises is also increasingly diversified in many different markets and products. Therefore, we forecast that factors belonging to the characteristics of Vietnamese petroleum and liquefied petroleum gas enterprises such as, Number of employees, Authorized capital, Ownership, and Type of

activity have an influence on intention application of TQM in these enterprises.

2. METHODOLOGY

2.1. Research models

From the theoretical overview of the factors affecting the intention to apply TQM, we propose a research model on this issue as follows (Fig. 1).

2.2. Scales used in the study

From the research reviews, theoretical background and research model, the following is a summary of the concepts and scales used in this study (Table 1).

2.3. Research data

The study mainly uses primary data based on the survey of 486 petroleum and liquefied petroleum gas enterprises in Vietnam about the intention to apply TQM in quality management in enterprises. The sample size is calculated according to the sampling formula of [Hair, Tatham, Black,1998], for EFA analysis, the minimum sample size should be 50, preferably 100. There are two ways to choose the sample ratio to one variable analysis is 5/1 or 10/1, which means that an analytic variable needs at least 5 observations or 10 observations [Hair, Tatham, Black, 1998], whereby, for the total number of survey propositions is 32 so the minimum

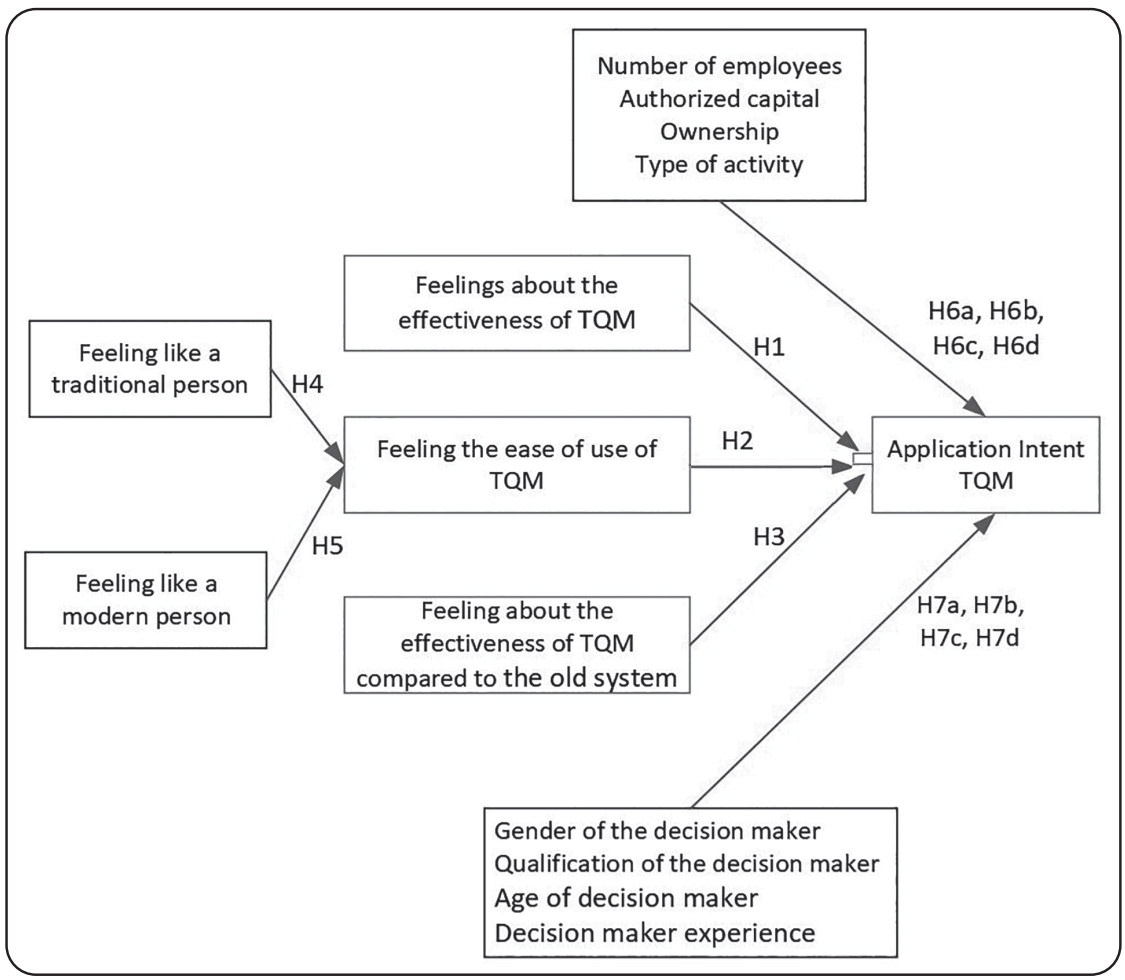

Fig. 1. TQM applied intent research model

Table 1

Summary of table concepts, scale research

No	Factor	Content (Items)	Source
1	Perception of the effectiveness of TQM	Applying TQM in my business will allow my business to manage quality more easily (Eff1)	[Davis, 1989]
2		Applying TQM will improve the product quality of my business (Eff2)	
3		Applying TQM in my business will increase the percentage of quality products of my business (Eff3)	
4		Applying TQM will improve the work efficiency of all parts of my business (Eff4)	
5		Applying TQM will help departments in the business do their jobs more easily (Eff5)	
6		I find TQM useful for my business (Eff6)	
7	Feeling about the effectiveness of TQM compared to the old system	Applying TQM in my business will allow my business to manage quality more easily than the current standard system (EffCom1)	
8		Applying TQM will improve the product quality of my business making products better than the current standard system (EffCom2)	
9		Applying TQM in my business will make the rate of product quality higher than the current standard system (EffCom3)	
10		Applying TQM helps the work efficiency of all parts is higher than the current standard system (EffCom4)	
11		The application of TQM will help departments in the business to do their jobs easier than the current standard system (EffCom5)	
12		I find TQM more useful for my business than the current system (EffCom6)	
13	Feelings about the ease of use of TQM	Learning how to apply TQM is quite easy for my business (Easy1)	
14		I find applying TQM for my business purposes is easy (Easy2)	
15		The contents of TQM are clear (Easy3)	
16		The contents of TQM are easy to understand (Easy4)	
17		TQM is very flexible to apply. (Easy5)	
18		TQM is very easy to grasp to use (Easy6)	
19		In general, I find TQM easy to apply (Easy7)	
20	Self-perception scales, feeling like a traditional person	I always try to live a frugal life (TS1)	[Mai, Smith, Cao, 2009]
21		I feel the need to be cautious when buying and using new products (TS2)	
22		I enjoy using traditional products and services significantly (TS3)	
23		For me, it is important to respect the opinions of others about ourselves (TS4)	
24		For me, it is important to observe and preserve traditional values in our social relationships (TS5)	
25	Self-perception scales, feeling like a modern person	I like people who dress in a modern and fashionable way (MS1)	
26		I think it's important to enjoy life in a way happy (MS2)	
27		I like the modern lifestyle (MS3)	
28		I like to try new products and services (MS4)	
29		I think the changes add to the excitement for one's life (MS5)	
