

Managerial Recommendations Improving the Competitive Capability of Firms Based on Total Quality Management during Covid-19 Pandemic

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Abstract

In 2021, the COVID-19 epidemic affected many aspects of the provinces' socio-economic fields, especially deeply affecting businesses at enterprises. The task of ensuring social security continues with the management agencies, who need appropriate solutions and support policies to encourage and help enterprises return to production and trade after the quarantine society quickly. The basis for management theory has contributed to improving the competitive capability based on improving Total Quality Management (TQM), such as the "just in time" system. TQM aims to enhance the quality of products and satisfy customers to the best extent possible. The distinguishing feature of TQM from previous quality management methods is that it provides a comprehensive system for managing and improving all aspects related to quality and involves the participation of the public, every department, and every individual to achieve the set quality goals. The article's novelty identifies factors influencing total quality management and competitive capability of firms in Vietnam with one percent significance. Methods: The authors surveyed 650 managers at many enterprises in Vietnam. And the authors used a convenient sampling method. SPSS tools processed 589 samples to measure Cronbach's alpha, exploratory factor analysis (EFA), confirmation factor analysis (CFA), and test structural equation modeling (SEM). The authors proposed several recommendations to enhance the total quality management and competitive capability of firms.

Keywords:

Total Quality Management;
Covid-19 Pandemic;
Enterprises;
Competitive;
Capability.

Article History:

Received: 07 January 2022
Revised: 22 March 2022
Accepted: 06 April 2022
Available online: 19 April 2022

1- Introduction

In the current context, competitiveness and improving competitiveness have become critical issues. As the economy grows faster, international economic integration deepens and becomes more robust, requiring local businesses to compete with global companies right in their territory. Vietnam has joined and is negotiating 17 Free Trade Agreements (FTAs), of which ten have been in effect and are implementing commitments. Three have signed or concluded negotiations. Still, they have not yet come into force, and there are four agreements under negotiation. Among these FTAs are traditional FTAs and new-generation FTAs. The most prominent FTAs are the comprehensive and progressive agreement for the Trans-Pacific Partnership and the Free Trade Agreement between Vietnam and the European Union. Besides, the developing economic environment creates new opportunities and challenges in which product quality plays a decisive role in the existence and development of each enterprise. Therefore, quality control plays a significant role. There are six great reasons for businesses to consider making product inspection a vital part of their supply chain operations: (1) Minimize risk to the maximum, (2) cost savings, (3) Save time, (4) effective supplier monitoring, (5) bargaining ability, and (6) protect brand image.

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DOI: <http://dx.doi.org/10.28991/ESJ-2022-06-03-010>

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Economic integration through new-generation FTAs is an inevitable trend of the 21st century, and it brings both development opportunities and challenges for all businesses in the integration region. Competition is one of the fundamental elements of market economic institutions. It is the driving force for innovation and creativity, improving resource use efficiency and thereby promoting economic development [1, 2]. This factor requires the ability to "survive" businesses at a higher level than in the non-integrated period. Moreover, the article explores various factors influencing total quality management and the competitive capability of firms in Vietnam. The authors proposed ideas and recommendations to enhance the comprehensive quality management and competitive capacity of firms.

Economic cooperation and cultural exchange of science and technology between countries worldwide are firm. The authors surveyed 650 managers at many enterprises in Vietnam. And the authors used a convenient sampling method. SPSS tools processed 589 samples to measure Cronbach's alpha, exploratory factor analysis (EFA), confirmation factor analysis (CFA), and test structural equation modeling (SEM). Suppose enterprises only had to compete with regional and domestic enterprises in the past. In that case, they have to compete with enterprises from outside who have many competitive advantages in terms of capital, science, technology, business, etc.

All countries are involved in a fierce competitive spiral, which means that each business must constantly improve the quality of its products or services. Therefore, only with high competitiveness will the enterprises of Vietnam actively participate in the new generation of EVFTAs. So, setting goals and figuring out the role of quality management will help us improve our competitiveness in the right direction during the time we are integrating.

2- Literature Review

2-1- The Concept of Total Quality Management (TQM)

Total Quality Management (TQM) was developed by a management consultant that significantly impacted Japanese manufacturing [3, 4]. TQM continuously detects, reduces, or eliminates manufacturing defects, streamlines supply chain management, and improves the customer experience [5]. TQM is a management framework based on the belief that an organization can build lasting success by letting all its members work together. From low-level workers to top-level executives, it focuses on improving quality and giving customers the highest level of satisfaction [6, 7].

Total quality management is a management approach of an organization or enterprise oriented on quality, based on all members' expected participation to achieve long-term success regarding customer satisfaction [8]. Applying TQM improves the quality of products and services. It enhances the entire system's performance thanks to the principle of always doing the right thing the first time [9, 10].

TQM is a way of managing an organization with a focus on quality, based on the participation of all members, to achieve long-term success through customer satisfaction and benefits for members and society [11]. TQM is an effective system that integrates the quality maintenance, development, and improvement efforts of many groups in an organization into the market. Besides, TQM applies science and technology to produce and provide services to satisfy customers' most basic economic needs [12, 13].

TQM is a quality-focused management approach to customer satisfaction based on all members' interests, bringing long-term success to employees, organizations, and society. TQM applies a management approach that facilitates sustainable growth by mobilizing the minds of all members to create quality according to customer requirements [14] economically. After World War II, Japan predicted that "quality improvement" would open up a new market. At the same time, Europe and America were still only focused on improving output, ignoring quality management [2, 15].

2-2- The concept of the Competitive Capability (CC)

Competitive Capability (CC): Competitiveness is closely related to the concept of enterprise competition and is widely used. Although many policymakers, economists, scientists, and researchers in different countries have paid attention to the competitiveness factor, up to now, the concept of competitive competence has not been understood uniformly [16-18]. In this study, some ideas about competitiveness from some approaches to enterprise competition are used to better clarify this topic. From the perspective of micro-and macro-economic approaches, there are different conceptions of competitive competence as a multi-dimensional concept. However, the authors can consider the idea of competitive competence at three levels: (1) national level; (2) industry level; and (3) enterprise-level [19].

Competitiveness means that businesses achieve long-term benefits and income security for employees and business owners. The competitive enterprise can produce products and services with superior quality and prices than domestic and international competitors [20, 21]. Competitiveness is the ability to create, maintain, use, and create new competitive advantages to create products with higher productivity and quality than competitors [7]. Compete and capture a larger market share and increase employee income and sustainable development for the organization". He also said that measuring enterprises' competitiveness and labor productivity is the only measure [22, 23].

