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College of Informatics

Graduate School of Information Management

Master

The Impact of Total Quality Management on Business

Performance of the Telecommunication Sector in

VNPT Nam Dinh, Viet Nam

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Advisor: Dr. Pi-Chung Hsu

Dr. Nguyen Thi My Loc

February, 2011

The Impact of Total Quality Management on Business  
Performance of the Telecommunication Sector in VNPT

Nam Dinh, Viet Nam

Student: Nguyen Van Tinh

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## Shu-Te University Authorization Document of Thesis

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Thesis Title: The Impact of Total Quality Management on Business Performance of The Telecommunication Sector in VNPT, Vietnam

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The Impact of Total Quality Management on Business  
Performance of the Telecommunication Sector  
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Student: Nguyen Van Tinh

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## ABSTRACT

Total quality management has been applied in many industries and high-tech companies worldwide for the past few decades. Some studies shows that business productivity has made a considerable improvement in finance as well as a customer boom (John Watson, The Department of Accounting and Finance, The University of Western Australia, 2003). In the mean time, some other researches have also pointed out the difficulties in the application of TQM. One of the key factors leading to the success implementation of TMQ is the internal human resources. The literature review has revealed highlights on telecommunication service consumers who have been entitled to choose their own suppliers and laid their faith over the trustworthy one thanks to telecommunication quality brought about by the application of TQM. It is a matter of fact that companies that can gain more customers' faith would be more profitable. Thus, the very aim of this study is to investigate the impact of TQM application on business performance, or simply stated, how the application of TQM can influence the internal staff and the company's partner as well as external customers about the company's identity, customers' satisfaction and their loyalty to the company. Besides, the thesis closely looks into the impact of TQM on the business performance of

telecommunication service, especially with a focus on the service quality of ADSL. In this thesis, a sample model has been developed and suggested by conducting a survey questionnair on 250 employees, among which. 150 Employees are working at VNPT Nam Dinh and the other 100 Eployees VDC (Viet Nam Data Communication company).

Keywords: Total Quality management, leadership, Employee participation, process control and improvement, Telecommunication service, Service Quality

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Nguyen Van Tinh

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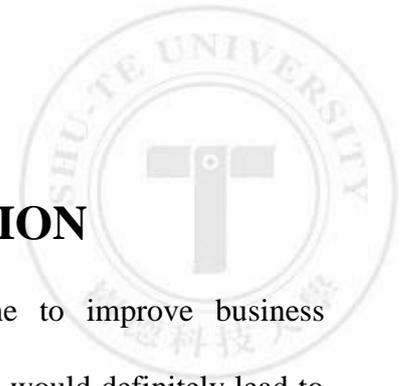
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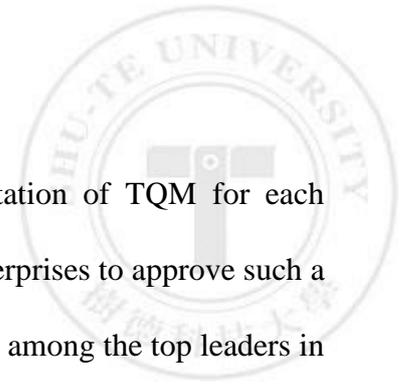


## Chapter 1 INTRODUCTION

Total quality management is regarded as a regime to improve business performance. Proposers of TQM have claimed that this theory would definitely lead to the improvement in business performance, which has been proved by a certain number of researches (Flynn, Schroeder & Sakakibara 1995), (Powell, 1995), (Samson & Terziovski, 1999), (Terziorvski & Samson, 1999). Advocates of TQM also argued that this theory can be widely applied to any businesses under operation (Powell, 1995). (Wernick, 1991), for example, stated that “even smaller enterprises with limited capital can employ the rules of success of TQM with little measurement and due expenses.” A number of studies have investigated the interrelationship between TQM and efficiency. However, they just focus on big enterprises and recognize the limitation in researches related to TQM of service businesses (Shahbazipour, 2008). In particular, studies involving the influence of TQM on telecommunication business performance are even much limited.

### 1.1. Research background:

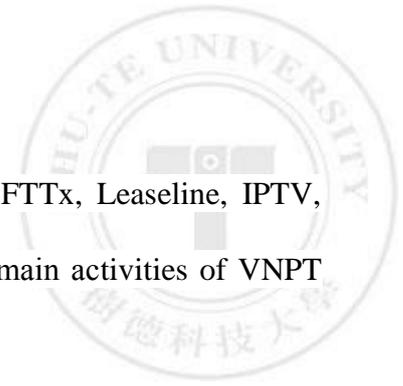
Telecommunication industry in general and telecommunication service suppliers in particular assume a significant role in global culture development and the world's economy. It poses a great impact on every single life, businesses and their efficiency, among which service quality is an integral part in every enterprise's business policy. Particularly, in such a competitive market, telecommunication service enterprises are pushed to offer customers the best products and to invent new products. In so doing,



quality management and the improvement in the implementation of TQM for each enterprise is inevitable. It is obvious that there is a need for enterprises to approve such a procedure of TQM and key successful factors if they long to be among the top leaders in their field (Zairi, 2002). With the boom in the manufacturing of mobile products and such services as international markets in the past few years, altogether with the integration of three services namely telecommunication, entertainment and IT convergence, telecommunication markets have expanded and changed (ITU publications, 2002).

As a manager of the Department of Network and Services-Informatics in VNPT (VietNam post and telecommunication) Nam Dinh, the researcher hopes that this study would lead to the recognition of the positive aspects of TQM in terms of factors affecting business performance and its important roles in telecommunication service companies to offer better services. Besides, such factors as the impacts of good service provision on customers, competitiveness, direction, management, improvement, expense reduction, profitability, staff's satisfaction to enrich their labour value, empowering the staff, the participation, communication, team-working, commitments made by managing departments and customers, their satisfaction and loyalty as well as the organization stability are all involved in this study.

The enterprises of business telecommunication services as VNPT Nam Dinh, at the moment, are characterized by retailing in the market; the service products provided by the branches in the provinces and the cities of Vietnam are: telephone service, mobile



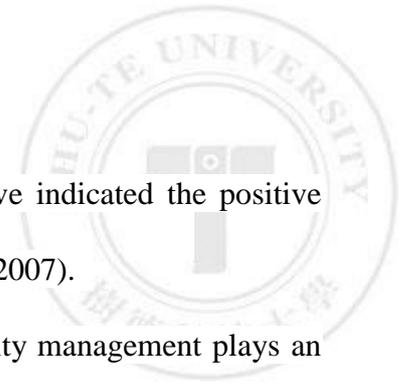
phone service, broadband service (ADSL, Mobi broadband, FTTx, Leaseline, IPTV, MetrolNet... IP meeting) and added value services, etc. The main activities of VNPT Nam Dinh are:

Organizing building, managing, operating, installing, exploiting, maintaining and repairing telecommunication network in Nam Dinh province.

Organizing managing, business and supplying telecommunication services, information technology.

Problem impact of TQM practices are leadership, Employee participation and performance of its business consists of one element; quality service are factors that can representative for business performance in telecommunications services

The service system is a special commodity including telecommunication services, healthcare services, banking, insurance, hotels, tourism and transportation, etc which are directly related to a great number of people in a series of work. In such a global economy, the increasing number of businesses and organization has created a tough competitiveness in the society. The diversity of customers and their attitude towards culture, economy and religion, enterprises' efforts in meeting customers' diverse demands has become urgent in terms of both space and time. As the society has reached a considerable civilization involving economy, education and schools of thoughts, etc, there has been a rapid increase in society's needs in service quality. We have seen a great number of service business organizations exploiting their creativeness to apply TQM. With a view to assessing the application of TQM, Benefits from TQM

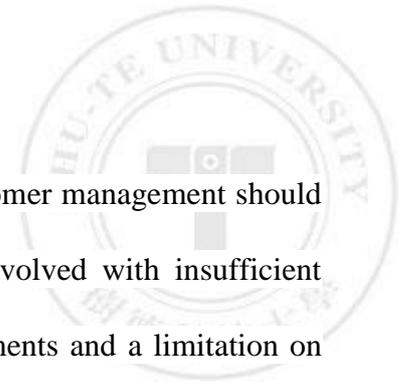


for Organisational Performance by HENRIK ERIKSSON have indicated the positive impact of TQM application on business performance (Osborn, 2007).

With the business activities in communication field, quality management plays an important role in operation and development of the enterprises. Under the pressure of joining WTO, telecommunication market in Vietnam is very fierce competition. With the development history of VNPT and the large market share in this province, the high quality services will satisfy and hold the customs. Besides, in order to bring the customer the better quality services, it is very important for all people in the company to join in.

All of the former researches on the application of TQM and, in particular, its effectiveness as well as customers' satisfaction have stated that there is little controversy concerning this issue and it all depends much on the actual implementation of each business (Thomas Y. Choi, 1998). Karen Eboch also claims that studies should investigate the application of TQM of organization further. By the same token, (Deming and Juran, 1986) have highlighted the task of improving customers' satisfaction as an end of TQM. Deming asserts that it is advisable for enterprises not to cease improving their services and products aimed at customers. Meanwhile, Juran defines that quality resembles a gym in the way that both are used to improve human needs, or the capacity of a service or product to meet customers' demand.

The relationship among departments themselves or between departments and the producers is expected to reach reliability and knowledge exchange between the two



bodies. To be specific, as for each organization, internal customer management should be prioritized. A theory concerning internal customers is involved with insufficient sources to satisfy their needs, the lack of trust among departments and a limitation on their confidence and a limited ability to manage processes. Unless senior managers in a company are persuaded to allocate necessary human resources, a series of effective internal customers can be created. A variety of factors can either facilitate business performance or impede customers' satisfaction and staff loyalty involving training and recruitment (Liao & Chuang, 2004), administration practice (Harter et al, 2002), salary, policies (Chebat et al, 2002), working environment (Bitner, 1992), professional officer development (Ackfeldt & Coote, 2005).

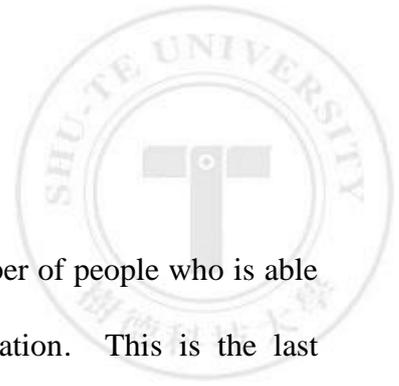
## **1.2. Statement of Problem**

This study aimed to understand more about the impact of TQM practices are factors: support from the leadership, the relationship people in the company, improve and control processes, TQM impact on business performance are: quality service.

Therefore, this study was developed from previous studies and additional research into the practice of TQM, but in the field of telecommunications. This study considered the hypothesis based on a sample of retail companies operating in the field of telecommunications services in Vietnam

## **1.3. Research motive:**

In 2010, the mobile phone market is expected to reach its saturated point, which would result in the violent competitiveness among mobile phone network regarding



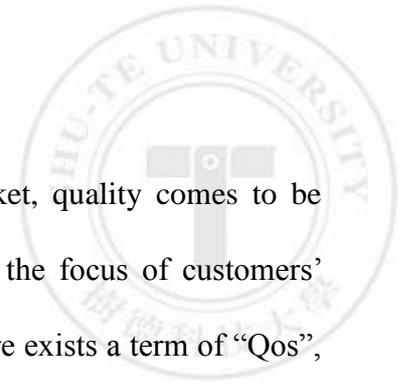
their quality and customer service.

According to mobile phone experts' estimate, If the number of people who is able to use a mobile phone at this point is taken into consideration. This is the last “unexploited land” where the five mobile phone networks GSM have to compete wildly before the market stands at its saturated point.

On the contrary, according to the plans set by three giant mobile phone networks namely MobiFone., VinaPhone and Viettel, their real extended subscribers in 2010 would be sure to reach approximately 20 million dollars. That is not to say the development plan of Vietnamobile and Beeline. This means that the number of potential customers could not meet the wish to expand of network suppliers.