30	Intent to apply TQM	I will apply TQM to my business in the near future (Int1)	[Ong, Kathawala, Sawalha, 2015]
31		I tend to apply TQM to my business (Int2)	
32		I plan to apply TQM to my business (Int3)	

number of required survey samples is 160 votes or better, 320 valid votes. We have distributed 600 questionnaires to 600 petroleum and liquefied petroleum gas enterprises in Vietnam by means of non-probability random sampling and asked people who are directly in charge of quality management in these business units through the submission of questionnaires in person or by email, and from October 2020 to February 2021. As a result, 508 questionnaires were collected in two forms: direct answers by filling in pre-printed questionnaires and via email, of which 22 questionnaires were invalid due to incomplete information or respondents were not the person in charge of quality management of the enterprise, the remaining 486 valid votes were used for the analysis of this study. The sample structure of the survey is presented in the following Table 2.

EFA analysis results with Principal exis factoring method with Promax rotation and breakpoint when extracting factors with eigenvalue equal to 1 used for factor analysis with 32 important variables. The results showed that the KMO coefficient reached 0.882 with the Sig value = 0.000 and Eigenvalues reached 69.411 at the factor stop of 1.38. The results of the rotation matrix also show that the research scales converge on 06 factors consistent with the proposed theoretical research model.

The results of testing the reliability of the concepts and research scales show that the Cronbach's Alpha coefficients of the factors all reach values greater than 0.7, so the scales used in the study are appropriate.

The results of CFA confirmatory factor analysis for these scales have 447 degrees of freedom ($df = 447$). The results of the CFA test show that the model is compatible with the research data set: *Chi-square* = 989.778 (p = 000); $cmin/df = 2.214$; $GFI = 0.889$; $TLI = 0.940$; $CFI = 0.946$; and $RMSEA = 0.05$. The normalized weights of the observed variables are all greater than 0.5 and the unnormalized weights of the variables are statistically significant, so the convergence value of the scales can be confirmed. The correlation coefficients of the concepts are all less than one unit, so the concepts gain discriminant value. The measurement model is suitable for the research data set, there is no correlation between the measurement errors, so the unitarily is achieved.

Thus, the research data set satisfies the conditions to include in testing the linear structural model on the relationship of the intention to apply TQM and the factors affecting the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam.

3. RESULTS AND DISCUSSION

3.1. The results of model testing by linear structural equation (SEM)

The test results of the critical model have 667 degrees of freedom ($df = 667$). The SEM test results show that the model is compatible with the research data set with the values, *Chi-square* = 1428,203 ($p = 000$); $cmin/df = 2.141$; $GFI = 0.875$; $TLI = 0.921$; $CFI = 0.932$; $Pclose = 0.757$ and $RMSEA = 0.05$.

The impact of factors affecting the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam has the estimated results of the model for the *value* $R^2 = 0.335$, that is, there are 33.5% change of intention to apply TQM in petroleum and liquefied petroleum gas enterprises is influenced by the factors in the model. In which, the factor "Perception of the effectiveness of TQM compared to the old system" has the strongest impact with a standardized Beta coefficient of 0.379 and at 99% statistical significance ($p\_value = 0.000$); followed by the factor "Perception of the ease of use of TQM" with a standardized Beta coefficient of 0.274 and at 99% statistical significance ($p\_value = 0.000$); the last factor is "Perception of effectiveness of TQM" with standardized Beta coefficient of 0.228 and at 99% statistical significance ($p\_value = 0.000$). Besides, when considering the