Competitiveness means long-term profit results and can reimburse employees and generate high income for owners [24]. Competitiveness is the strength and advantage of an enterprise compared to other competitors in satisfying customers' needs to earn higher and higher profits. Competitiveness demonstrates the power and benefits of business entities over competitors in meeting customers' requirements to gain higher and higher yields [25, 26]. The authors must compare competitiveness with specific competitors, specific products, and specific goods in the same market and at the same time.

2-3- The Concept of Management and Operating Capacity (MOC)

Management and operating capacity (MOC): Management and executive capabilities are directly related to the functions and duties of the leadership team and managers of the enterprise. Therefore, improving management and operating capacity is an essential factor in determining the strong development and enhancing the competitiveness of each enterprise [10, 19]. Reflecting the ability to formulate and implement strategies effectively and choose appropriate management methods to help motivate employees, thereby enhancing domestic and foreign enterprises [4, 27].

The concept of enterprise competitiveness was understood as the ability to exploit and manage. This factor effectively used the enterprise's resources to maintain and develop a higher competitive advantage than competitors in satisfying customers. These are the things that businesses need to do in order to stay profitable and make money in a changing business environment [28, 29].

The competitiveness improvement had measured through the ability to operate the strategic management process, including Management capacity, competitive strategic management capacity, and flexible adaptability organizations [30]. The point of view emphasizes the ability of leaders and managers to proactively lead and operate an efficient operating apparatus and quickly adapt to the change of the business environment [27].

Improving management and administration capacity had determined by the initiative and readiness of leaders and managers to enhance their professional ability and professional skills and change to adapt to the development of the organization and the times [22, 31]. These are factors directly related to the performance of functions and tasks of the heads of the organization and determine the ability to manage and run the business effectively. Therefore, the proposed research hypotheses are:

H1: Management and operating capacity positively affect total quality management.

H2: Management and operating capacity positively affect competitive capability.

2-4- The Concept of Quality of Human Resources (QHR)

Quality of Human Resources (QHR) improving the quality of human resources is a collection of organized. QHR had oriented solutions for human resources in an enterprise and coordinated human resource activities to develop better [31, 32]. In the context of current international economic integration, fierce competition between businesses for human resources in general and high-quality human resources, in particular, poses many challenges for businesses [26]. Because high-quality human resources are a valuable asset to each organization, their working capacity and dedication determine its success. It also helps businesses be more competitive by improving the quality of their employees [17, 33].

Besides, enterprises' human resources need to have high professional qualifications, solid professional skills, and a dedicated working attitude to improve the organization office's quality of products, services, and reputation [13]. Therefore, improving the quality of human resources contributes to creating a competitive advantage in terms of human capital and enhancing the competitiveness of enterprises. This factor develops a culture of solidarity and professionalism, perfects human resource remuneration policy, and strengthens activities to promote employee initiative and improvement [14, 21]. The evaluation criteria for improving the quality of human resources in enterprises included training and human resource development activities.

High-quality human resources help improve the labor productivity of organizations, companies, and enterprises thanks to their skills and knowledge and the staff's working experience [34]. High-quality human resources will complete the assigned work and will be creative. Learning new ways to achieve the best labor productivity improves the efficiency of total quality management and leads to better competitiveness [18, 35]. Therefore, the proposed research hypothesis are:

H3: Quality of human resources positively affects total quality management.

H4: Quality of human resources positively affects competitive capability.

2-5- The Concept of Equipment and Technology Levels (ETL)

Equipment and Technology Levels (ETL): Equipment and production technology play an essential role in production and business and directly affect enterprises' total quality management and competitiveness [36, 37]. An enterprise with

appropriate equipment and technology shortens production time and reduces energy consumption. This factor increases productivity, lowers costs, improves product quality, and creates a remarkable competitive advantage for the products and services of that enterprise [10, 38].

The ability to exploit and use technology is a criterion to measure the competitiveness of enterprises [39]. The selection of appropriate technology, the ability to apply and access new technologies, the level of human resources of the department of research, and the application of new technologies impact the competitiveness organization's picture [9, 10]. Therefore, improving the appropriate equipment and technology level requires businesses to actively capture information about equipment and technology, strengthen research applications, and improve technological innovation in production. At the same time, enterprises need to select equipment and technology suitable to production and business conditions, product characteristics, and the professional qualifications of human resources. Therefore, the proposed research hypothesis is to improve the efficiency of the overall quality management company's presence and competitiveness [2, 25].

H5: Equipment and technology levels positively affect total quality management.

H6: Equipment and technology levels positively affect competitive capability.

2-6- The Concept of the Ability to Form Relationships (AFR)

The *Ability to form relationships (AFR)*: Building relationship capacity is the ability to establish, maintain, and develop good relationships with relevant enterprise partners such as customers, suppliers, credit institutions, and other entities. Currently, extensive international economic integration leads to many challenges in competition between domestic and foreign enterprises [27, 34]. So, businesses need to build good relationships with their stakeholders in order to make the most of their resources and compete well with other businesses.

Moreover, Vietnam's business environment, with its unique business characteristics, where the development and success of each organization are mainly determined by the factor called "*relationship*," the building of good relations between businesses and customers, suppliers, credit institutions, and local authorities. Besides, other organizations help companies take advantage of stakeholders' prestige and position and increase total quality management activities. As a result, the competitiveness of enterprises was enhanced [40]. Building effective work relationships is important because it helps you feel more satisfied and promotes a positive workplace environment. Effective working relationships built on trust allow individuals to share knowledge freely, creating effective teams and increasing productivity and competitive capability [16, 38]. Therefore, the proposed research hypothesis are:

H7: The ability to form relationships positively affect total quality management.

H8: The ability to form relationships positively affect competitive capability.