It is also due to this reason that telecommunication experts predict that the market in the forthcoming time would transfer to a new phase, that is, maintaining the number of existing subscribers rather than expanding the number of subscribers. Hence, in this violent race, service quality and customer service policy will assume the role of determining factors over the success or failure of each network supplier .

With the main market share of VNPT, our company's strategies are ensuring service's quality to hold the customer and developing market to make competitive advantages. Therefore, we have innovated and applied Total Quality Management in our business fields. This research is carried out with the aim to assess the effect of implementing TQM on service quality in the activity of the company and finishing my own course.



Generally speaking, in Vietnam telecommunication market, quality comes to be recognized as a top preference as service price is no longer the focus of customers' concern. In the field of telecommunication service quality there exists a term of "Qos", a sub-aggregate of total quality management (TQM). The importance of telecommunication service has also been emphasized by State authorities that "the quality of telecommunication service quality is extraordinary important to customers and the stable development of enterprises" (according to Instruction No. 10/2005/CT-BBCVT promulgated by Vietnam's Ministry of Post and Telecommunication and the announcement on telecommunication service quality No. 3457/VT-DV issued by the Ministry of Information and Communications. Service quality management, these days, does not purely refer to a good service quality but such detailed stuffs as telephone answering, bills, time of supplying, customer service and reparation as well (Telecommunication business performance is closely attached to network productivity and Qos, 2001). Telecommunication businesses announced their service quality to customers to prove that telecommunication service quality is getting more and more important to enterprises.

#### **1.4. Research purpose:**

In brief, through extensive literature review, important role for successful TQM practices impact business performance of enterprises in manufacturing and services, many studies have found the impact of TQM practices in services sector but no studies



investigating the impact of TQM practices in the field of telecom services in Vietnam, so the purpose of this study was concluded as follows:

- Examine the impact of TQM practices on business activities in the field of telecommunications.

- Examine the impact of TQM practices on quality of service in the telecom sector in particular: the factor test Leadership, Employee Participation, Process Control and Improvement impact on service quality in the two companies are VNPT and VDC.

Research questions:

What are the impacts of implementing TQM successfully on business performance?

What are the impacts of implementing TQM successfully on Quality service?

#### **1.5. Research procedure:**

This study begins from the introduction and discussion concerning TQM in previous studies and its successful implementation in manufacturing fields and services to discussion dealing with the formation of a new concept of quality, describe as figure 1.

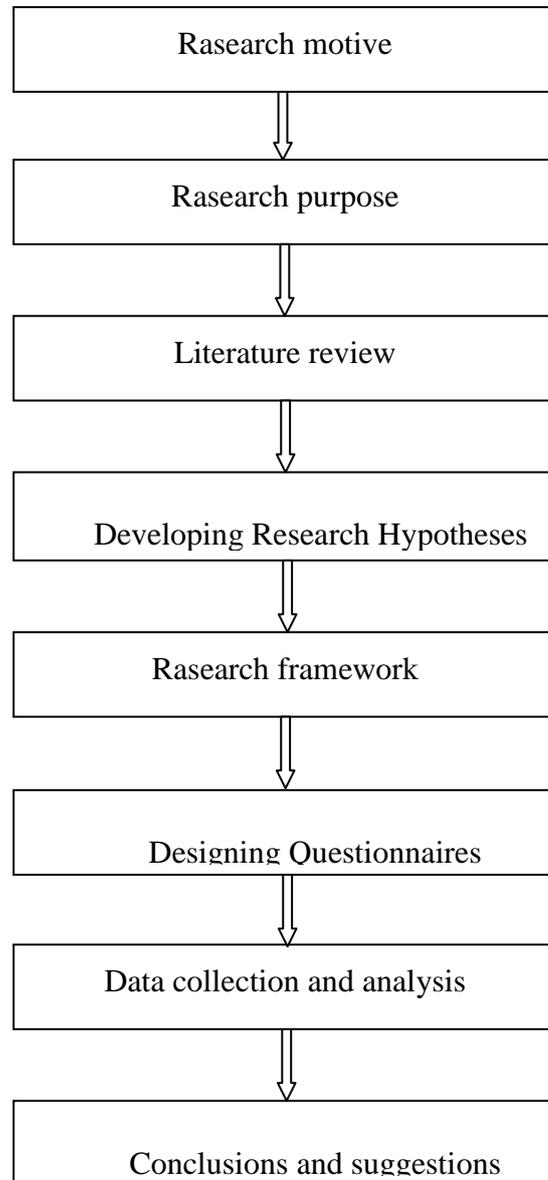
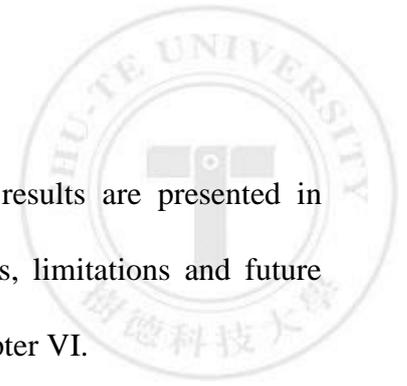


Figure 1. Preview procedure

Chapter I is a study about issues related to the impact of TQM practices in the telecom sector related to research context . The keywords about TQM have been defined in chapter II. Chapter III is focused on research methods and research

framework for the study. The analysis on survey data and results are presented in chapter IV. Conclusions related to research findings, progress, limitations and future work are presented in chapter V. References are given in Chapter VI.





## Chapter 2 LITERATURE REVIEW

### 2.1 What's Total Quality Management (TQM).

The implementation TQM's publication happens earlier than the development of theory about total quality management. Many experts in managing the quality of literature from many rules of quality experience such as Crosby, Feigenbaum, Ishikawa, Deming and Juran. Due to the quality experience, the quality is not determined by workers in workshop, and neither by service which is carried out by workers in customer places. The quality is determined by the CEOs of an organization, their effort, their responsibility with their customers, employees, suppliers and shareholders who contribute to the business success. The CEOs apportion the resources, determine markets their companies will participate in, choose and carry out managing process that will allow the companies to fulfill their duty and then their view (Tener and DeToro, 1992).

The implementation TQM is the key to success of the international standard companies in production and service. To achieve this success, the TQM's students have created a combination between tools and reality. The possitive definitions to carry out TQM successfully are (Rao et al, 1996):

- Quality towards customers: the definition that work is everything is for a "customer" and that is:

"Customer" determines its quality. "Customer" in this case can be understood in a wide concept. In some cases, it is the person who pays for the goods and services. It can

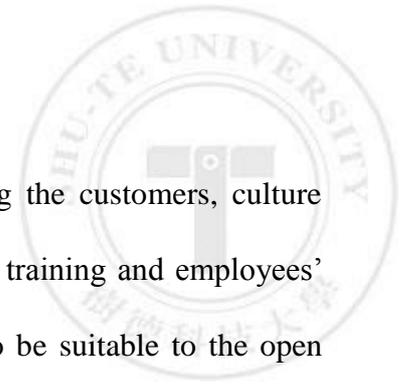


also be the next person in the series of last actions with the outside organizations and customers.

- Total participation: there is the idea that job has a tendency of supplementing. In the organization tradition, workers hope to know what to do and how to do to achieve the required productivity. Other people such as the manager, supervisor, lecturer and engineer tell him/ her what to do and how to do. The definition of totality means that the participation of the manager with full duty will create enough conditions to request improving working method. Consequently, one part of employees' responsibility is to requesting to improve working method in order to improve productivity and quality. The total participation (Tener and DeToro, 1992) is also described by the participation of CEO which guarantees the newest employees to focus on the customers and the reforming process. The employees are delegated power to improve the outputs, the process and to satisfy the customers. The suppliers are also included and through age, become the participants by working with the delegated employess.

- Continuous improvement: the definition about efficiency is to approach and finish. The small state Phillip Crosby seems to be a disable zero. This topic also supposes the existence of a method to carry out the increasing and breaking-out improvements. Once the improvement is planned, they can carry out one part of their job and the supervision is supplied to stablize the improvement.

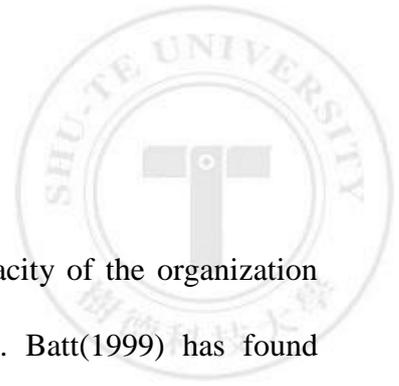
The British Quality Association (BQA) is supplied three alternative definitions of TQM. (Wilkinson, et al 1998) focus firstly on the so called “soft” in the characteristics



of goods and quality in American advisory such as orienting the customers, culture excellently, rejecting the barrier effectively, working in groups, training and employees' participation. From this point of view, TQM is considered to be suitable to the open management style, the employees' responsibility and sovereignty increase. The second definition of BQA emphasises the producing angles such as measuring system and working control, forming the standard about productivity and using the statistic procedure to evaluate the quality. This is the "hard" production/ controlling actions in observation style, which is considered relate to the fact that employees are less active and control more. The third definition is a mixture of "hard" and "soft", includes three characteristics: the obsession about the quality; the necessity of a scientific approach; and the thought that every employee will take part in this process.

## 2.2 The role of TQM in Telecommunication service.

Companies operating in telecom service sector are characterized by level of team working among internal departments. There is a proportional relationship between level of team working and QoS level provided to customers. Team working activities are based on telecom services that require human interaction in socio-technological development systems proposed by, International Telecommunication Union. The team - based concept is associated with organizational structure and team functioning is associated with group processes within organizations (Forrester & Drexler,1999). Hence, the leaders play a cross-cutting role in TQM implementation process in order to ensure the resources such as finance, man power, facilities, technologies, know-how that



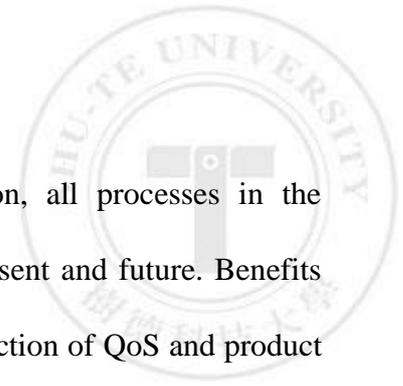
guarantee the QoS of telecom services provided to customers.

An efficient quality control plan should enhance the capacity of the organization that leads to reduced costs and performance improvements. Batt(1999) has found significant differences in QoS between team-based and non team-based working groups solving individual tasks.

Wageman (1997) argues that the performance of self-managed teams require a clear management that supports goals, human, variety of skills, an optimal scale, stable memberships, and rewards to the team with optimal success.

While the implementation of TQM programs, not associated with organizing work in teams, so the overall about quality service support, improve and compensate for other defects. Supporting data and discussion group work in the context of corporate telecommunications services related to the cooperation and support of the stages of customer service, field engineering services, to marketing, logistics, finance and other departments related to the internal. Products and services provided to customers is a closed cycle in telecommunications services companies, employees are internal customers to the products from the production stage in the company have to contact each other to together and improve service quality are increased.. Batt (1999) has concluded that the benefits of team working come from motivations for learning in the context of a place that requires regular changes and team member can help each other learn efficiently and improve QoS of telecom services

TQM is the application of quantitative methods and human resource in order to



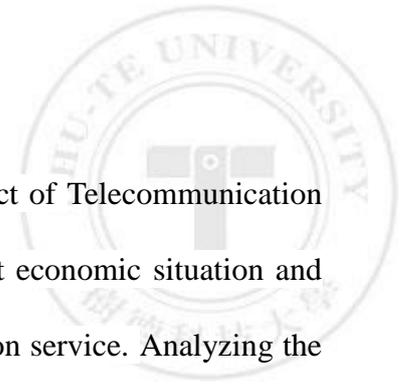
improve materials and services supplied to the organization, all processes in the organization and level of satisfaction of customers in the present and future. Benefits found by telecom service companies would be more than a function of QoS and product costs (Lester, Enrick, & Mottley, 2004).