Table 2

Statistical table of the research sample structure

No.	Criteria	Value	Quantity (corporate representative)	Ratio (%)
1	Total number of questionnaires issued		600	
2	Total number of questionnaires collected		508	
3	Total number of invalid questionnaires		22	
4	Total number of valid questionnaires		486	
5	Sex (Gender of the decision maker)	Male	373	76.7
		Female	113	23.3
		Total	486	100.0
6	Age (Age of decision maker)	Under 30 years old	102	21.0
		30–50 years old	182	37.4
		Over 50 years old	202	41.6
		Total	486	100.0
7	Qualification of the decision maker	Undergraduate	458	94.2
		Graduate	28	5.8
		Total	486	100.0
8	Decision maker experience	Less than 10 years	112	23.0
		From 10 to 30 years	186	38.3
		Over 30 years	188	38.7
		Total	486	100.0
9	Number of employees	Less than 50 employees	245	50.4
		From 50 to 100 employees	181	37.2
		From 100 to 300 employees	58	11.9
		Over 300 employees	2	0.4
		Total	486	100.0
10	Authorized capital	Under 10 bln VND	156	32.1
		From 10 to 50 bln VND	247	50.8
		From 50 to 100 bln VND	75	15.4
		Form 100 to 300 bln VND	6	1.2
		Over 300 bln VND	2	0.4
		Total	486	100.0
11	Ownership	Government	0	0
		Private	478	98.4
		Mixed	8	1.6
		Total	486	100.0
12	Type of activity	Manufacturing enterprise	91	18.7
		Trading enterprise	395	81.3
		Total	486	100.0

impact of control variables such as, the size of the number of employees; Scale of charter capital; Ownership; Type of operation; Gender of the decision maker; Age of decision maker; Education of the decision maker; and Experience of decision makers have an impact on "the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam", the results show that there are only two factors: Size, quantity, and quantity labor; and the size of charter capital has an impact on "the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam". In which, the larger the size of the number of employees, the lower the intention to apply TQM, with a standardized Beta coefficient of — 0.270 and at 99 % statistical significance (*p_value*=0.000); while the larger the size of the charter capital, the greater the intention to apply TQM, with a standardized Beta coefficient of 0.268 and at the 99 % statistical significance level (*p_value*=0.000).

On the other hand, when considering how traditional or modern the leader/decision maker has an impact on the "Perception of ease of use of TQM" factor, it shows that *R12*=0.309, which means there is a 30.9 % change of "Perception of ease of use of TQM" is explained by the perception of the leader himself who is responsible for making decisions on quality management issues. In particular, if the leader responsible for making decisions on quality management at a petroleum and liquefied gas enterprise in Vietnam perceives himself as a modern person, it will have a positive effect on the ease of use of TQM with a standardized Beta coefficient of 0.490 and at the 99 % statistical significance level (*p_value*=0.000). However, if the leader responsible for making decisions on quality management issues at a petroleum and liquefied gas enterprise in Vietnam perceives himself as a traditional person, it will have a negative impact on the feeling of the ease of TQM using with a standardized Beta coefficient of (−0.233) and at the 99 % statistical significance level (*p_value*=0.000).

The estimated results of the main parameters in the theoretical model are presented in the table below. The estimation results show that all hypotheses *H1, H2, H3, H4, H5, H6a, H6b, H6c* and *H6d* are accepted with statistical significance reaching over 99 %; and hypotheses *H6c, H6d*, *H7a, H7b, H7c* and *H7d* were rejected because *p_value*>0.05. Specifically (Table 3).

The results of the study are presented in the form of a model as follows (Fig. 2).

3.2. Research finding

From the results of the model, we can make the following observations:

Firstly, the higher the perceived effectiveness of TQM in general, the higher the Intention to apply TQM in business, with *Sig*=0.000<0.05, *t*=4.857 and standardized β coefficient=0.228>0. This result has similarities with some studies such as the study of Al-Mamary and Shamsuddin on the intention to accept and use technology in Yemeni telecommunications companies, the normalized β coefficient is 0.49, $p<0.05$ [Al-Mamary, Shamsuddin, 2015; Ong, Kathawala, Sawalha, 2015] on the intention to maintain the quality management system ISO9000 on a sample of 216 companies in Singapore, standardized β coefficient 0.124, $p<0.001$; Research by [Kumar, 2016] on the purchase acceptance behavior of Indian consumers on e-commerce sites, the normalized β coefficient is 0.253, $p<0.001$. Besides, the statistical results of the factor "Perception of effectiveness of TQM" with a value of 3.77 points and the average value of 06 observed variables ranging from 3.4 to 3.98 points also show that quality managers in oil refinery and liquefied petroleum gas enterprises have perceived and perceived that TQM is highly effective. Thus, when decision-makers feel the effectiveness of the TQM system, they feel that TQM will help their business' operations operate effectively, achieve sales goals, customer satisfaction, product and service quality meet the requirements not

Table 3

Normalized model estimation (sem) results

No.	Relationships between concepts			Normalized estimation	Unnormalized estimate	Standard deviation	Value (t)	Value (p)
R2 of intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam=0.335								
H1	Int	<---	Eff	0.228	0.343	0.071	4.857	0.000
H2	Int	<---	Easy	0.274	0.374	0.063	5.991	0.000
H3	Int	<---	EffCom	0.379	0.549	0.069	7.925	0.000
H6a	Int	<---	Lab	−0.270	−0.358	0.103	−3.489	0.000
H6b	Int	<---	Cap	0.268	0.340	0.101	3.375	0.000
H6c	Int	<---	Own	0.008	0.055	0.346	0.160	0.873
H6d	Int	<---	Typ	0.050	0.120	0.120	0.995	0.320
H7a	Int	<---	Sex	−0.023	−0.050	0.096	−0.524	0.600
H7b	Int	<---	Age	0.004	0.004	0.057	0.076	0.940
H7c	Int	<---	Edu	0.040	0.070	0.082	0.861	0.390
H7d	Int	<---	Exp	−0.023	−0.032	0.063	−0.510	0.610
R12 of Feelings about the ease of use of TQM in petroleum and liquefied petroleum gas enterprises in Vietnam=0.309								
H4	Easy	<---	MS	0.490	0.429	0.040	10.737	0.000
H5	Easy	<---	TS	−0.233	−0.140	0.027	−5.203	0.000

only of customers but also of regulatory agencies.