2-7- The Concept of Organizational Culture (OC)

Organizational Culture (OC): called corporate culture, has been discussed for a long time, and so far, there are still many different interpretations, that is: Corporate culture is the spiritual force. The spirit here is the whole excitement. Stimulate and compete in production and business in a healthy sense; corporate culture is a material force [24, 41]. Corporate culture is the physical and spiritual force of the enterprise. Organizational culture is also considered the foundation for business development, constituted by business purposes and methods. The corporate culture was created from ethics, business ideas, business philosophy, and business purposes. Furthermore, business methods and efficiency in serving hardworking people resulted in an increase in material wealth for society [28]. In this way, enterprises can create better and more material quantities thanks to cultural behavior. Organizational culture has been based on each enterprise member's behavior, whose expression is the act of labor-management consistent with the provisions of the law in general and of industry associations in particular [27, 42].

Organizational culture has always been considered one of the core values that significantly influence enterprises' competitiveness and sustainable development. Many practical lessons in building and developing brands show that companies with solid brands often have a solid corporate culture [32, 43]. Organizational culture is the totality of cultural values built up during the formation and development of each enterprise. In that standard environment, the enterprise members' concepts, customs, and behaviors had formed and become the default values. Thus, the new employees who joined were forced to integrate into the culture. Corporate culture is always considered one of the core values that have a decisive influence on enterprises' competitiveness and sustainable development. Therefore, the proposed research hypotheses are:

H9: The ability to form relationships positively affect total quality management.

H10: The ability to form relationships positively affect competitive capability.

H11: Total quality management positively affects competitive capability.

Research on the relationship between attitude, intent, and online purchasing behaviour. The authors proposed the hypothesis in following Figure 1.

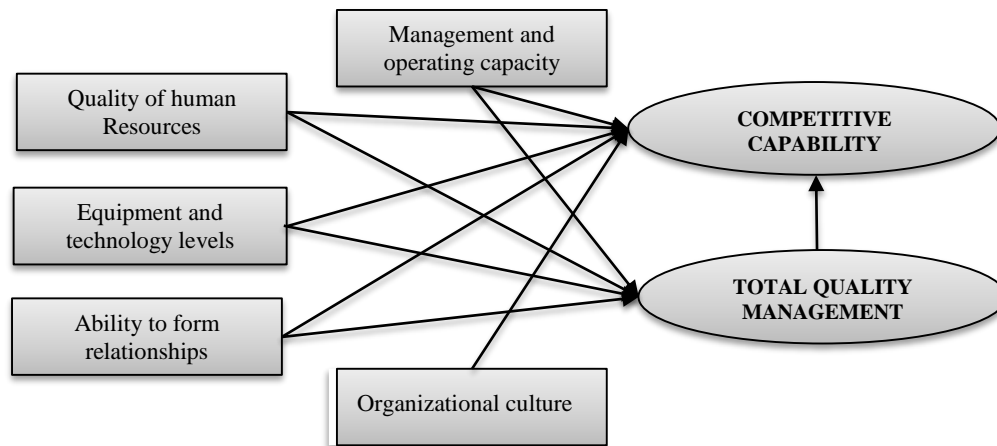


Figure 1. The research model for the factors affecting total quality management and competitive capability

3- Methods of Research

This study was mainly based on two main research methods: qualitative research and quantitative analysis. The authors carried out two phases of research in the research: (1) The qualitative research phase explores the total quality management activities and the competitiveness of enterprises, the evaluation criteria, and the competitiveness of factors affecting them. (2) The quantitative research phase aims to test the appropriateness of the scale of comprehensive quality management activities and the competitiveness of enterprises [36]. Figure 2 shows how to find out what factors affect total quality management and how well a company can compete..

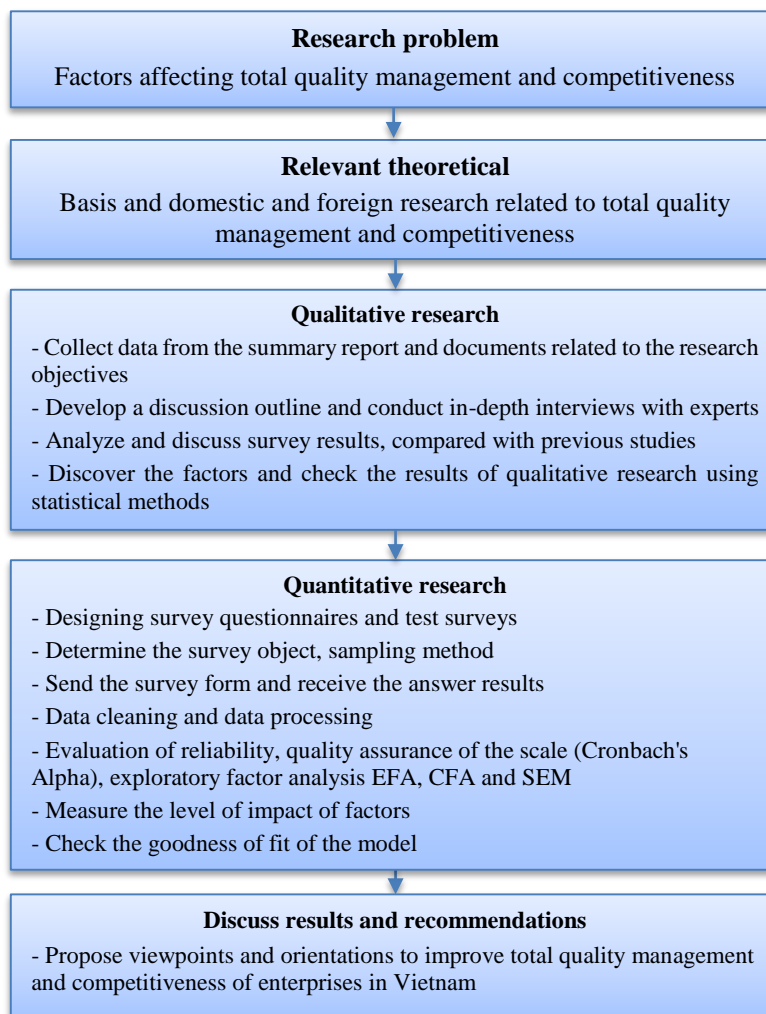


Figure 2. A research process for factors affecting total quality management and competitive capability

Qualitative research methods were used in the exploratory research phase. This method studied secondary documents combined with discussions with some experts in the fields of total quality management and competitiveness and some leaders and managers of enterprises in Vietnam to discover, adjust, and clarify some contents such as: (1) comprehensive quality management activities; (2) factors affecting total quality management and competitiveness; and (3) the evaluation criteria for comprehensive quality management and competitiveness. This method was carried out through interviews according to the content of prepared questions [18].