Regarding provision of telecom services to customers, three hypotheses have been established as follows: Companies operating in telecom services are characterized by level of involvement of the members in the organizations, by level of team working among internal departments, and by process control and improved QoS to customers.

TQM in Telecommunication service means the total environment has influence on the productivity of different units and includes the behaviour of employees who interact with the users. The quality of Telecommunication service, from the viewers' point of view, can have the following factors: (1) The service availability (2) The telecommunication facility (3) Maintaining connection time (4) Connection quality (5) The usefulness of services (6) The portion of wrong bills and freights

The role of TQM in Telecommunication service requires using technical and statistics tools broadly. Based on a customers-suppliers model, in AT&T, to help the managers improve the efficiency and working efficiency, so that to achieve a higher level of customer satisfaction when trying to lower the internal activities' cost. The developing countries are now trying to improve the quality of Telecommunication service by privatizing the sole service.

In the meeting “End to End Quality of service. What is it? How do we get it?”



from Oct 1<sup>st</sup> to 3<sup>rd</sup> Oct, 2003 in Geneva: pointing out the effect of Telecommunication service in macro and micro economics; explaining the current economic situation and globalization and the effect of the quality of Telecommunication service. Analyzing the effect of risk management and the activity revenue to guarantee the service quality; using SLAs (Service Level Agreements) and the quality effects.

For TQM in Telecommunication service, the leader must have the strategy for quality guaranteeing from the first industry-oriented stage, service, designing the network's participants, synchronously installing the network's elements, connection, training, the management process and the working groups to the advantages of service register, service installing time, the quality of materials, equipping facilities for the customers the phone call's answers, bills.

With the research mentioned-above, the purpose of this research: finding the effects of factors: leadership, employee participation, control process improvement on the service quality and business activity of the TQM telecommunication and practice company.

The devices that are used in evaluating, executing TQM in telecommunication in VNPT are to examine the quality of suppliers and through the operation process are these standard sets of IEC and the recommendations of ITU G7xx, G8xx and the soft wares NMS, CSS... and PDCA cycle of (W Edwards Deming, MIT 1989) (Kaizen, Masaaki Imai, McGraw-Hill, 1986). 'The Team Handbook', (Peter R. Scholtes, Joiner Assoc, 1988).

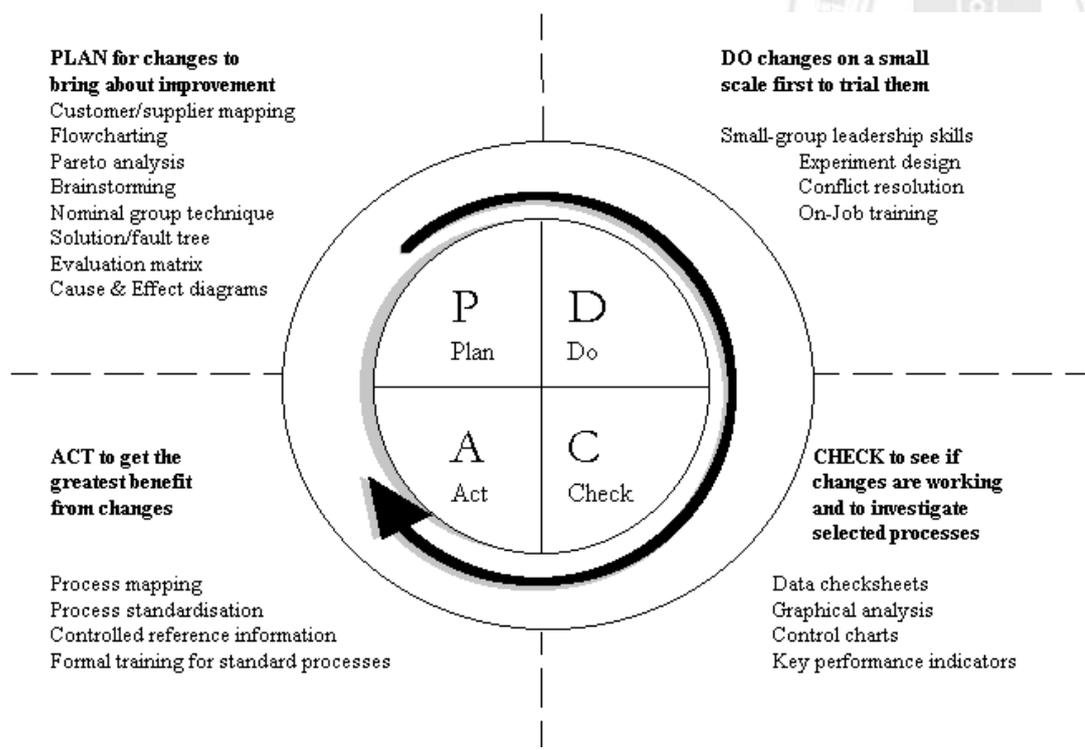


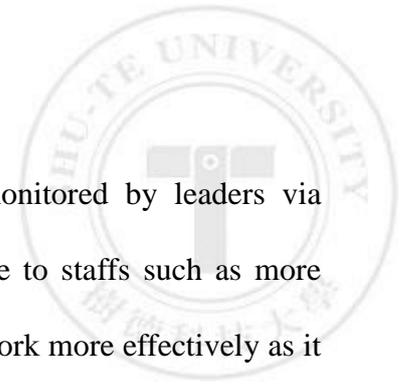
Figure 2. Preview PCDA Cycle (Dming MIT 1989).

### 2.3 Research Model.

The research model employed in this thesis is part of the model proposed by Zhihai Zhang, (2001) Implementation of Total Quality Management An Empirical Study of Chinese Manufacturing Firms Theoretical Model of TQM Implementation Constructs and Overall Business Performance and SERVQUAL của Parasuraman et al. (1985) have been used in combination to study “The impact of Total Quality management on business performance of the telecommunication sector” .

### 2.4 Relevant influential factors of TQM .

As earlier discussed, the determinant factor of TQM implementation are: the human with team working skills motivated by leadership’s trust; working performance

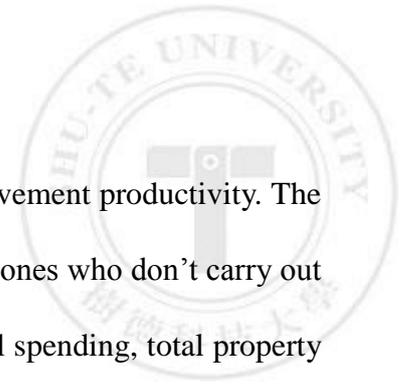


of every member in the organization that can be easily monitored by leaders via monitoring processes. Team working has brought new culture to staffs such as more understandings of business status that can help companies to work more effectively as it is impossible to cooperate with ones who know nothing about the organization they are working for.

TQM is an approach to the business productivity which began in Japan in 1950s. In the beginning of 1980s, it became more popular in the West and asserted its solidity.

TQM orients customers, business culture, aims at widening the market, faithful customers, business's behaviour which satisfies customer needs. The modern quality includes all business's activities from the behaviour of the highest manager, medium manager to the answering customer phone calls, the bills, the time in supplying and installing services, etc. What we are doing guarantees supplying the customers with the no-fault goods.

TQM is a method of approaching and using the business's human resources to serve the customer needs and making profits for the related. There is an increasing in the number of organizations which use the quality management as a base to achieve the competing advantages (Reed, et al. 2000), improve the business results (Robson, et al 2002;. Brah, et al. 2002; Samson and Terziovski, 1999) , and increase the business development (Robson, et al 2002), etc. TQM is a series of theoretical and practical instructions, like a philosophy which not only manages the quality of goods and services but also the quality of human and working. Many researchers have founded an

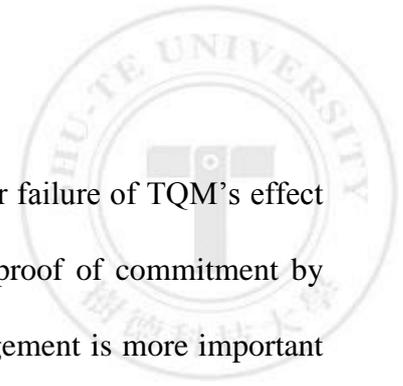


active association between the introduction of TQM and improvement productivity. The companies who carry out TQM successfully are better than the ones who don't carry out TQM in many aspects such as profits, revenue, expense, capital spending, total property and employee (Hendricks and Singhal, 1997). However, some researches have pointed out that TQM does not have good effect in improving productivity. In some cases, it even creates worse productivity. The final success and benefit from TQM depend so much on the organizing context, such as the organizing culture, business moral, company size, product's specific characteristic and the characteristics of the industry (Brah, et al 2002).. Many researches in practising TQM have been carried out to understand and determine the effect of ISO 9000 standard (Rahman, 2001). The research results say that many companies use ISO 9000 standard as a springboard towards TQM (Gotzamani and Tsiotras, 2002). In fact, applying the Quality Management System (QMS) and ISO 900 by a certified organization has become a request from customers and consumers as a proof of the pledgement and ability of an organization.

The important part of TQM includes quality towards customers, pledgement of the highest manager such as CEO, resources to carry out TQM, to push up the continuous improvement, to react quickly, to act based on the truth, the participated employees and the TQM culture.

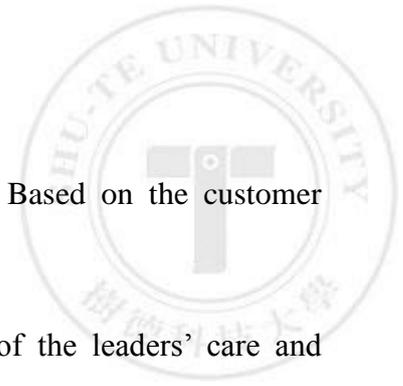
#### 2.4.1 Leadership

The commitment of top management is the first and foremost step leading to the



success of TQM. Lack of commitment is one of the reasons for failure of TQM's effect (Brown and partners, 1994). High management requires the proof of commitment by action more than words. If the viewpoint of top quality management is more important than cost, more important than the meeting about product plans and the awareness of staff can be improve easily. If the culture of the leader is not good, any effort in improving quality will end up with failure (Dale, 1999), (Juran and Gryan 1993). The top leaders should empower their staff in order to solve the problems and rely on the best staff (Dubrin, 1995; Juran and Gryan, 1993; Kolarik, 1995). The pride of empowerment makes people sublimate is defined as the force of development and the representation of individual awareness, reflection of orienting level of staff to their roles in their own jobs which means authority, self-determination and influences (Spretizer, 1995). It measures the level that the staff find they themselves can use their ideas and be active in doing their job (Hartline and Ferrell, 1996).

TQM is the way to survive for a company. TQM must be made known to every employee and the leader undertakes and manages through intermediaries. This is the important crucial point. Companies carry out TQM are often unsuccessful if their leaders do not undertake and instruct it but only spend money and entrust completely for some staffs like giving a blank cheque. The leaders must have clear pledgement with each participant who takes part in making quality and target about the general aims of the company in making and improving the systems, defining clearly methods and approaches to achieve these aims. The systems and methods instruct all quality



activities and encourage the participation of all employees. Based on the customer satisfaction to interact and manage payment for the employees.

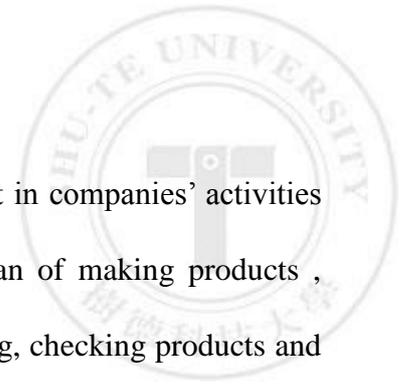
The businesses can not apply TQM if there is a lack of the leaders' care and pledgement which are shown through policies. They need to understand about quality, quality management and need to be determined in carrying out the aims and the quality policies.

In the current situation of Vietnam, the employees' standard is limited, so the role of the intermediary leaders is very important. Their duty is not only checking, supervising about also training and instructing the activities to improve quality in their businesses. They need to be delegated powers by the directors to actively solve any problems happen in production. Therefore, their pledgement will create advantages for the activities of quality groups in the workshop.