Secondly, Perceived ease of use will positively affect TQM intention, with standardized $\beta = 0.274$, $Sig = 0.000 < 0.05$, $t = 5.991$. This result supports the authors' studies such as the study of [Mariani, Curcuruto, Gaetani, 2013] on information technology intention with job satisfaction of 479 employees in Italy, the coefficient β is normalized by 0.210, $p < 0.01$. However, it contradicts the study of [Ong, Kathawala, Sawalha, 2015] on the intention to maintain the ISO9000 quality management system on a sample of 216 companies in Singapore when it concluded that no relationship between these two factors was found ($p > 0.05$). The survey results of 486 petroleum and liquefied petroleum gas enterprises showed that the average value of this factor reached 4.02 points and the average value of observed variables ranged from 3.91 to 4.20 points, this is very good while the enterprises in the sample have the perception that TQM is easy to apply and has a positive impact on the intention to apply at the enterprise. Each enterprise is a collective, a system consisting of many parts, many people, they have very different demographic characteristics, such as: different age, different personality, education level. Meanwhile, TQM is a comprehensive quality management system that requires all individuals in the organization to participate. Therefore, the ease of use of the system plays an important role in determining whether the application of the system is really effective. An easy-to-use system will promote the excitement of participation by everyone, enabling people of different levels of education, experience, etc. to participate and participate effectively into the system, through which it affects the responsible person's in-

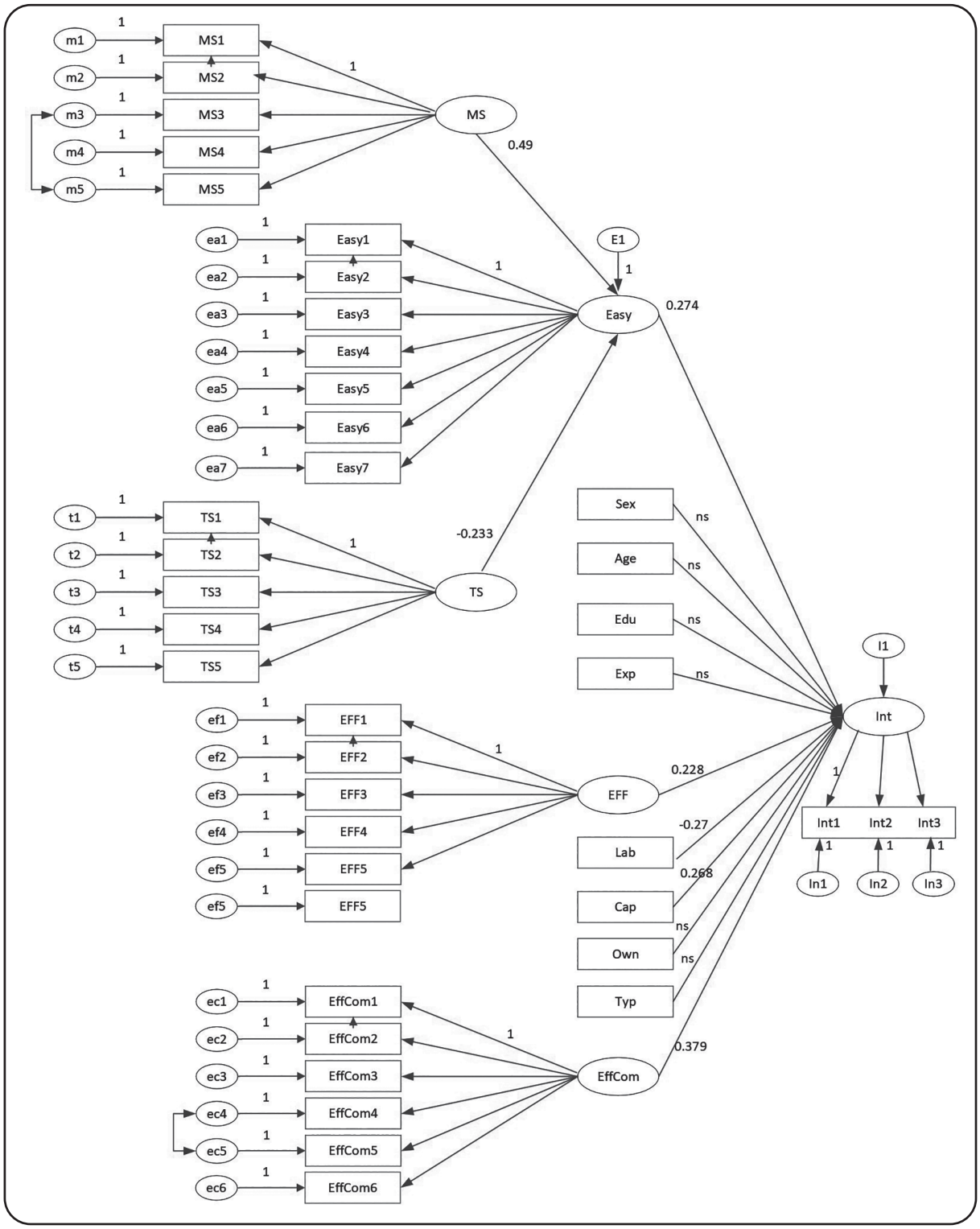

Fig. 2. Theoretical model test results
Based on: calculation results from the linear structural model.

tention to apply TQM to the enterprise. The level of influence ranks second, only after the perception of efficiency compared to the old system, which confirms the great concern of enterprises with this factor.