The outline should have been prepared for interviews with 15 experts, and the interviews conducted. Expert interviews and focus groups are effective methods for investigating research issues and social topics because in-depth interviews and mutual exchange encourage sharing experiences from other stakeholders and participants. Moreover, the information provided, analysed, and commented on during the interview process objectively reflected each person's experiences and views on the subject. The information provided from the interviews will be richly detailed and will save on the cost of collecting data. Moreover, businesses gather a team of qualified leaders and managers. Therefore, this study uses the expert interview method to complete the theoretical research model. The experts invited to interview are all knowledgeable about total quality management and competitiveness and have a lot of practical experience in corporate governance. Their sharing on the proposed research topic is consistent and helpful with the authors' research. To conduct an effective expert interview, the authors used to send relevant documents and questions to the research subjects via email and mail, then set up a time to meet with each person at the same time. Each meeting lasted between 30 and 40 minutes.

The authors used formal quantitative research to test the scale and measure enterprises' total quality management and competitiveness. This method is the official research phase, conducted by detailed questionnaires by surveying managers related to comprehensive quality management and competitiveness in all three North, Central, and South regions. Thus, the authors surveyed 650 managers at 650 enterprises in Vietnam. And the authors used a convenient sampling method. Cronbach's alpha was measured using 589 samples processed using SPSS tools. Besides, the collected data was processed using SPSS software version 20.0. After being encrypted and cleaned, the authors analyzed the data through the following steps: evaluating the scale's reliability through Cronbach's Alpha coefficient. Cronbach's Alpha model belongs to the group of methods to assess the internal reliability of observed variables. The general point of this method is to look for absurdity, if any, in the respondents' responses. This method limits possible biases when mining data. Following that, exploratory factor analysis (EFA), confirmation factor analysis (CFA), and structural equation modeling (SEM) testing are performed. This sample represents the total number of managers nationwide and is suitable for the study. A sample size of 300 is good. 500 is excellent. Finally, the authors' conclusion and policy recommendations [36].

4- Results and Discussion

4-1- Current Situation of Total Quality Management on the Competitiveness of Enterprises

For the integration trend to prevail, enterprises must improve their competitiveness. Over the years, Vietnamese enterprises have taken many steps to innovate and improve their competitiveness. However, in the face of integration pressure, many problems were resolved. According to the Vietnam Business White Paper 2021, as of December 31, 2020, the whole country has 758,610 operating enterprises, an increase of 6.1% compared to the same period in 2019. Besides, the industry and construction sector had 239,755 enterprises, accounting for 31.6%, up 5.1%. The agriculture, forestry, and fishery sectors had 10,085 enterprises, accounting for 1.3%, down 6.3%.

In 2021 alone, the country had 138,139 newly established enterprises, an increase of 5.2% compared to 2019. The total registered capital of newly established enterprises in 2020 reached VND 1.73 million, up 17.1% compared to 2019. The registered capital of the service sector reached the highest at 1.17 million billion VND, accounting for 67.6%, up 12.9% compared to 2019. The small and medium-sized enterprises (SMEs) sector accounts for over 95% of the Vietnamese economy. It generated about 60% of GDP, creating more than 90% of the jobs for workers. This result confirmed that SMEs are the central pillar of the country's economy. Having identified the vital role, Vietnam has made many efforts to support, remove obstacles and promote the development of the SME sector over the years.

The government focuses on supporting policies with specific content: promoting and improving the performance of SMEs and innovative enterprises; support to promote the national start-up movement; Create favourable conditions for households and individuals to voluntarily associate to form enterprises or other forms of cooperative organizations; Support and encourage the formation of multi-owned private economic groups and the private sector to contribute capital to state economic groups; Support innovation, creation, and modernization of technology and development of human resources capable of participating in production networks and regional and global value chains; Strongly reforming administrative procedures, creating favourable conditions for the private economy to develop..

The government issued many policies on tax and credit incentives for businesses, especially for SMEs; created capital sources and production and business premises; provided market information and trade promotion; improved corporate governance capacity; and provided vocational training for workers. These positive moves aim to enhance the competitiveness of Vietnamese enterprises in general and SMEs in particular. However, reality shows that Vietnamese enterprises and the SME community have faced many efficiency and competitiveness problems. The annual Provincial

Competitiveness Index (PCI) report published by the Vietnam Chamber of Commerce and Industry shows that the cost of bank loans for SMEs is often higher than that of large enterprises, about 1-2 years at 5%, meaning that the informal cost ratio for SMEs is still high.

Compared with other countries globally, Vietnamese enterprises still have many limitations, such as the fact that SMEs mostly do services, only about 20% of which are production activities. Over 40% of enterprises have less than 1 billion VND/year; 85% of enterprises have less than 2 billion VND/year. Although the number of private enterprises increases every year, their average size is still low. Low labor productivity and a failure to fully implement social insurance and health insurance policies for employees have reduced the quality of work in the SME sector, so these enterprises have a competitive disadvantage. Multinational and transnational companies dominate the world. In the Vietnamese business community, over 95% are small and medium-sized enterprises, so they face many difficulties and challenges in competition in domestic and foreign markets, especially in international integration and markets. The level of specialized equipment in non-state SMEs is only 3% of the equipment technology in large enterprises.

This situation poses significant challenges to the competitiveness of Vietnamese enterprises. On the other hand, the level and ability to approach international standards in corporate governance are minimal, and many businesses do not have a business strategy. Still, mainly doing business based on experience and doing business on a mission. Vietnamese enterprises' distribution, communication, and trade promotion strategies are still weak. Trade promotion activities are still simple and have no practical effect; expenses for trade promotion activities are only less than 1% of revenue compared to the rate of 10% to 20% of foreign enterprises. Besides, one of the significant challenges of Vietnamese enterprises is the low quality of human resources; the business owners lack managerial knowledge, skills, and management experience. Most business owners and directors of private enterprises are not equipped with business, management, socio-economic, cultural, legal, and business administration skills, especially technical skills. This result is evident because many enterprises have not yet complied with regulations on tax, human resource management, financial management, goods quality, industrial property, etc. All of the above limiting factors are reflected in the competitiveness of enterprises.