#### 2.4.2 Employee participation

The working basement of TQM in businesses is people there. When talking about quality, people always think about products' quality. However, the people quality is the first and foremost attention of TQM. Among three main blocks in businesses: hardware ( facilities, machines, capital,etc.), software (methods, secrets, information) and human, TQM begins with human part.

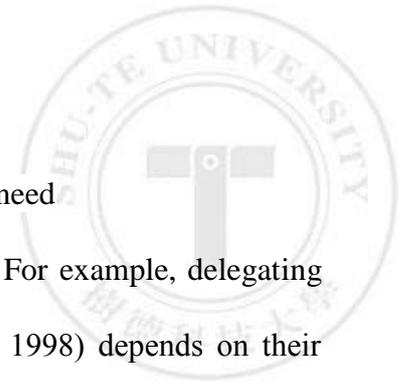
To prove this characteristic, the standard Z8101-81 of the Institute of Industrial Standard of Japan says that: “quality management must have the cooperation of everyone in companies, includes the key managers, the intermediary managers, the



supervisors and also the employees. They al-together take part in companies' activities such as market researching, making and carrying out the plan of making products , designing and preparing production, buying and selling, making, checking products and the services after selling as well as financial checking, employees managing and traing. This kind of quality management is called synchronous quality management TQM”

The pride of being delegated powers makes people feel wonderful is defined as a motivation to develop and show one own perception, reflect the orientation level of each employee to his working role, that means power, self-determination and influence (Spretizer, 1995). It measures the level at which employees think that they can use their own creation and do their work actively (Hartline và Ferrell, 1996). The employees can have their own idea in the process of supplying services, which is very important in the interrelation between the suppliers and the customers. They have motivation to show their creation and imaginary in the meeting to meet customer need and they are encouraged to to this (Bowen and Lawler, năm 1992; Ashness and Lashley, 1995). Benefits of delegating powers include a faster reaction to customer need and an idea resource for the new services. This is specially important in the case that they are expected to achieve the project's aims. Meeting customer need is motivation and necessary condition to delegate powers to the lower level (Lashley, 1995; Sternberg, 1992).

Delegating power is an important factor which determine the service quality. The delegated employees have their own decisions totake care of customer needs and solve



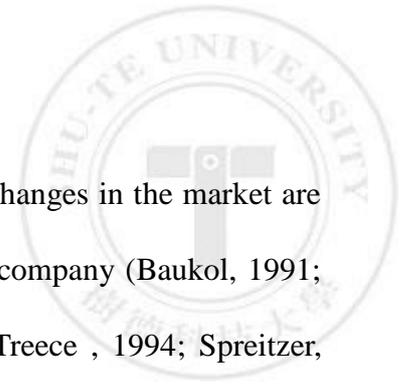
their problems to increase the service quality and the customer need

Delegating power leads to important result of behaviour. For example, delegating power increase employees' efficiency (Conger and Kanungo, 1998) depends on their own decision to serve customers the best (Gist và Mitchell, 1992). Delegating power also makes employees be more adaptable (Scott and Bruce, 1994). Thanks to delegating power, employees can perceive customer need and achieve the highest quality of service and standard. Delegating is an essential condition for the ideas to succeed and quality should be brought into the process of supplying service to solve customer need faster and better. Employees will supply better services and feel more proud of their work if they are trusted and delegated power to solve any problems about customers.

There are many advantages of delegating power to employees which are extolled by trial-employees' manager. Delegating more power to employees if possible, helps companies to keep their human by letting them train better, have more responsibility, better profit, more motivation and a bigger role in determining their companies' fate.

It's not easy to introduce TQM, culture collaboration must be made by managing. Employees must perform to know that they are responsible for customer need. They will not feel like that if they are eliminated from the development of vision, strategy and plan. It's important that they can take part in these activities. They have no ability to behave responsibly if they see that the managers are irresponsible- not to suit their words to their deeds.

Being effective and increasing productivity, restoring individual and business

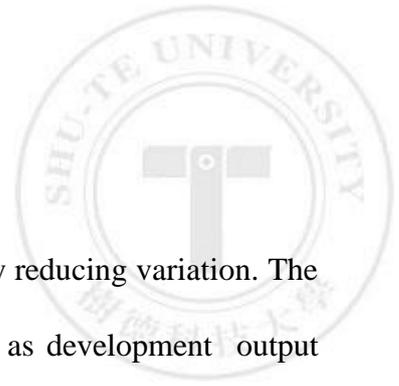


vitality, reforming quality and an ability to react faster to the changes in the market are also considered the results of a delegating power culture in a company (Baukol, 1991; Bowen and Lawler, 1992; Frey, 1993, 1994; Nelson, 1994; Treece , 1994; Spreitzer, 1995, 1996). (Frohman and Johnson, 1992) thinks that delegating power makes managers to have risks and reformation creates condition “top from the medium”, can overcome the medium management crisis in America. It’s interesting that it’s also remarked that some organizations can hold the benefits from the adversity of delegating power: allow to go when using remote controls. The goers are unsuccessful because they allow to go but not control, while the bustle people are unsuccessful because they appropriate the controlling power, but do not participate. In order to overcome the above shortcoming, the managers shoul only delegate power when they can control, or in other words, when delegating power, they have to prepare enough tools, abilities and policies to control them (Baker, 1994).

Because of the fact that the agricultural culture has great influence on Vietnam, the introduction of TQM needs to have time to adapt; therefore, in order to create a TQM culture in businesses, firstly, managers in all level must have TQM culture and TQM management skills so that employees can see the benefits of applying TQM

#### 2.4.3 Process Control and Improvement

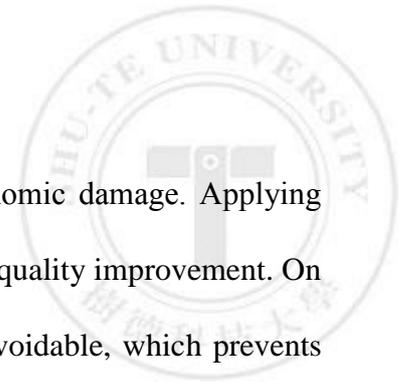
Process management focuses on managing to set up telecommunication service process so that it operates as expected: Without breakdowns, missing materials, fixtures, tools, etc., and despite workforce variability (Flynn et al., 1994). Process control can



make the process stable.

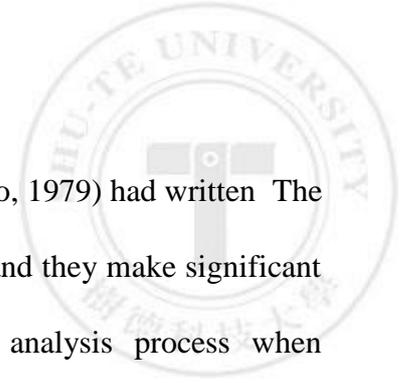
Process improvement purpose at managing and continually reducing variation. The reduction variation in process variation leads to benefits such as development output uniformity, employees work more efficiently, continual reduction of rework and mistakes and of machine time and materials (Deming, 1986). A speciality reason for quantifying process capability is to be able to compute the ability of the process to hold product tolerances (Juran and Gryna, 1993). Thus, if process capability can ensure production requirements, various processing parts or components can be ensured automatically. (Feigenbaum, 1991) stated that machines and automatically are a very important factor affecting product quality. Therefore, good equipment maintenance can contribute to product quality (Ollila and Malmipuro, 1999). The importance of quality tools, such as the seven QC tools, as aids in the work to improve quality has been stated by (Gaafar and Keats, 1992), (Ginder, 1990), (Imai, 1986), (Mizuno, 1979) wrote “These tools have been used as effective means of analysis and control, and they have contributed significantly to quality improvement.”, statistical process control, when effectively implemented and practiced, brings about process improvements (Juran and Gryna, 1993); first by eliminating special causes of variation and, second, by reducing common causes of variation. Much research has shown that good process management and using relevant quality tools have a positive effect on product quality (e.g., Adam, 1994; Mann and Kehoe, 1994).

The influential methods must be built in the prevention line “do right things from



the beginning”, from research and design stage to limit economic damage. Applying perfectly DEMING circle to create basement for the continuous quality improvement. On the other hand, in managing, the dispersing of statistics is unavoidable, which prevents us from measuring the quantity of the problems. Using the statistical tools is a systematical and scientific approach. Making adjustment decision must be based on events, statistics but not on feeling and experience. With these tools, we can control the matters related to the products’ quality in the whole production.

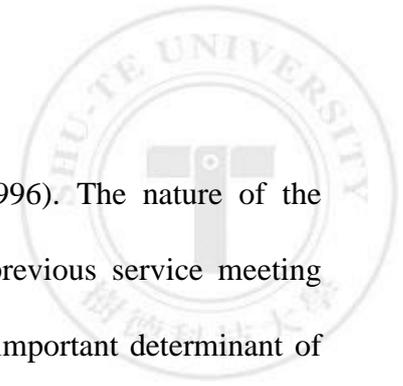
The centralized management process and manufacturing process can function as what is expected: if without problem, lack of device, means, tools and so on and even the labor fluctuates (Flynn and partners, 1994). The controlling procedure can stabilize the process by improving the management procedure and continually reducing fluctuation. The reduction of the variants in the process will result in many benefits such as increasing identical output, continually reducing the mistakes and time-consuming in redoing and wasting materials (Deming, 1986). One of the main reasons of the quantitative process is to calculate the capacity of the manufacturing process of product allowance (Juran and Gryna, 1993). Therefore, if the process can ensure the manufacturing requirement of different processing parts and the components that makes sure of the automation. (Feigenbaum, 1991) said that machine and mechanization are the important factors that affect product quality. Thus good maintenance devices can contribute to product quality (Ollila and Malmipuro, 1999). The importance of quality device such as seven of QC device, can help improving working quality basing on



(Gaafar Keats, 1992). (Ginder, 1990), (Imai, 1986) and (Mizuno, 1979) had written "The devices in use are the effective means of analysis and control and they make significant contribution to the improvement of quality". Controlling analysis process when performing and practicing of the improvement process, first by omitting special causes of changing and second by reducing popular causes of changing (Juran and Gryna, 1993) and (Anderson, et al. 1994). Many research had shown that good management and quality device in use affect positively the product quality (Mann and Kehoe, 1994).

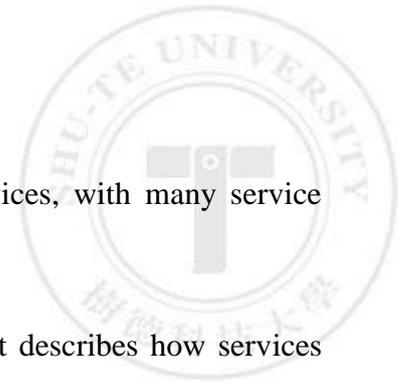
#### 2.4.4 Service quality.

TQM practice is the pre-period of quality service and in order to get quality service as expected, TQM must be practiced to the best possible. Service quality is generally viewed as an overall evaluation of services previously provided (Taylor and Baker, 1994). It has also been viewed as a multidimensional construction formed from consumer evaluation of a number of previous services - related attributes (Parasuraman et al., 1988, Brady and Cronin, 2001). As for previous service quality, literature review has seen a considerable debate on the multidimensional nature of construction (Cronin and Taylor, 1992; Parasuraman et al., 1991). Most of these debates focus on multi-dimension in terms of SERVQUAL scale and a consistent service quality measured previously as a gap between customer expectations and customer reviews of performance (Cronin and Taylor , 1992; Parasuraman et al., 1991). The result of this debate has been a general agreement that it is not necessary to measure consumer expectations about the earlier service performance in measuring service quality before



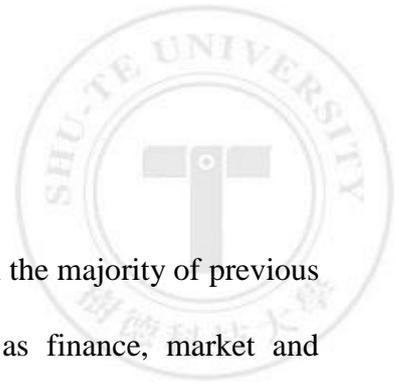
construction (Cronin and Taylor , 1994; Zeithaml et al., 1996). The nature of the previous interaction is the quality of what happens at the previous service meeting between consumers and former service providers. This is an important determinant of customer's reviews on previous service quality (Brady and Cronin, 2001). The previous environmental quality is associated with the extent to which the tangible features of services where previously services assume the role of establishing customers' awareness on the overall quality of previous quality (Brady and Cronin, 2001) . The quality of previous results is defined as the customer's evaluation on the results of previous service performance, including punctuality of previous service providers (Brady and Cronin, 2001).