Thirdly, in Vietnam, petroleum and liquefied gas products trading is a conditional business, so most businesses apply a certain quality management system. The application of a new product quality management system must be based on comparison with the existing quality management system. As expected, the data analysis process gave the normalized β coefficient of the factor "Perceived effectiveness of TQM compared to the old system" to reach 0.379, reaching the highest value of all influencing factors affect the intention to apply TQM in business, $Sig=0.000<0.05$ and $t=7.925$. This result supports the authors' studies such as the study of [Mariani, Curcuruto, Gaetani, 2013] on information technology intention with job satisfaction of 479 employees of companies in Italy, the coefficient β is normalized by 0.450, $p<0.01$. The survey results of 486 petroleum and liquefied petroleum gas enterprises showed that the average value of this factor reached 3.86 points, this result reflects the perception of enterprises in the sample that it is clear about efficiency of TQM compared to the quality management system that the enterprise is applying. Enterprises, represented as decision makers, are very interested in not only the effectiveness of the TQM system in general, but also the effectiveness of TQM compared to the existing quality management system. This is also the factor that businesses are most concerned about, accounting for the largest proportion of the factors affecting their decisions. It is clear that the superior, or at least higher efficiency of TQM application is the strongest and most significant push to the Intent to apply this system in liquefied petroleum gas enterprises in Vietnam.

Fourthly, the number of employees is a barrier to the change and application of any new system in the enterprise, even if the enterprise has applied or not applied a management system. The larger the number of employees, the higher the cost to adopt the new system, which reduces the efficiency in adoption leading to a negative impact on the Intention of Adoption. Therefore, the number of employees negatively affects the intention to apply the TQM quality management system in the enterprise, with the normalized β value$=-0.256$, $p=0.000<0.05$, $t=-3.718$. Indeed, enterprises with a large number of employees are often more hesitant to apply TQM because they are concerned about the large number of employees, the costs of training to get acquainted and apply the requirements proficient use is not small. It is more complicated when the fact that in petroleum and liquefied petroleum gas enterprises, the number of low-skilled workers accounts for a relatively high proportion, while they are the subjects of frequent contact with customers, for example, gas salesmen, gas delivery people, etc. These will be major obstacles to the effective and successful application of any system in general and TQM system in particular. This partly explains why, Vietnam's petroleum and liquefied petroleum gas businesses have a high perception of the effectiveness of TQM (3.77 points), the perception of the ease of application of TQM (4.02 points), the perception of the effectiveness of TQM compared to the current system (3.87 points) but the intention to apply TQM in enterprises is still quite low (3.16 points).

Fifthly, usually large companies with great financial potential will lead to a large number of employees, however, these two factors tend to have opposite effects on the intention to apply TQM, in which the financial potential play a major motivating role. Although there seems to be a similarity in the effect of adoption efficiency and financial potential on TQM Intention, the actual mechanism of impact of these two factors is quite different, financial potential shows the difference. The necessary condition for application is different from the sufficient condition, which is the degree of effectiveness of the application. Therefore, the large financial potential will create favorable conditions to promote

the Intent to apply TQM, specifically, the higher the Charter Capital, the greater the Intention to apply TQM to petroleum and liquefied gas enterprises., with normalized coefficient $\beta = 0.213$, $p = 0.002 < 0.05$, $t = 3.109$. However, the normalized β coefficient is only second from the bottom=0.213, showing less important level of the influence of this factor on the intention to apply TQM in enterprises. This proves that, those who are responsible for deciding to apply the quality standard system to the business, although they understand that "realism can only be achieved", financial potential is a guarantee of costs. There is a cost to the successful application of a TQM quality management system, but the role of this factor is not high in the mind of the person responsible for the application decision.

Sixthly, in the current situation of petroleum and liquefied petroleum gas enterprises in Vietnam, TQM has not been chosen by many businesses. The application of TQM in their company is still somewhat new, as a decision maker, subjective factors such as self-perception will affect their decision-making, through influence their perception of the ease of use of TQM. The research results show that, perception of being a traditional person has a negative influence and Feeling of being a modern person has a positive influence on Perception of the ease of use [application] of the TQM system, with the statistical values are (normalized $\beta = -0.233$, $p = 0.000 < 0.05$, $t = -5.203$ and β normalized $= 0.49$, $p = 0.000 < 0.05$, $t = 10.737$), respectively. In other words, the more traditional people perceive TQM as difficult to apply, while the more modern people perceive TQM as an easily applicable system. Thus, it can be affirmed that the self-perception factor plays an important role in influencing an individual's perception of the ease of using TQM, thereby indirectly affecting the intention to apply TQM in its business. According to the statistical results of these two factors in 486 enterprises in the sample, the representatives of Vietnamese petroleum and liquefied gas enterprises do not claim to be traditional people (average value is 2.66 points), although they tend to assert themselves as modern type, the level of affirmation is not clear (mean factor value is 3.29 points). This greatly affects the decision making and perception of the usability of TQM, because it is clear that the perception of ease of use is quite high (4.02 points) but the intention to apply is still quite low. (3.16 points).