The problem of quality management has many forms, with levels of control, assurance, and quality management with many models built. Initially, quality management was carried out in the industrial and manufacturing sectors. However, Vietnam has seen the development of science and technology and the intensification of competition. Development quality management has been applied in many areas, from services to industries, - the administrative and non-business fields towards improving the organization's quality. The principles of quality management are valid for the industrial and manufacturing sectors and are also widely applied in the service sectors.

4-2- Analysis of Survey Results of 850 Business Managers on Human Resource Development

Demographics was understood as the process of collecting and studying data related to the characteristics of people's age, sex, and race. Often, demographic analysis based on particular groups of people, groups of people, or society is taken into consideration. In business, demographic data is considered the measurement and market definition tool for most companies. Demographics are the basis for businesses to learn about the purchasing needs of consumers. By studying demographic factors, we can easily understand what customers are looking for in our company. Results in Figure 3 show that applying demographics is also a step to effectively assessing whether the quality of products and services of the business meets the expectations of customers or not.

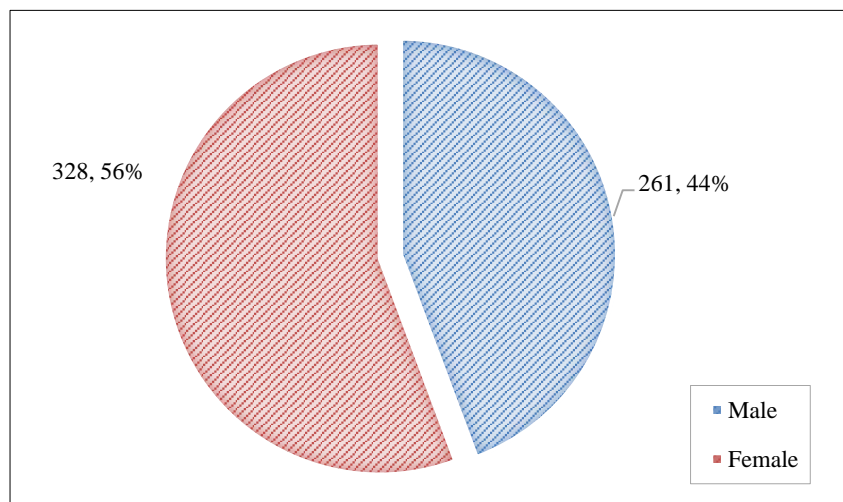


Figure 3. Statistical results for gender

Figure 3 showed that the total number of valid survey samples is 589 people, in which males account for 44.0%, respectively 261 people and females account for 56.0%, 328 people. Figure 4 showed that the valid survey sample is 589 people, of which single accounted for 43.0%, respectively 252 people and married accounted for 57.0%, respectively 337 people.

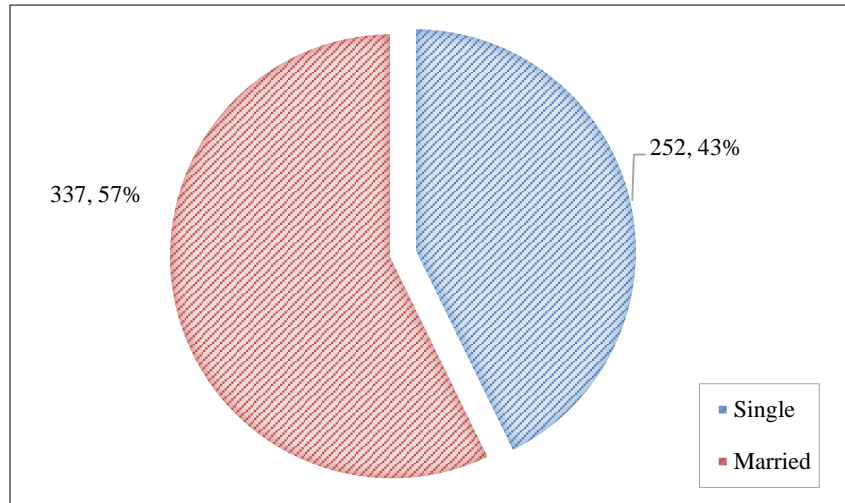


Figure 4. Statistical results for marital status

Measurement focuses on the average value, the median, and the weak position while measuring changes, including standard deviation, variance, minimum value, and a maximum value and deviation. According to the survey results in Table 1, the total number of valid survey samples is 589 people, which a minimum value is one, and the maximum value is five. The mean is around 3.0, and the standard deviation is close to 5. Which equals 1.0. Descriptive statistics had divided into concentration trends and volatility measures.

Table 1. Descriptive statistics for factors affecting the total quality management and competitive capability

Code	N	Minimum	Maximum	Mean	Std. Deviation
TQM1	589	1.00	5.00	3.3854	0.98588
TQM2	589	1.00	5.00	3.3599	0.96688
TQM3	589	1.00	5.00	3.2937	0.99675
QHR1	589	1.00	5.00	3.1290	1.03690
QHR2	589	1.00	5.00	3.1104	1.05610
QHR3	589	1.00	5.00	3.1528	1.01540
QHR4	589	1.00	5.00	3.1273	1.04934
ETL1	589	1.00	5.00	3.3294	0.91297
ETL2	589	1.00	5.00	3.4788	1.02932
ETL3	589	1.00	5.00	3.2547	1.03329
ETL4	589	1.00	5.00	3.3362	0.95782
AFR1	589	1.00	5.00	3.0764	1.02151
AFR2	589	1.00	5.00	3.0849	1.02333
AFR3	589	1.00	5.00	3.1290	0.98474
AFR4	589	1.00	5.00	3.1154	1.02033
CC1	589	1.00	5.00	2.3820	0.64819
CC2	589	1.00	5.00	2.3803	0.62924
CC3	589	1.00	5.00	2.4041	0.64659
CC4	589	1.00	5.00	2.4160	0.68399
OC1	589	1.00	5.00	3.0849	0.99125
OC2	589	1.00	5.00	3.0747	1.00907
OC3	589	1.00	5.00	3.1121	0.97294
OC4	589	1.00	5.00	3.1239	0.98280
MOC1	589	1.00	5.00	2.4109	0.64493
MOC2	589	1.00	5.00	2.4092	0.62596
MOC3	589	1.00	5.00	2.4295	0.64196
MOC4	589	1.00	5.00	2.4737	0.70330

The authors had used Cronbach's Alpha reliability coefficient method before analysing EFA factors eliminates unsuitable variables because these garbage variables can create pseudo-factors. Cronbach's Alpha reliability coefficient only indicates whether the measures are related but does not indicate which observable removed and which observed kept. Then, calculating the correlation coefficient between the variable-total will help exclude those observed variables that do not contribute much to the description of the concept to be measured. Therefore, the authors rely on the correlation coefficient of the total variable (Corrected Item - Total Correlation). Specifically, the criteria in the reliability coefficient test are as follows. $\alpha \geq 0.9$: Very good factor scale; $0.9 > \alpha \geq 0.8$: Good factor scale.