Quality can be seen as product characteristics or totally omitting mistakes. (Kotler, et al. 2003) thinks that quality consists of two parts: technical and functional quality. Technical quality deals with visible side of service. It describes “what is provided” to customers or what crucial characteristics of products customers receive from service transference, (Brady and Cronin, 2001), (Kotler et al. 2003); (Murgulets et al, 2002.). A high quality telecommunication service must have the crucial characteristics which products need, for example, a modern technology infrastructure, a standard network, good in-out facilities, usefulness of standard services, the project designs and optimum scientific guarantee. However, service characteristics required by customers must be better and broadcast better the available transaction places for customers. For example, broadband quality must achieve varied services with many advantages for customers,



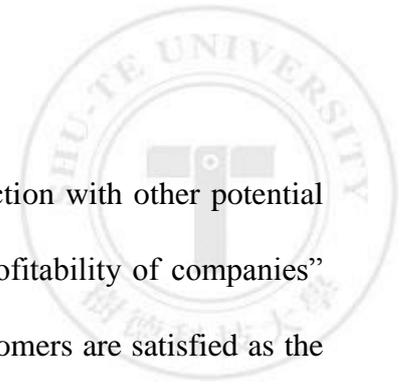
the value added services must be more than broadband services, with many service package to satisfy market divisions.

Functional quality deals with invisible sides of service. It describes how services are delivered. To be more specific, it means there is interaction between employees and customers in this service (Brady and Cronin, 2001; Kotler et al., 2003; Murgulets et al., 2002). There are three quality angles in customer perception ability: attitude, specialty and behavior (Cronin, 2001). First, in attitude angle, service management such as new definition of service quality should be taught to every employee, even though they work in different roles from manager, transaction employees, fee-collecting employees, line-mending workers, phone call-answering employees, etc, all must have gentle behavior to customers even when they are wrong. Second, in specialty angle, employees must have knowledge about their job which they must study day by day and company policies. If an employee do not perceive how his company is working, he cannot collaborate, which plays an important role with experienced customers. Third, in behavior angle, it's necessary to make customers feel that they are respected and treated by more diverse services and closer relationships from service suppliers, customers will come to suppliers more, (Parasuraman, et al. 1991). However, some research had studied the practice of TQM which brought about the success in business performance but there were also some research had proved that good quality checking service would result in the success in business activity and these research examined what the practice of TQM could bring in telecommunication and the effects on business performance.



#### 2.4.5 Business performance.

Review the effectiveness of the implementation of TQM in the majority of previous studies finding effective business operations in such areas as finance, market and investment performance. The production of top quality products is recognized as one of the most important strategic goals of the modern manufacturing companies. It is related to profitability, market share, and the survival rate of international competition in the world economy, (Wacker and Sheu, 1994). The Boston Consulting Group and Harvard Business School faculty has developed a widely quoted profit impact of marketing strategy database. It has been cited as a source of support for market share, which is positive and strongly related to the perceived quality of certain products of a company (Buzzell and Wiersema, 1981; Craigand Douglas, 1982; Garvin , 1984; Phillips et al, 1983). (Longenecker and Scazzero, 1993) conducted a case study of a manufacturing company that has lost its key customers due to quality problems of their products. (Primrose and Leonard, 1988) claim that product quality has a direct impact on sales, and therefore profits, and (Anderson, et al. 1994) also affirm that product quality pose a positive impact on customer satisfaction, providing high quality products and customer satisfaction are rewarded by higher economic returns. (Deming, 1986) said that improving product quality can reduce costs because of less rework, fewer mistakes, and better use of machine time and materials. Therefore, businesses can capture the market with better quality products. Finally, the company will stay in the business. A low product quality creates unhappy customers who will not only be open to review service



competition ", but will also be able to discuss their dissatisfaction with other potential customers. In short, raising product quality could improve profitability of companies” (Reed et al, 1996), (Reeves and Bednar, 1994) report that customers are satisfied as the company provides high quality products at a reasonable price, that is, the value offered by products are superior to other competing products. Therefore, high-quality products at reasonable prices will attract customers, and thus improving business performance of company's strategy. , says that product quality can contribute to growth sales and market share. (Juran and Gryna, 1993) assert that the evidence of quality importance to maintain current customers is remarkable. (Hackman and Wageman 1995), based on Deming's writing, put it that producing high-quality products is not only less costly but, in fact, is absolutely necessary for the survival of long-term institutions. According to (Juran and Gryna, 1993), the longer a company holds one client, the more profit it will get. Contents widely studied by (Anderson, et al. 1994) suggest that a good way to satisfy customers is via providing and improving product quality. Quality positively affects customer satisfaction, profits and market share. Finally, company's competitive advantage in the marketplace will be enhanced.



## Chapter 3 RESEARCH METHODOLOGY

### 3.1 Research Hypotheses and framework.

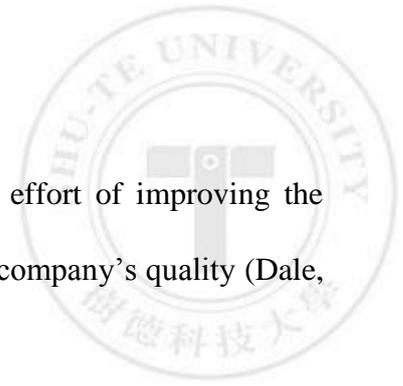
#### 3.1.1 Service quality and Business Performance.

Many studies have confirmed the strategic benefits of product quality and service. It has yet to increase market share and a greater return on investment (Cole, 1992; USA general office, 1991), as well as lower production costs in the long term and improves productivity (Garvin, 1983). Such as Chapter II presents the previous research, quality of service in the telecommunications sector includes all previous service will directly affect business operations in the field of telecommunications.

#### 3.1.2 Leadership and quality service

As for the Total Quality Management in the telecommunications sector, heads of organizations have strategies to ensure quality ranging from the beginning stages of technology-orientation, services, designing elements involved in the network and installation of the network elements, connections, training, management procedures and working groups, etc to the convenience of the registration service, service installation time, quality of materials, terminal equipment to answer customer phone calls, bills, etc.

Without the involvement and leading of top management are difficulties in improving the quality service and quality control. For the old economy in Vietnam, the decisions of improving quality service related to making and creating something did not exist before. There is no way for a telecommunication company to conduct the quality improvement if the top managers keep away from that problem. Involvement in top

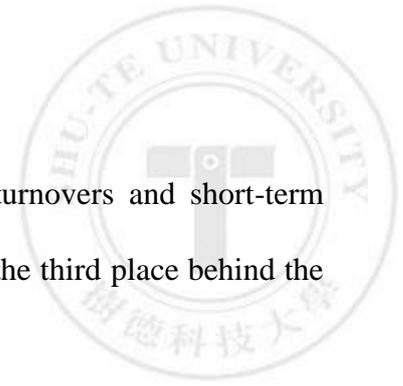


management is extremely important in order to promote the effort of improving the company's quality. It clearly helps spreading the awareness of company's quality (Dale, 1999; Ikezawa, 1993).

The economy changes from self-sufficient economy to market economy in Vietnam, the top management should be improved the capacity of managing the quality service by learning from books and other preceding companies and the world in order to encourage their staff, lead their staff and promote their creativity. Finally, the effectiveness of leading can be improved and the ability of making decision can be better (Anderson and partners, 1994; Bergman and Klefsjö, 1994; Dale, 1999); (Ikezawa, 1993; Juran and Gryan, 1993).

The staff can make decision in the service supplying process which concentrates on the interaction between the suppliers and their customers. They have the force in order to carry out their ideas and imagination in meeting the customers' requirement and they should be encouraged and promoted to do so (Bowen and Lawlwe, 1992; Ashness and Lashley, 1995). The benefits of empowerment contain the quick reaction for customers' requirement and the source of ideas for new services. It is absolutely important in case it is planned to carry out the aim of the project. Satisfying customers' requirement is the force and the necessary condition to empower the inferior (Lashley, 1995; Sternberg, 1992).

The top management should follow the long-term success of business in stead of short-term benefits. It should be concentrated on quality service rather than increasing



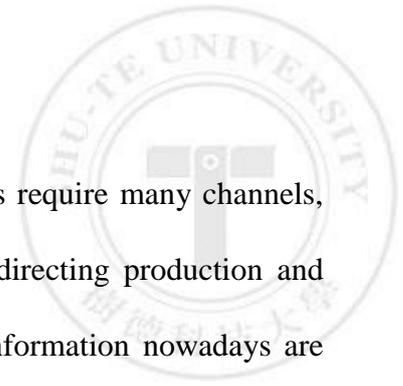
service. The hasty pursue of short-term benefit, short-term turnovers and short-term production can cause the decrease of quality which is only on the third place behind the concern of costs and prices.

One of the most important parts of top management is to make decision. Without real information, the best decision cannot be made. The real information can be obtained only by interviewing the customers. It is important to realize that the data merely show the symptoms not the actual causes. Therefore, it is better to manage the company basing on the reality rather than imagination (Bergman and Klefsjö 1994; Ikezawa, 1993).

### 3.1.3 Employee participation and service quality.

The staff participate in cross-function group in order to solve or examine the problems related to cross-function or chance of finding the improvement from the similar boards like a project. Usually, the highest leader appoint a team leader to solve the problem of time, money and personnel. The groups often break up after finishing the duties and receive what they deserve in term of money or experience. The cross-function groups can help in solving cross-function problems (Dale, 1999; Mann, 1992).

Applying the circle (QC) is one small group and volunteers to meet the requirement in usual meeting about the duty of quality improvement (Lillrank và Kano, 1989). The benefits the groups bring can be economy, improvement of procedure, bettering quality service or working environment. One group is responsible for carrying out the usual meeting in working time (Dale, 1999; Mann, 1992).



Exchanging information among participants in the groups require many channels, one popular mean in current telecommunication is Web of directing production and business, LAN, e-mail etc. The exchange and approach of information nowadays are extremely favorable since the technology and telecommunication provide every corner, every distance and at any time the various and cheap means and every company's strategy can be sent to their staff easily, different means that can be used in communication such as usual meetings, internal web, news-letters, posters, videos and broadcast (Dale, 1999; Juran và Gryna ,1993; Kolarik, 1995).

In VNPT annually there are the campaign of creating ideas, solution and there are many rewards for the benefits those ideas bring, in higher level, there are contest "Creativity VNPT" in national level with the reward of "Vietnam quality". Each of staff is committed to pursue further study to improve the ability and is acknowledged by their real ability and is treated fairly and reasonably. Each of staff should be encourage to function as an observer. As a result, the staff's commitment can be increased by responsibility (Ikezawa, 1993). The staff's commitment can be raised step by step. It is a process of increasing (Bergman and Klefsjö,1994; Kolarik, 1995). In Vietnam labor union often interact and visit the staff's families whenever they are in difficulties and protect them. Annually, carrying out the employee meetings in order to discuss different issues related to company's strategies, business plans, financial budgets welfare funds and commission rules and the changes in organization, payment method and education regulations so that they can see themselves as the boss of the company and leader class



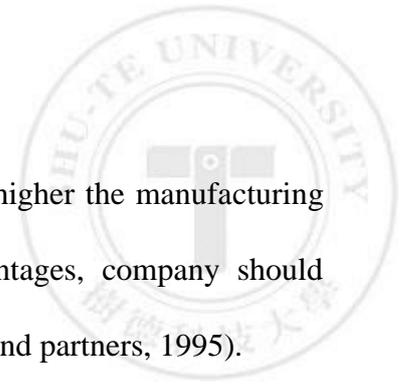
(communist party).