Seventhly,there is no basis to conclude that the factors belonging to gender, age, qualifications, and experience of leaders/ decision makers affect the intention to apply TQM in petrol enterprises. oil and liquefied petroleum gas in Vietnam. Besides, the form of ownership and the type of operation of the company do not affect the intention to apply TQM in the petroleum and liquefied petroleum gas enterprises of Vietnam. The detail is:

- regarding the gender of the decision maker: Women tend to have a good grasp of details and tangibles, while Men tend to easily access generalities high overall. TQM has always been evaluated as a comprehensive and coherent system, requiring decision makers to have a high generalization, these characteristics seem to be more suitable for men than women. However, in fact, in East Asian countries like Vietnam, the percentage of women holding important positions in organizations is lower than that of men (this is reflected in the survey sample with up to 373/486 respondents being men, accounting for 76.7% while only 113/486 are women, accounting for 23.3%) but when the key person is female, their personality also has many male characteristics. Therefore, the research results have not shown that there is a difference in the intention to apply TQM in gas and liquefied petroleum gas enterprises by gender ($p = 0.6 > 0.05$);
- age of decision makers: Similar to traditional people, age is also identified as a factor that can interfere with the perception of the ease of use of TQM. The

older you are, the more limited your ability to grasp problems and grasp new things. Meanwhile, the TQM system, as mentioned above, is a highly comprehensive system, which entails complexity, requires agility, resourcefulness in grasping, and that is not must be an advantage of old age. The model estimation results show that there is no difference in the intention to apply TQM in managers of different ages ($p=0.94$), which can also be explained by the personality characteristics of East Asians like Vietnam, which emphasize stability, perfectionism, and less risk-taking; Besides, decisions in Vietnam organizations are often collective decisions, and therefore the role of the age of the decision maker does not differ here. This result predicts a difficulty in applying TQM for businesses with relatively older decision makers, they will have more difficulty in grasping TQM leading to them bad perception of the ease of use of the TQM software. The end result will be a low level of intent in adopting TQM in business where perceived ease of use positively affects intention to adopt TQM total quality management system;

- about the level of the decision maker: The grasp and application of any system in the business also requires the decision maker to be a qualified person. However, the estimated results show that the level of decision makers does not make a difference in the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam ($p=0.39$). This is quite understandable because major decisions in Vietnamese enterprises are often collective decisions. In addition, the training in universities in Vietnam today is much more theoretical, while the application of TQM requires a good working skill;
- about the experience of the decision maker: The model estimation results also show that the experience of the decision maker does not affect the intention to apply TQM in petroleum and liquefied gas enterprises. Vietnam ($p=0.61$). As mentioned above, stemming from the training reality of universities in Vietnam, education is not a factor that strongly influences the perception of TQM's ease of use, leading to the intention to apply also indirectly affected by this relationship. Besides, as mentioned above, the decisions of large enterprises are often collective wisdom, and therefore the role of the decision maker's experience is not appreciated;
- the form of ownership of the company does not affect the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam ($p=0.87$). It is understood that whether the enterprise is state-owned or private, the intention to apply TQM makes no difference, because as discussed above, collective decisions are always appreciated and Safety leads to hindering the speed of implementation of technology application ideas and TQM applications are no exception;
- the type of operation of the company does not affect the intention to apply TQM in petroleum and liquefied petroleum gas enterprises in Vietnam ($p=0.32$). In this study, the type of operation of Vietnam's petroleum and liquefied petroleum gas enterprises is divided into production enterprises, trading enterprises and mixed enterprises. This result is appropriate, because the application of TQM requires very strict control over the entire production and business process and the value chain of the petroleum and liquefied gas industry is a very closely linked chain from exploration, exploitation, production to distribution.

CONCLUSION AND RECOMMENDATIONS

Some solutions to promote the intention to apply TQM in petroleum and liquefied pe-

troleum gas enterprises in Vietnam, and lessons for developing countries:

First, changing the perception of quality management for human resources in the enterprise by: (1) Changing the perception of the senior leadership team about TQM; (2) Changing awareness among employees about total quality management TQM. When senior leaders were determined to implement the intention to apply TQM, it is necessary to have appropriate training programs and training contents for the staff, especially the management team and make decisions about the application of the quality management system in general, and applying TQM in particular.

Second, changing the perception of TQM application to partner units: Spreading awareness about TQM application to partner units can firstly be just an invitation to participate in meetings, conferences, Workshop on implementing TQM application of the company. The spillover can also be concretized by new requirements on processes, input and output quality standards to ensure quality, etc., through which partners will have to meet the requirements of businesses in providing input or distributing output, which will help petroleum and liquefied petroleum gas enterprises to better manage the quality of their products and create a sustainable value chain than.

Finally, recommendations to the TQM transferor: (1) There must be evidence to demonstrate the effectiveness of the TQM total quality management system compared with other systems and petroleum trading enterprises and liquefied petroleum gas in use, especially the ISO system; (2) Complete the set of instructions in the most detailed and specific way to reduce the wrong perception of the system's ease of use. The dossier set must be designed not only scientifically and comprehensively etc, but also suitable to each participant of the transferred enterprise. For businesses with a large number of employees, it is necessary to have accurate research and advice, which can be transferred in phases, by department to reduce the "chaos" in coupling the TQM system with the old quality management system before complete replacement; (3) Pay attention to the personal characteristics of the person who decides to apply the quality management standard system in the enterprise and related people, in order to develop comprehensive and effective support. Characteristics such as Perception as a traditional person, female gender, weak experience, etc. are factors that can hinder the Intention to apply TQM by increasing the negative perception of the ease of use of TQM, so these factors need special attention.

THE LIMITATION OF THE STUDY AND FURTHER RESEARCH

In this study, we have not approached the research on foreign-invested enterprises or extended to the energy business in general. In addition, the expansion of the TAM model is limited when there is a lack of rigorous scientific evidence to support the arguments made. Therefore, the research team will continue to search for scientific and practical arguments to strengthen the model and conduct experimental research in other fields to compare results and make new recommendations that are higher applicable.

REFERENCES

Ahire S. L., Waller M. A., Golhar D. Y. 1996. Quality management in TQM versus non-TQM firms: an empirical investigation. *International Journal of Quality & Reliability Management* **13** (8): 8–27.

Ajzen I. 1991. The theory of planned behaviour. *Organizational behaviour and human decision processes* **50** (2): 179–211.