Table 2 showed that Cronbach's alpha is more than 0.6 for five factors affecting total quality management and competitive capability. Testing of Cronbach's alpha for independent variables. Cronbach's alpha is more than 0.6 for total quality management and competitive capability. KMO and Bartlett's test is more than 0.836 (>0.6) for all components. And extraction sums of squared loadings that are cumulative % is 84.776 ($>60\%$). The Pattern Matrix had seven factors affecting total quality management and competitive capability. Testing CFA for factors affecting online purchasing behaviour: The assessment of the CFA for factors affecting total quality management and competitive capability includes the following elements: CMIN/DF = 3.873 (<5.0), GFI = 0.885 (>0.8), TLI = 0.941 (>0.9), CFI = 0.953 (>0.9), and RMSEA = 0.070 (<0.08).

Table 2. Testing of Cronbach's alpha for five factors affecting total quality management and competitive capability

Code	Items	Cronbach's alpha
Management and Operating Capacity (MOC)		0.917
MOC1	The enterprise's leadership actively improves professional qualifications and management and executive capabilities	0.879
MOC2	The company's leadership actively learns about domestic and international practices and laws in the country business areas	0.872
MOC3	The company's leadership actively participates in the intensive training and participation in associations	0.912
MOC4	The leadership of the enterprise has strengthened and improved the organizational management mechanism	0.907
Quality of Human Resources (QHR)		0.963
QHR1	Enterprises strengthen human resource training and development	0.941
QHR2	Enterprise Developing a culture of solidarity and professionalism	0.963
QHR3	Enterprises perfecting the source compensation policy of human resources	0.957
QHR4	Enterprises increase activities to promote innovation initiatives of human resources	0.943
Equipment and technology levels (ETL)		0.850
ETL1	Enterprises regularly update and apply new technologies in production and business	0.803
ETL2	Enterprises focus on selecting equipment and technology suitable to production and business conditions, product characteristics, and skill level of human resources	0.796
ETL3	Enterprises strengthen cooperation with domestic and foreign scientific and technological research organizations	0.842
ETL4	Enterprises forming and developing science and technology funds	0.797
Ability to form relationships (AFR)		0.956
AFR1	Businesses build good relationships with customers	0.937
AFR2	Enterprises actively participate in interdisciplinary associations	0.947
AFR3	Enterprises actively associate and enter into joint ventures with other enterprises	0.944
AFR4	Enterprises focus on establishing good relationships with stakeholders	0.939
Organizational culture (OC)		0.970
OC1	Enterprises strengthen employee empowerment	0.962
OC2	Enterprises develop a friendly and united working environment	0.969
OC3	Enterprises build and promote cultural exchange activities	0.960
OC4	The company focuses on building its own cultural identity	0.953
Total quality management (TQM)		0.938
TQM1	The quality of products and services is constantly increasing	0.919
TQM2	Customer satisfaction increases year by year	0.874
TQM3	The business performance of the enterprise grew strongly	0.935
Competitive capability (CC)		0.922
CC1	Enterprise profits increase year by year	0.908
CC2	The market share of the business has continuously increased by double digits	0.876
CC3	Financial ratios increase year by year	0.912
CC4	The number of customers and orders increased steadily	0.898

Table 3 showed that the assessment of the scale of factors affecting total quality management and competitive capability includes the following elements: CMIN/DF = 3.947 (<5.0), GFI = 0.881 (>0.8), TLI = 0.940 (>0.9) and CFI = 0.951 (> 0.9), and RMSEA = 0.071 (< 0.08). The SEM assessment had all five factors affecting total quality management and competitive capability with 1% significance. Five factors affecting total quality management and competitive capability with 1% significance. The article's research results also showed similarities and differences with other studies in the world.

Table 3. Testing coefficients for factors affecting total quality management and competitive capability

Relationships	Unstandardized Estimate	Standardized Estimate	SE.	CR.	P	Hypothesis
TQM ← OC	0.644	0.632	0.034	18.748	***	Accepted
TQM ← QHR	0.097	0.110	0.028	3.443	***	Accepted
TQM ← ETL	0.112	0.112	0.034	3.304	***	Accepted
TQM ← AFR	0.103	0.116	0.028	3.660	***	Accepted
TQM ← MOC	0.207	0.116	0.058	3.579	***	Accepted
CC ← MOC	0.128	0.125	0.035	3.644	***	Accepted
CC ← AFR	0.045	0.089	0.017	2.734	0.006	Accepted
CC ← ETL	0.055	0.096	0.020	2.776	0.006	Accepted
CC ← QHR	0.054	0.107	0.017	3.186	0.001	Accepted
CC ← OC	0.211	0.361	0.026	7.997	***	Accepted
CC ← TQM	0.173	0.302	0.027	6.429	***	Accepted

Figure 5 showed that the SEM model had all five factors affecting total quality management and competitive capability with 1% significance. Five factors included management and operating capacity (MOC), quality of human resources (QHR), equipment and technology levels (ETL), ability to form relationships (AFR), and organizational culture (OC).

Table 4 shows that the bootstrap test results are very good with a sample of 30.000 samples. These results indicated that five factors affect total quality management and competitive capability with 1% significance. The Bootstrap method executes with the number of repeated samples N times. Estimates from N samples have averaged, which tends to be close to the population estimate. The smaller the difference between the mean estimated by Bootstrap and the model estimate with the original sample, the more likely it is that the model estimates are reliable. The control result must bring efficiency in the production and business process. In the end, businesses always want to find a profit. And the object of profit is the customer. Thus, success in control must satisfy the customer ultimately. It's not just about the low price, or whether the price goes hand in hand with quality from the old point of view.