#### 3.1.4 Process control, Improvement and service quality.

The sanitation in the computer room of the telecommunication service company is necessary, each spell of duty, staff need to check carefully before changing spell of duty. The working environment should be cared such as temperature, light and noise and so on that affects seriously the working quality of the staff. It is also the outside environment and inside environment of devices like IC, electronics components that can be broken. Good hygiene can prevent the mass of dust on the moving parts and oil that make them not function correctly or electricity beakdown which result in poor items (Feigenbaum,, 1991; Juran và Gryna, 1993).

A effective procedure can reduce the process of providing telecommunication service, save time for the staff, provide customers with the best services, reduce the lack of costs. Therefore, company should do research about procedures that are highly stable, find out the reasons that cause the instability and omit them. Automatic procedure anc supply the capacity of exchanging the most useful information and meet the customers' quality service in time and control them. Information about procedure important information in establishing the limitation of reality technique features (Dale, 1999; Juran và Gryna,1993; Feigenbaum, 1991; Kolarik, 1995).

With the devices are the components in the telecommunication network, the company should maintain and replace periodically in order to prevent breakdown, increase safe level, reliability level, low cost of function, lengthen the life time and



better the ability of ensuring the quality services. In order to higher the manufacturing capacity of the company and higher the competition advantages, company should usually renew their manufacturing devices (Dale, 1999; Slack and partners, 1995).

The telecommunication that is often examined the quality of service will omit the mistakes happening after a long time operation and omitted before supplying the customers. In one aspect, it means producing mistaken product and all the examinations can be made are to find out the defects (Feigenbaum,1991; Juran and Gryna, 1993; Kolarik, 1995).

Based on the above reviews, the hypotheses are proposed as follows:

*H1: Service quality poses positive impacts on business performance.*

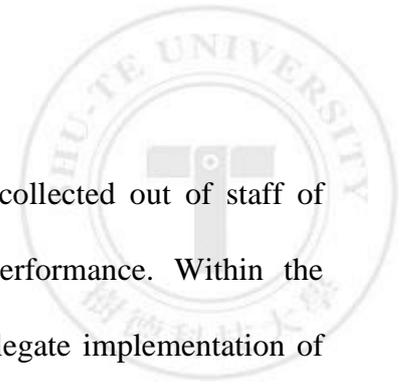
*H2: Leadership poses positive impacts on Quality service*

*H3: Employee participation poses positive impacts on Quality service*

*H4: Process control and Improvement poses positive impacts on Quality service*

### 3.1.5 Research Framework.

Framework of this research is built on the basis of the theoretical model of TQM practices and structures and its impact on business telecommunications activities. The combination of these factors impacts telecom business practices of TQM and business performance is shown in Figure 3. Hence, the framework of this study includes only 3 elements of TQM practices in the field of telecommunications services, 1 elements of quality services. This format is based on the assumption that the effective practice of TQM affects quality service, thereby impact on business performance. The hypothesis



was confirmed by the survey data from 250 questionnaires collected out of staff of VNPT and VDC.. Service quality impacts on business performance. Within the framework of TQM, 3 elements of TQM is considered as delegate implementation of TQM in telecommunications services enterprises (Enablers), which can lead to improvements in business performance. In other words, business performance is the very result of the implementation of TQM. Elements from the theoretical model studied in chapter 2 are described in Figure 3.

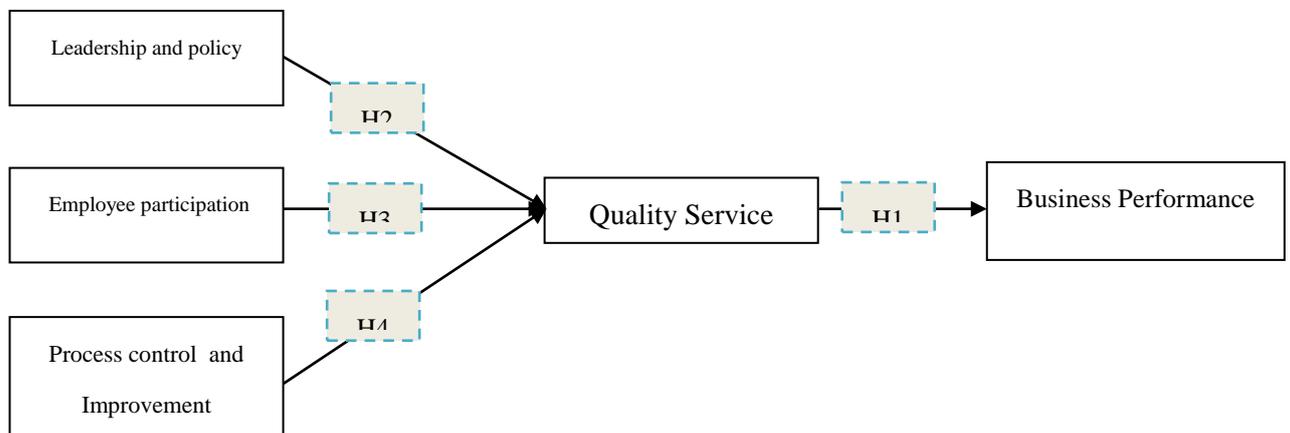
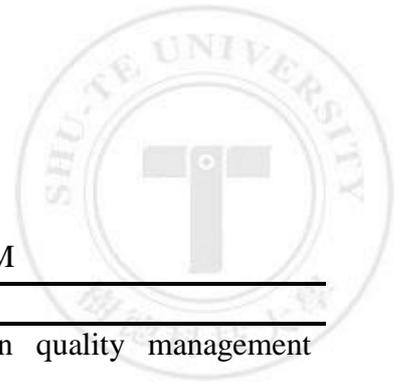


Figure 3. Research Framework for the Impact of TQM on Business Performance of the Telecommunication sector

### 3.2 Questionnaire Design Methodology and data analysis methods.

#### 3.2.1 Perceptions about TQM

There are three factors employed in this study in order to measure the feelings toward company with TQM implementation: “Leadership Feelings”, Feelings about Employee participation, and feelings about Process control and Improvement. By applying part of measurement scales derived from Rewarding Success Model (1994), TQM practices and Overall Business Performance by Zhihai Zhang including principle



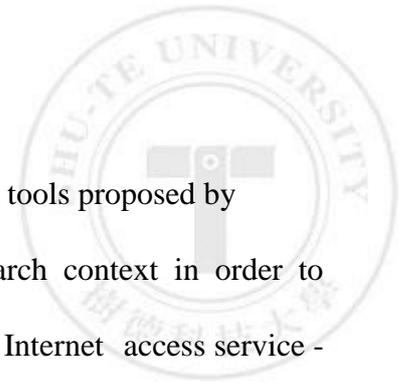
components. The factors are listed in Table 1.

Table 1. Items of Perceptions about TQM

Variable	Content of Item
Leadership	<ul style="list-style-type: none"> <li>▪ Top management actively participates in quality management activities.</li> <li>▪ Top management learns quality-related concepts and skills.</li> <li>▪ Top management strongly encourages employee involvement in quality management activities.</li> <li>▪ Top management empowers employees to solve quality problems.</li> <li>▪ Top management arranges adequate resources for employee education and training.</li> <li>▪ Top management discusses many quality-related issues in top management meetings.</li> <li>▪ Top management focuses on product quality rather than yields.</li> <li>▪ Top management pursues long-term business success.</li> </ul>
Employee participation	<ul style="list-style-type: none"> <li>▪ Our firm has cross-functional teams.</li> <li>▪ Our firm has several QC circles (within one function).</li> <li>▪ Employees are actively involved in quality-related activities.</li> <li>▪ Our firm implements suggestion activities extensively.</li> <li>▪ Most employees' suggestions are implemented after an evaluation.</li> <li>▪ Employees are very committed to the success of our firm.</li> <li>▪ Employees are encouraged to fix problems they find.</li> <li>▪ Reporting work problems is encouraged in our firm.</li> <li>▪ Our firm is kept neat and clean at all times.</li> </ul>
Process control and Improvement	<ul style="list-style-type: none"> <li>▪ Process capability can meet production requirements.</li> <li>▪ Production equipment is well maintained according to the maintenance plan.</li> <li>▪ Our firm implements various inspections effectively (e.g., incoming, process, and final products).</li> <li>▪ Our processes are designed to be “foolproof” in order to minimize the chance of employee error.</li> <li>▪ Our firm uses the Seven QC tools extensively for process control and improvement.</li> <li>▪ Our firm uses SPC extensively for process control and improvement.</li> <li>▪ Our firm uses PDCA cycle extensively for process control and improvement.</li> </ul>

Source . Zhihai Zhang (2001)

### 3.2.2 Perception Service quality.



This study employs part of SERVQUAL model and measuring tools proposed by Parasuraman et al. (1985) that have been adapted to research context in order to measure the QoS and Standard TCN 68-227: 2006 "ADSL Internet access service - quality standards" is built on the basis of revised industry standard 68-227: 2004 "ADSL Internet access services - Quality Standards" according to the recommendations of the International Telecommunication Union (ITU), Institute for European Telecommunications Standards (ETSI) issued Decision No. 55/2006/QD-BBCVT dated 25/12/2006 of the Minister Post and Telecommunication, Vietnam. The factors used for measuring quality of services are listed in table 2

Table 2. Items of Perceptions about Quality service

Variable	Content of Item
Quality service	<ul style="list-style-type: none"> <li>▪ Tangibles. Physical facilities, equipment and appearance of personnel.</li> <li>▪ Reliability. Ability to perform the promised service dependably and accurately.</li> <li>▪ Responsiveness. Willingness to help customers and provide prompt service.</li> <li>▪ Assurance (including competence, courtesy, credibility and security). Knowledge and courtesy of employees and their ability to inspire trust and confidence.</li> <li>▪ Empathy (including access, communication, understanding the customer). Caring and individualized attention that the firm provides to its customers.</li> </ul>

Source: Van Iwaarden et al., (2003)

### 3.2.3 Perception about Business performance

This study has measurement scale derived from research by Zhihai Zhang, (2001) regarding TQM practices and Overall Business Performance that well meets the research objectives in the telecom service sector as indicated in table 3.

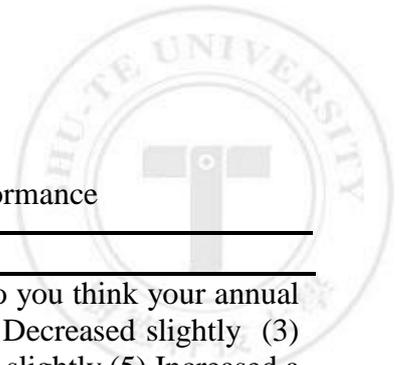


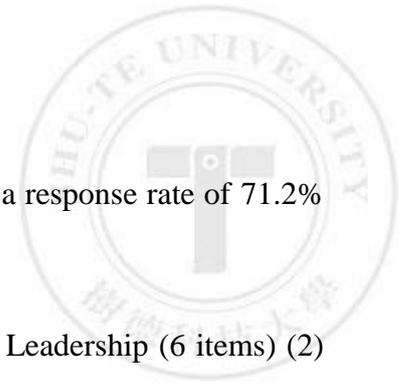
Table 3. Items Perception about Business performance

Variable	Content of Item
Business performance	<ul style="list-style-type: none"> <li>▪ Compared with the previous year, do you think your annual sales:(1) Decreased a great deal (2) Decreased slightly (3) Stayed almost the same(4) Increased slightly (5) Increased a great deal</li> <li>▪ Do you think your firm was: (1) Losing money badly (2) Losing money slightly (3) Breaking even (4) Making some profits (5) Very profitable</li> <li>▪ Do you think your firm was:(1) Losing money badly (2) Losing money slightly (3) Breaking even (4) Making some profits (5) Very profitable</li> <li>▪ The employee satisfaction level in your firm</li> <li>▪ Product and service Quality</li> <li>▪ The customer satisfaction level for service quality provided by your firm</li> </ul>

Source . Zhihai Zhang (2001)

### 3.2.4 Data analysis

The study employs the approach of questionnaire survey to collect data from internal customers of companies providing telecommunications services ADSL and provincial VNPTs in Vietnam, and all the items asking for a five-point Likert response scale ranging from 1 = "strongly disagree," through 3 = "no opinion" to 5 "strongly agree". The research selects employees from companies operating in the Telecommunications sector and ADSL broadband Internet service to be specific, in VNPT Namdinh and branches of VDC in the Ha Noi, Da Nang, Ho Chi Minh, Vietnam that represent 64 provinces in Vietnam. A survey questionnaire was developed to obtain feedbacks on their opinions on different variables from the employees of companies providing Telecom ADSL services, 250 questions were sent through the mail, of which 180 responses were received and 2 of them were incomplete. The remaining 178 valid



questionnaire were used for quantitative analysis. It represents a response rate of 71.2% of usability.