Al-Dhaafri H. S., Al-Swidi A. K., Yusoff R. Z. B. 2016. The mediating role of TQM and or-

ganizational excellence, and the moderating effect of entrepreneurial organizational culture on the relationship between ERP and organizational performance. *The TQM Journal* **28** (6): 991–1011.

Al-Mamary, Y.H., Shamsuddin, A. 2015. Testing of The Technology Acceptance Model in Context of Yemen. *Mediterranean Journal of Social Sciences* **6** (4S1): 268–273.

Al-Rahmi A.M., Ramin A.K., Alamri M.M., Al-Rahmi W.M., Yahaya N., Hussein Abualrejal Q.A.-M. 2019. Evaluating the intended use of decision support system (dss) via academic staff: an applying technology acceptance model (TAM). *International Journal of Engineering and Advanced Technology (IJEAT)* **8**(6S3): 565–571.

Al-Rejal A., Udin H.M.a. M., Hassan Z.A., Sharif M.G.A.M., Al-Rahmi K.I.a., Alkumaim W.M.a., Hasan N. 2019. Green information technology adoption antecedence: a conceptual framework. In: *International Conference of Reliable Information and Communication Technology*, 1098–1108. Springer: Cham.

Alghamdi F. 2018. Total quality management and organizational performance: A possible role of organizational culture. *International Journal of Business Administration* **9** (4): 186–200.

Arnould E.J., Price L., Zinkhan G.M. 2004. *Consumers*. McGraw-Hill/ Irwin: N.Y.

Beer M. 2003. Why total quality management programs do not persist: The role of management quality and implications for leading a tqm transformation. *Decision Sciences* **34** (4): 632–642.

Brezavšček A., Šparl P., Žnidaršič A. 2014. Extended technology acceptance model for SPSS acceptance among slovenian students of social sciences. *Organizacija* **47** (2): 1–12.

Cowen S.S., Ferreri L.B., Parker L.D.1987. The impact of corporate characteristics on social responsibility disclosure: A typology and frequency-based analysis. *Accounting, Organizations and Society* **12** (2): 111–122.

Davis F.D.1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly* **13** (3): 319–339.

Dilawo R.S., Salimi Z. 2019. Understanding TQM implementation barriers involving construction companies in a difficult environment. *International Journal of Quality & Reliability Management* **36** (7): 1137–1158.

Edwards R., Sohal A.S. 2003. The human side of introducing total quality management: Two case studies from Australia. *International Journal of Manpower* **24** (5): 551–567.

Elbeltagi I., McBride N., Hardaker G. 2005. Evaluating the Factors Affecting DSS usage by senior managers in local authorities in Egypt. *Journal of Global Information Management* **13** (2): 42–65.

Flynn B.B., Schroeder R.G., Sakakibara S. 1994. A framework for quality management research and an associated measurement instrument. *Journal of Operations Management* **11**(4): 659–691.

Galbreath J. 2010. Drivers of Corporate Social Responsibility: The Role of Formal Strategic Planning and Firm Culture. *British Journal of Management* **21**: 15.

Guimaraes T.1996. TQM's impact on employee attitudes. *The TQM Magazine* **8** (1): 20–25.

Hair J.F.A., Tatham R.E., Black R.L.1998. *Multivariate Data*. 5th ed. Prentice Hall: Upper Saddle River.

Huarng F., Chen Y.-T. 2002. Relationships of TQM philosophy, methods and performance: a survey in Taiwan *Industrial Management & Data Systems* **102** (3/4): 226–234.

Joiner T.A. 2007. Total quality management and performance The role of organization support and co-worker support. *International Journal of Quality & Reliability Management* **24** (6): 617–627.

Klein R. 2007. Internet-based patient- physician electronic communication applications: Patient acceptance and trust. *E — Service Journal* **5** (2): 27–51.

Kumar M. 2016. Consumer behavior and satisfaction in e-commerce: A comparative study based on online shopping of some electronic gadgets. *International Journal of Research in Commerce and Management* **7** (7): 62–66.

Lascelles D.M., Dale B.G. 1989. A review of the issues involved in quality improvement. *International Journal of Quality & Reliability Management* **5** (5): 76–94.

Leonard F., Sasser W.E. 1982. The incline of quality. *Harvard Business Review* **60** (5): 163–171.

Mai N.T.T., Kwon J., Lantz G., Loeb S.G. 2003. An Exploratory Investigation into Impulse Buying Behavior in a Transitional Economy: A study of urban consumers in vietnam. *Journal of International Marketing* **11** (2): 13–35.

Mai N.T.T., Smith K., Cao J.R. 2009. Measurement of modern and traditional self-concepts in asian transitional economies. *Journal of Asia-Pacific Business* **10**: 201–220.

Marangunić N., Granić A. 2015. Technology acceptance model: A literature review from 1986 to 2013. *Universal Access in the Information Society* **14** (1): 81–95.

Mariani M.G., Curcuruto M., Gaetani I. 2013. Training opportunities, technology acceptance and job satisfaction A study of Italian organizations. *Journal of Workplace Learning* **25** (7): 455–475.

Markus H., Wurf E. 1987. The dynamic self-concept: A social psychological perspective. *Annual review of psychology* **38**: 299–337.

Mortensona M.J., Vidgen R. 2016. A computational literature review of the technology acceptance model. *International Journal of Information Management* **36**: 1248–1259.

Nasim K. 2018. Role of internal and external organizational factors in TQM implementation: A systematic literature review and theoretical framework. *International Journal of Quality & Reliability Management* **35** (5): 1014–1033.