Table 4. Testing bootstrap with 30.000 samples for factors affecting total quality management and competitive capability

Parameter	SE	SE-SE	Mean	Bias	SE-Bias
TQM ← OC	0.038	0.001	0.642	-0.002	0.001
TQM ← QHR	0.029	0.000	0.091	-0.006	0.001
TQM ← ETL	0.045	0.001	0.104	-0.008	0.001
TQM ← AFR	0.031	0.000	0.096	-0.007	0.001
TQM ← MOC	0.069	0.001	0.197	-0.010	0.002
CC ← MOC	0.043	0.001	0.122	-0.006	0.001
CC ← AFR	0.023	0.000	0.044	-0.002	0.001
CC ← ETL	0.022	0.000	0.048	-0.007	0.000
CC ← QHR	0.022	0.000	0.050	-0.004	0.000
CC ← OC	0.028	0.000	0.207	-0.004	0.001
CC ← TQM	0.032	0.001	0.176	0.003	0.001

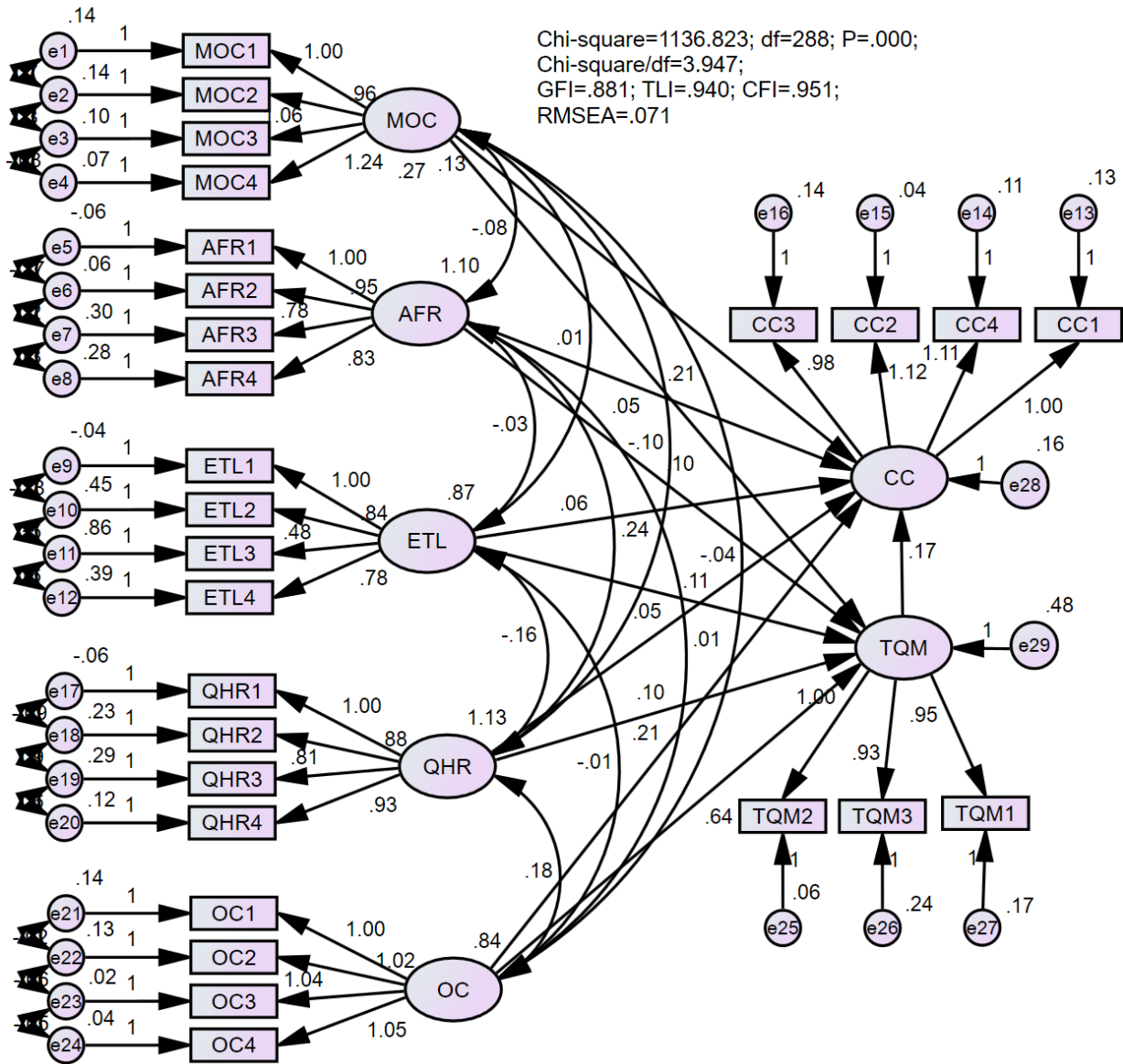


Figure 5. Testing factors affecting total quality management and competitive capability

4-1- Discussions

Human resources are the lifeblood of every business. Human resources that are sufficient and continuously improved in quality will bring significant competitive advantages to enterprises. Companies need to provide more learning and experience opportunities for employees through essential to advanced training courses, enhancing career skills, social skills, and professional qualifications for workers. In particular, the authors propose a series of training programs for all employees on total quality management. This result is entirely consistent with the study. Human resources are the most critical resource that determines the sustainable development of an enterprise. Therefore, businesses always try to improve the quality of human resources and create competitive advantages [11, 43]. In addition, companies need to strengthen the empowerment of employees in the working process by creating opportunities for them to participate in the decision-making process. This recommendation improves their intelligence, contributes to developing a dependable company, increases support, bonuses, and benefits commensurate with each initiative, innovates highly appropriate personnel, and solves problems effectively. Applying information technology and software in management to collect, classify, and evaluate the quality of initiatives. Enterprises should have the policy to honour the most typical and effective employees' ambitions. These policies will help the human resource department actively contribute more creative ideas. From there, they were improving the skills and qualifications of each person and helping businesses be more competitive and grow for the long term.