The structure of this study is divided into 5 elements: (1) Leadership (6 items) (2) Staff's Participation (06 items), (3) Control processes and Improvement (6 items), (4) Quality service (06 items), (5) Business Performance (6 items). After data collection has finished, the researcher used SPSS 17.0 software for the analysis of data collected.

Once the questionnaires are sent back, the following analysis will be performed and the results will be presented in the next chapter.

### 1. Descriptive Statistics

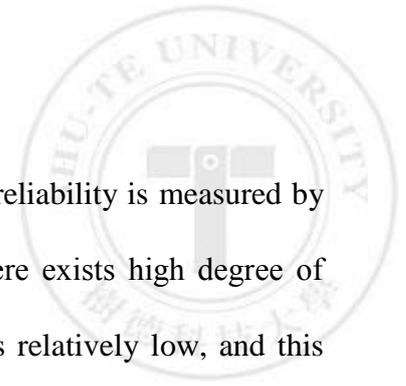
The detail description of the respondents' personal data, such as sex, age, mission years, current vị trí position at your company, diploma and so on will be analyzed. Every construct of the data will be analyzed in percentage, frequency distribution in order to know the sample distribution.

### 2. Factor Analysis

Factor analysis is a technical used to identify factors that statistically explain the variation and co-variation among measures. Factor loading of an item must be greater than 0.5. Eigenvalue needs to be greater than 1; the difference between two eigenvalue needs to be greater than 0.3.

### 3. Reliability Analysis

Reliability applies to a measure when alike results are obtained over time and across situation. Open minded defined, reliability is the degree to which measures are



free from error and therefore yield consistent results. Usually reliability is measured by Cronbach's  $\alpha$ ; if it is greater than 0.7, then it means that there exists high degree of reliability, if less than 0.5, then it means that the reliability is relatively low, and this coefficient needs to be deleted.

#### 4. Regression Analysis

The purpose of regression analysis is to create a simple equation, in order to analyze the relationship between dependent variables and independent variable. The hypotheses in this study can also be tested by this method.

## Chapter 4 DATA ANALYSIS AND RESULT

This chapter presents the research results of the analysis associated with each research hypothesis. The first section describes data collection for this study. The second part describes the characteristics of the sample. The third section reviews the reliability and validity of the questionnaire. Under construction analysis, the variables were tested. To test this hypothesis, SPSS 17.0 was employed to help us analyze collected data.

### 4.1. Descriptive Statistics Analysis of sample demographics

For data collected from the survey the first phase descriptive analysis was used to capture the characteristics of the sample as internal customers in the telecom companies. The characteristics of the sample are described in Table 4. Study save information collected by 178 people working in telecommunications companies in the territory of Vietnam in the number of respondents accounted for 59.6% with 106 male and 72 female accounted for 40.4% of the total samples collected. Moreover, the percentage of the respondents for age between 20-30, 31-40, 41-50, and older than 50 are 23.0%, 39.9%, 18.0% and 19.1%, respectively, ages 31 to 50 majority with 57.9%. Also from the descriptive statistics of these samples, we can see that most of our respondents have mission years at company majority is from 6 – 10 more 55.1% with 98 respondents and below 1 years, 1 -5 years, over 10 year are 3.9%, 24.2% and 16.9%, respectively. Moreover, the statistic shows that current position of our samples mostly are leaders, managers, and workers which account for 91%. 70.2 % of total samples



have university degree, meaning that the human source in the telecom companies are high-quality human resources.

Table 4. Characteristics of Sample Demographics

<b>Measure</b>	<b>Item</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Sex	Male	106	59.6
	Female	72	40.4
Ages	Below 30	41	23.0
	30-39	71	39.9
	40-49	32	18.0
	Over 50	34	19.1
Mission years	Below 1	7	3.9
	1-5	43	24.2
	6-10	98	55.1
	Over 10	30	16.9
Current Position	Leader	57	32.0
	Manager	53	29.8
	Worker	52	29.2
	Other	16	9.0
Diploma	Primary	4	2.2
	Intermediate	36	20.2
	University	125	70.2
	Master	13	7.3

#### 4.2. Reliability Analysis of Research Variables

To test the reliability of the items measuring the constructs, to ensure that the measurement scale we designed for our questionnaire are highly representative of each variable, the Cronbach's  $\alpha$  is used. The reliability of the measurement for the five constructs is measured, including leadership and policy, Employee participation, process control and improvement, quality service, and business performance. Constructs with Cronbach's  $\alpha$  below 0.5 will be deleted.

Cronbach's  $\alpha$  is to test whether the measures are free from error. Throughout the test we find out that all of the Cronbach's  $\alpha$  are greater than 0.7, meaning that the

constructs have high reliability. The result is shown in the Table 5.

Table 5. Reliability Test

<b>Constructs</b>	<b>Items</b>	<b>Cronbach's <math>\alpha</math></b>
Leadership And policy	6	0.976
Employee participation	6	0.985
Process control and improvement	6	0.988
Quality service	6	0.978
Business performance	6	0.986

### 4.3 Factor Analysis

Factor analysis can be used to identify the structure of relationships among respondents (or items) by examining the correlations between the respondents (or items). With the factor analysis, we can identify the separate dimensions of the structure and then determine the extent to which each variable is explained by each dimension. When define specified variables, we can do summarization and data reduction.

First, in order to assess construct validity and identify the unique dimensions of each construct, factor analysis with VARIMAX rotation was employed. In other words, it should demonstrate relatively high correlations between items of the same construct (convergent validity) and low correlations between items of constructs that are expected to differ (discriminant validity).

Table 6 shows the results of the VARIMAX rotation on the original 30 items constrained to five factors.

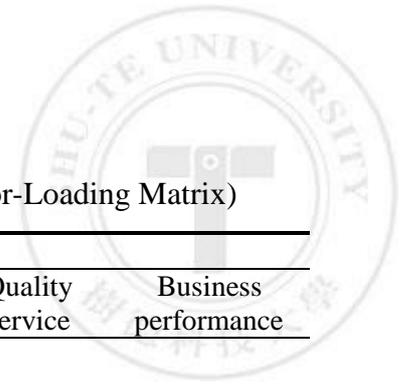


Table 6. VARIMAX Rotated Component Analysis (Factor-Loading Matrix)

<b>Factor loadings</b>					
	Leadership and policy	Employee participation	Process control and improvement	Quality service	Business performance
LP1	0.751				
LP2	0.745				
LP3	0.766				
LP4	0.755				
LP5	0.759				
LP6	0.777				
EP1		0.665			
EP2		0.713			
EP3		0.683			
EP4		0.677			
EP5		0.674			
EP6		0.700			
PI1			0.806		
PI2			0.777		
PI3			0.729		
PI4			0.764		
PI5			0.722		
PI6			0.770		
QS1				0.673	
QS2				0.714	
QS3				0.720	
QS4				0.731	
QS5				0.737	
QS6				0.747	
BP1					0.726
BP2					0.707
BP3					0.726
BP4					0.707
BP5					0.694
BP6					0.735

Hair et al believe that an item is significant if its factor loading is greater than 0.50.

From the initial 30 items, their factor loading is greater than 0.50 so it should of unusual excellence relatively high correlations between items of the same construct.

Then, eigenvalue as well as cumulative percent of variance explanation is shown in the Table 7.

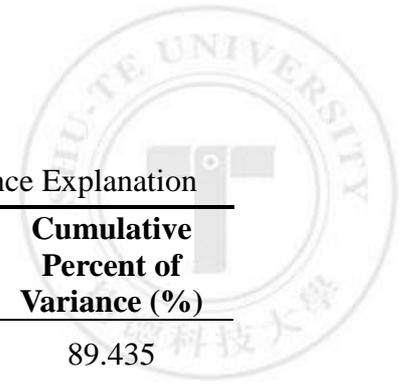
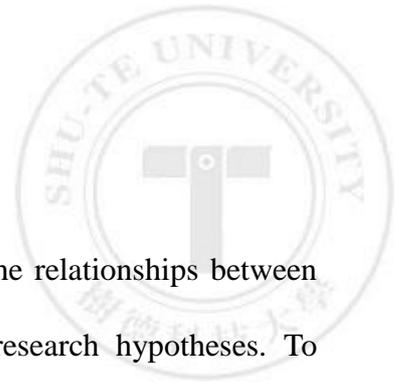


Table 7. Eigenvalue and Cumulative Percent of Variance Explanation

<b>Variable</b>	<b>Eigenvalue</b>	<b>Percent of Variance (%)</b>	<b>Cumulative Percent of Variance (%)</b>
Leadership and policy	5.366	89.435	89.435
Employee participation	5.598	93.301	93.301
Process control and improvement	5.668	94.463	94.463
Quality service	5.429	90.478	90.478
Business performance	5.631	93.853	93.853

From the Table 7, we can see that for the perceptions about the impact of Total Quality management on business performance of the telecommunication sector in VNPT Nam Dinh, Viet nam, the cumulative percentages of variance explained by the factors were greater than 89.43%. For the variables of Leadership and policy, cumulative percentages of variances explained by the factor were highest than 89.43% for one construct (6 items are analyzed). The variances of Employee participation, cumulative percentages of variances explained by the factor were greater than 93.30% for one construct (6 items are analyzed). Process control and improvement, cumulative percentages of variances explained by the factor were greater than 94.46% for one construct (6 items are analyzed), Quality service, cumulative percentages of variances explained by the factor were greater than 90.47% for one construct (6 items are analyzed) and Business performance, cumulative percentages of variances explained by the factor were greater than 93.85% for one construct (6 items are analyzed). All the Eigenvalues are greater than 1.



#### 4.4 Regression Analysis

In this study, linear regression was adopted to examine the relationships between independent variables and dependent variables to test our research hypotheses. To identify whether the higher level of Quality Service will lead to higher level of Business Performance (H1) is one of the research purposes. In the meantime, to identify whether the higher level of perceptions about the Leadership and policy, Employee participation and Process control and Improvement will lead to Quality Service trust of the telecommunication sector in VNPT Nam Dinh, Viet Nam (H2, H3 and H4) is also tested in this study.

##### 4.4.1. Linear Regression Analysis for Business Performance

The results of linear regression analysis for Business Performance are shown in the Table 8.

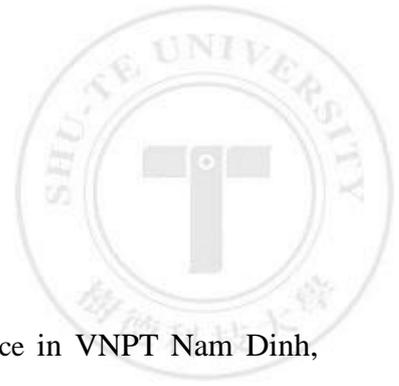
Table 8. Linear Regression Analysis for Testing H1

<b>Construct</b>	<b>Standardized coefficients <math>\beta</math></b>	<b>t value</b>	<b>R<sup>2</sup></b>	<b>Adj-R<sup>2</sup></b>	<b>F value</b>
Quality Service	0.820***	19.034	0.673	0.671	362.287***

Dependent variable: Business Performance

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

The final model shown in the Table 8 had a good fit ( $F = 362.287$ ,  $p = 0.000$ ). And at significant level 0.05, Quality Service (H1) has significant positive relationships with Business Performance of the telecommunication sector in VNPT Nam Dinh, Viet Nam . We also can see in the table that the adjusted R<sup>2</sup> value for the construct of Quality Service is 0.648, meaning that the explanation ability is good for our dependent variable,



Business Performance.