Nawelwa J., Sichinsambwe C., Mwanza B.G. 2015. An analysis of total quality management (TQM) practices in Zambian secondary schools: A survey of Lusaka district. *The TQM Journal* **27** (6): 716–731.

Ndubisi N.O. 2006. Factors of online learning adoption: A comparative juxtaposition of the theory of planned behaviour and the technology acceptance model. *International Journal on ELearning* **5** (4): 571–591.

Ong C.M., Kathawala Y., Sawalha N. 2015. A Model for ISO 9000 Quality Management System Maintenance. *The Quality Management Journal* **22** (2): 11–32.

Pasricha P., Singh B., Verma P. 2018. Ethical leadership, organic organizational cultures and corporate social responsibility: An empirical study in social enterprises. *Journal of Business Ethics* **151**(4): 1–18.

Rahman S.-U., Bullock P. 2005. Soft TQM, hard TQM, and organisational performance relationships: an empirical investigation. *Omega* **33** (1): 73–83.

Rauniar R., Rawski G., Yang J., Johnson B. 2014. Technology acceptance model (TAM) and social media usage: An empirical study on Facebook. *Journal of Enterprise Information Management* **27** (1): 97–115.

Schouten C.M.-v. d. D., Graafland J., Kaptein M. 2014. Religiosity, CSR attitudes, and CSR behavior: An empirical study of executives' religiosity and CSR. *Journal of Business Ethics* **123**: 435–459.

Saoula O., Fareed M., Hamid R.A., Al-Rejal H.M.E.A., Ismail S.A. 2019. The moderating role of job embeddedness on the effect of organisational justice and organisational learning culture on turnover intention: A conceptual review. Humanities & Social Sciences Reviews. *Humanities & Social Sciences Reviews* **7** (2): 563–571.

Sheikhshoaei F., Oloumi T. 2011. Applying the technology acceptance model to Iranian engineering faculty libraries. *The Electronic Library* **29** (3): 367–378.

Shnayder L., Rijnsoever F.J.V. 2018. How expected outcomes, stakeholders, and institutions influence corporate social responsibility at different levels of large basic needs firms. *Business Strategy and The Environment* **27** (8): 1689–1707.

Sila I. 2007. Examining the effects of contextual factors on TQM and performance through the lens of organizational theories: An empirical study. *Journal of Operations Management* **25**: 83–109.

Terziovski M., Power D. 2007. Increasing ISO 9000 certification benefits: A continuous improvement approach. *International Jour-*

nal of Quality & Reliability Management **24**: 141–163.

Tang Z., Chen X., Wu Z. 2010. Using behavior theory to investigate individual-level determinants of employee involvement in TQM. *Total Quality Management* **21** (12): 1231–1260.

Venkatesh V., Davis F.D. 1996. A model of the antecedents of perceived ease of use: Development and test. *Decision Sciences* **27** (3): 451–481.

Venkatraman S. 2007. A framework for implementing TQM in higher education programs. *Quality Assurance in Education* **15** (1): 92–112.

Walker G., Johnson N. 2008. Faculty intentions to use components for web-enhanced instruction. *International Journal on ELearning* **7** (1): 133–152.

Xu J., Quaddus M. 2007. Exploring the factors influencing end users' acceptance of knowledge management systems: Development of a research model of adoption and continued use. *Journal of Organizational and End User Computing* **19** (4): 57–79.

Zheng H., Zhang Y. 2016. Do SOEs outperform private enterprises in CSR? Evidence from China. *Chinese Management Studies* **10** (3): 435–457.

Initial Submission:
March 1, 2022
Final Version Accepted:
July 22, 2022

Намерение применить общую систему управления качеством на предприятиях по производству нефти и сжиженного нефтяного газа во Вьетнаме

Т.Д.Тхао
Университет Дай Нам, Вьетнам

В.Д.Т.Фуонг
Петролимекс Газ Корпорейшн, Вьетнам

В.С.Фуонг
Thang Long Университет, Вьетнам

N.A.Тиап
Международная школа Вьетнамского национального университета, Вьетнам

П.В.Минх, Д.М.Ту
Университет Дай Нам, Вьетнам

Цель работы — обнаружить факторы, которые способствуют или препятствуют намерению применять TQM на предприятиях по производству нефти и сжиженного нефтяного газа во Вьетнаме. Исследование было проведено на основе данных опроса 486 предприятий по производству нефти и сжиженного нефтяного газа во Вьетнаме. Его респондентами являлись руководители предприятий или лица, отвечающие за управление качеством. Период исследования — с октября 2020 г. по февраль 2021 г. Результаты анализа демонстрируют, что на намерение применять комплексную систему управления качеством на предприятиях по производству нефти и сжиженного нефтяного газа положительно влияют такие факторы, как: восприятие эффективности TQM; воспринимаемая простота использования TQM; воспринимаемая эффективность TQM по сравнению со старой системой; размер уставного капитала. Что касается фактора численности рабочей силы, то он оказывает отрицательное воздействие на

данный процесс. В исследовании содержится вывод о том, что чем более современными являются руководители предприятий по производству нефти и сжиженного газа, тем легче находится решение о применении TQM в бизнесе, и наоборот.

Ключевые слова: TQM, прикладное намерение, управление качеством, нефтяной бизнес во Вьетнаме, бизнес сжиженного газа.

For citation: Thao T. D., Phuong V. D. T., Phuong B. C., Tuan N. A., Minh P. V., Tu D. M. 2021. Intention to apply total quality management in petroleum and liquefied petroleum gas in Vietnam's enterprises. *Russian Management Journal* 19 (4): 494–514.

Статья поступила в редакцию
1 марта 2022 г.
Принята к публикации
22 июля 2022 г.