Enterprises continue to improve management and administration skills for directors and senior managers. To perform this skill well, the enterprise's director needs to know the four essential attributes that create power: expertise, personal charisma, effort, and respect for the legal values of enterprises. Improve employee motivational skills. The director of SMEs wants to use this skill to influence employees, motivate them to work actively, and achieve high levels of

efficiency for the common goal of the enterprise. This result is entirely consistent with the study. Managers must always learn what it takes to keep up with the rapidly changing environment. Register and participate in training courses, seminars, and seminars for business leaders systematically to equip them with knowledge related to vision and strategy; change management; human resource development; and motivating and mobilizing resources inside and outside the organization [2, 16]. The director needs to assess the capacity of employees, pointing out to them their limitations in work. Business leaders are the initiators and creators of positive changes in enterprises through innovating production and business activities based on product-centricity and the application of new technologies. The production line is to innovate, upgrade equipment, and train human resources, mainly focusing on and investing in breakthrough ideas. Enterprise managers need to create conditions for employees to deploy ideas, thereby taking the creativity of scientific and technological products as a criterion for assessing the capacity of employees. Therefore, managers encourage employees to be active, proactive, and creative in the working process. They do this by doing things like scientific research, technology exchange, technology transfer, and human resource training with other countries, as well as other countries in the world. This helps to strengthen international cooperation in production and business.

Managers must be pioneers in renewing thinking and awareness to improve competitiveness because this revolution directly affects the survival of enterprises themselves. Cognitive change is a revolution taking place in the review of managers. To change perception, business owners need to be more active in learning and updating new trends, especially those in technology applied to the management process of enterprises. In the context of Industry 4.0, digital technology is the factor that has the most significant impact on trends and methods of corporate governance. Managers must know and understand the application of technology in management and administrative activities, including applying corporate management software to business processes to optimize resources and save costs. Managers firmly grasp market information and have sound processing and forecasting solutions. Getting information is difficult, but so is knowing how to process it and make accurate forecasts. It requires businesses to understand how to manage channels from far away. The staff must be sensitive and have foreign language and computer skills to meet the needs [4, 41]. At the same time, the administrator needs to determine where the enterprise is in Industry 4.0, thereby determining the appropriate resources and approach strategy. Invest and apply technology in production and business in general and corporate governance in particular to improve the efficiency of corporate governance. Industry 4.0 is solved if managers know how to apply software and technology solutions to help the business administration process optimize resources and save costs. So, to meet the needs of this revolution, businesses must invest more in equipment, technology, machinery, and automation in both production and business.

Enterprises continue to build relationships with customers. The company needs to create more conditions for customers to have the opportunity to participate in customer appreciation programs, tours, and training programs. When participating in the program, customers can witness first-hand the modernity, advanced lean production lines, clean pharmaceutical growing areas, etc., creating a trust for customers in the company's products and reputation. In addition, the company also needs to strengthen creating opportunities for customers to continue to exchange and share with the business leadership team, for interested parties such as partners, suppliers, local government agencies, and the state. This result is entirely consistent with the study. It is this difference that creates a diverse and complex working environment. Furthermore, with the fierce competition of the market economy and the trend of globalization, businesses that want to survive and grow must constantly seek out new, creative, and changing things [14, 16]. Enterprises need to continue promoting cooperation and strengthening relationships with other parties by meeting, exchanging, and sharing development ideas and perspectives. This includes proactively planning to work with partners and suppliers of production materials, expanding and diversifying domestic and foreign suppliers, establishing close relationships with partners in the industry, and being willing to have the opportunity to exchange and share cooperation.

To build a corporate culture in the context of integration, it is the responsibility of each individual and each Vietnamese business leader to actively learn the provisions of international law in production and business. At the same time, implement the following solutions: It is necessary to create a favourable environment for market-oriented business activities. This result is completely consistent with the study. Vietnamese businesses need to have a good behavior plan and proactively anticipate the advantages and challenges brought by them, specifically: improving integration capacity; focusing on compliance with standards and norms undersigned FTAs; focusing on boosting exports and developing profitable industries and products; proactively grasping information and international economic integration roadmap to come up with appropriate operational strategies proactively. Increase the firm's resilience to external shocks [22, 44]. The market concept includes many aspects such as price, consumption ability, packaging quality, product quality, after-sales services, and promotions to attract customers. All enterprises were directed to compete and gain market share for their enterprises. It is necessary to consider the market's needs as the corporate culture's production point and starting point. Building on the concept that customers come first, businesses must understand the needs and aspirations of customers to exploit new products and provide high-quality services. This includes building a consulting system for customers, trying to meet customers' needs at the highest level, improving service quality to increase customers' purchasing power, conducting cultural exploitation for the survival of businesses, and building a customer-friendly corporate culture.

5- Conclusion

Improving competitiveness is an important activity for businesses in today's fierce competition. Competitiveness shows the strength and advantages of the enterprise compared to its competitors in best satisfying customers' requirements to gain higher and higher profits. Thus, the authors must first create the enterprise's competitiveness from its strength. The study of factors affecting total quality management and competitiveness has made essential contributions in terms of theory and practice. The study has synthesized theoretical issues related to comprehensive quality management and competitiveness. The study uses different research methods with rich and diverse data sources to analyze the current situation of activities to improve competitiveness. Besides, the authors also tested the research model and identified five critical factors affecting total quality management and competitiveness with a significance level of 1%.

Compete to meet the market's needs in sustainable development competition by analyzing many contents related to total quality management and the competitiveness of enterprises with statistical significance. With the analysis and test results from the model, the authors propose managerial implications to improve the competitiveness of enterprises in Vietnam in the period of international economic integration. The research results will be suggestions and references for units, managers, and leaders of enterprises in formulating development policies and improving competitiveness for the organization. In addition, the article also recommends that the state and relevant management agencies work with business associations to develop policies to encourage and support pharmaceutical enterprises to improve their competitiveness actively.

5-1- Limitations

Due to time and knowledge constraints, the authors were unable to test the research hypotheses using mathematical and econometric models with a large sample of all provinces and cities in Vietnam. Regarding the issues raised in the following research paper, the authors should try to thoroughly solve the problems by increasing the sample size, investigating more widely, and comparing the results with other studies to analyze the influence of each factor on improving competitiveness. These will be the future research directions of other authors when conducting this research.

6- Declarations

6-1- Author Contributions

H.V.S., N.V.T., and P.T.T. contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript. All authors have read and agreed to the published version of the manuscript.

6-2- Data Availability Statement

The data presented in this study are available in the article.

6-3- Funding

This work had supported by the University of Economics Ho Chi Minh City (UEH) and Lac Hong University (LHU), Vietnam.

6-4- Acknowledgements

The authors want to express my gratitude to the business owner's colleagues. In particular, the authors would like to thank the Board of Directors of Saigon University for encouraging and supporting me throughout the research process.

6-5- Conflicts of Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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