#### 4.4.2. Linear Regression Analysis for Quality Service

The results of linear regression analysis for Quality Service in VNPT Nam Dinh, Viet Nam are shown in the Table 9.

Table 9. Linear Regression Analysis for Testing H2, H3, H4.

Constructs	St. coefficients $\beta$	t value	VIF	R <sup>2</sup>	Adj-R <sup>2</sup>	F value
Leadership And policy	0.302***	4.574	3.092			
Employee participation	0.405***	5.269	4.209	0.755	0.751	178.888***
Process control and Improvement	0.223***	3.177	3.502			

Dependent variable: Quality Service

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

The final model shown in the Table 9 had a good overall fit (F = 178.888, p = 0.000). And at significant level 0.05, Leadership and policy, Employee participation and Process control and Improvement (H2, H3, and H4) have significant positive relationships with Quality Service in VNPT Nam Dinh. We also can find following the table, the adjusted R<sup>2</sup> value for three constructs are 0.755, this means that the explanation ability of the independent constructs is good for our dependent variable, Quality Service.

Based on these results, this study supposes to show the fitted model of “The impact of Total Quality management on business performance of the telecommunication sector in VNPT Nam Dinh, Viet nam”. Figure 4 is derived from the research framework with beta coefficients filled

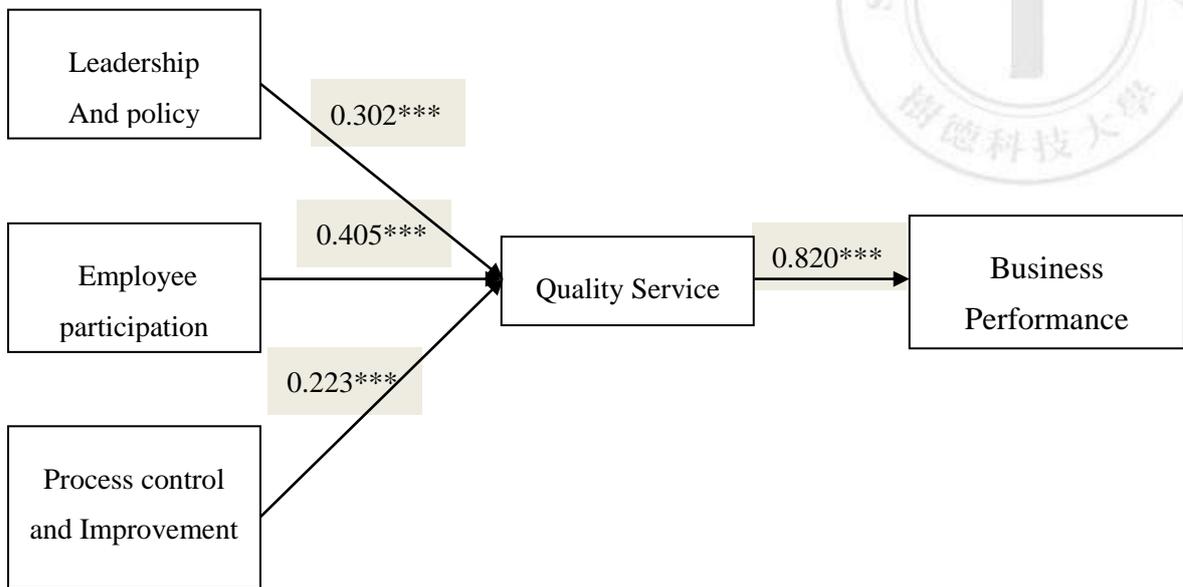


Figure 4. Path Coefficients for Research Model

(Path Significance \*\*\* $p < 0.001$ , \*\* $p < 0.005$ , \* $p < 0.05$ )



## Chapter 5 CONCLUSION

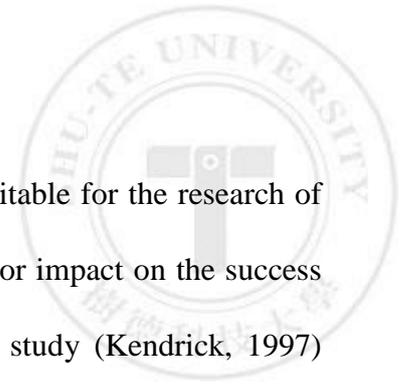
### 5.1 Research's Result

The aim of this research is to study how the process of managing quality thoroughly in the two companies VNPT and VDC in term of ADSL (Asymmetric Digital Subscriber Line) service retail affects the quality of the service. In the information systems, when the researchers study the impacts of application of TQM in manufacture and services, most of them find out the that application of TQM is successful when the high-ranking managers take part in the whole process and take control the human resource, encourage and support employees to take part in the process and control the process as well as improve the result as expected such as in a Japanese car firm and service companies in hotel and travel, medical fields, ... In the range of this research, the impacts of leaderships, employee participation, process control and improvement affects the telecommunication quality. The hypothesis given to study which is shown in the following table 8.

Table 10. Research Hypotheses and Results

<b>Research Hypotheses</b>	<b>Results</b>
H1: Service quality poses positive impacts on business performance.	Supported
H2: Leadership poses positive impacts on Quality service	Supported
H3: Employee participation poses positive impacts on Quality service	Supported
H4: Process control and Improvement poses positive impacts on Quality service	Supported

The results found in my research are suitable for applying TQM for other models

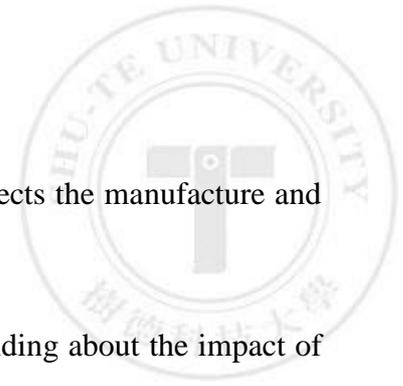


and Organizations (Powell 1995), (Wernick, 1991). It's also suitable for the research of (Buzzel & Gale 1987) about the service quality that has a major impact on the success of most of enterprises. It is also consistent with the natural study (Kendrick, 1997) indicated that the Leadership factor is the most importance in particular.

The study also points out that top managers must always be those who take charge of quality and result of assignment in the company and the participation of all the departments' managers in the company and support it so as to assure the service to be stable and sustainable. The study also points out the importance of that fact that all members of the companies participate in the quality program of the company. Employees need to be trained in term of quality and must be rewarded for their efforts. In the process of producing telecommunication products and services, the performance of the company depends much on the quality of the service, so the manufacture in the company really affects the quality of the services, including from the computer room clearance, equipment maintenance, automating the process, clear procedures, product testing, etc. to replying calls, or bills, all of which affect the performance of the company.

## 5.2 Contributions for research.

However, due to its scope, this research is only expected to help the readers have a clearer view about the impacts of the TQM application in telecommunication in Vietnam that has never been studied by any other researches before. In addition, nowadays with the development and integration of Vietnam to the more and more



competitive market economy, the service quality positively affects the manufacture and performance of the telecommunication companies in Vietnam.

The research also supply the readers with better understanding about the impact of management, participation of employees, controlling process and innovation affect the service quality of TQM on the performance of enterprises in field of telecommunication in Vietnam.

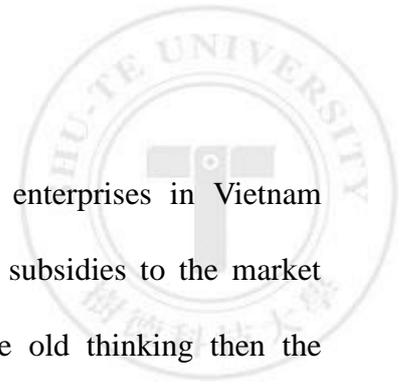
### 5.3 Limitation

Like other research, this one cannot avoid limitations during the process of studying.

Firstly, this research only studies the two companies VNPT Nam Dinh and VDC (The two companies was directly under VNPT Group) in Vietnam as samples and the subjects of the research is their employees then it doesn't represent the whole society but only some enterprises in telecommunication.

Secondly, this research does not mention the environment, local areas where the different politic institutions, policies of the government may affect the implementing process of TQM in enterprises and direct impacts on high ranking managers, who play an crucial role in the success of TQM application.

Thirdly, this research only mentions three factors in enterprises applying TQM, which are: management, participation of employees, process control, and innovations, then it doesn't assess thoroughly the impacts of sufficient TQM application in a company.



Fourthly, this research only choose telecommunication enterprises in Vietnam which is on its way to reform the economy from system of subsidies to the market economy. Then, these companies are highly affected by the old thinking then the managers inherit both two periods of Vietnam. As a result, the research shouldn't be applied to other foreign companies though they are in the same area with Vietnam and share many things in common in term of culture.

In the end, this research only focuses on the samples which are the members of telecommunication enterprises in Vietnam. These companies offer high salary attract a large amount of labor when the job is available to everybody with different level from primary level to master level. Employee samples are those with the university educational level making up for 62,9% and those who have worked for more than 10 years making up for 65,2%. Furthermore, ten years ago, VNPT, VDC were heavens for newly graduating university students then the survey can't avoid unfairness with an aim to advertise for the company's image.

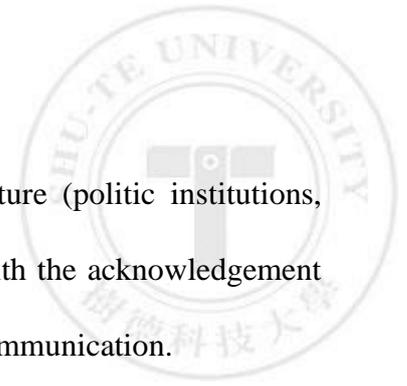
#### 5.4 Future Research Suggestions

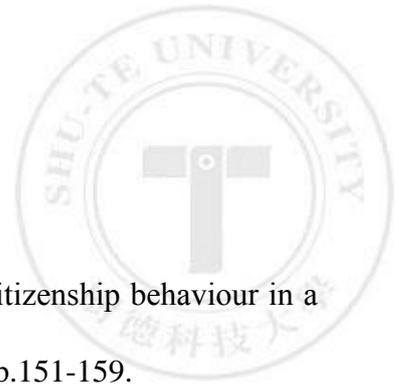
This research proposes that further research will help solving limitations of its.

Firstly, a copied of this research is more useful if it is studied in a larger scope which covers all enterprises in telecommunication in all geography and culture conditions.

Secondly, the further research needs to study all the impacts of applying TQM on the service quality in telecommunication.

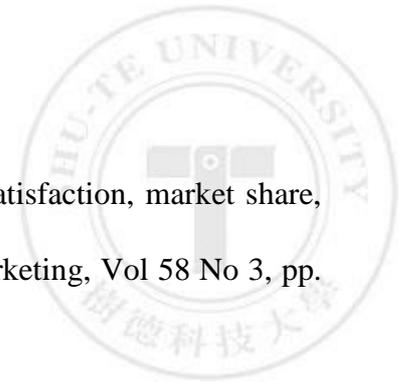
Thirdly, other factors such as environment, society, culture (politic institutions, national culture, etc.) along with this research will offer us with the acknowledgement of impacts of implementing TQM on the performance of telecommunication.



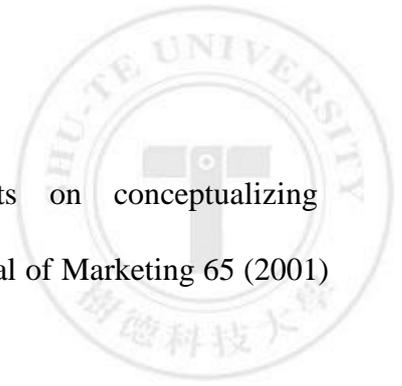


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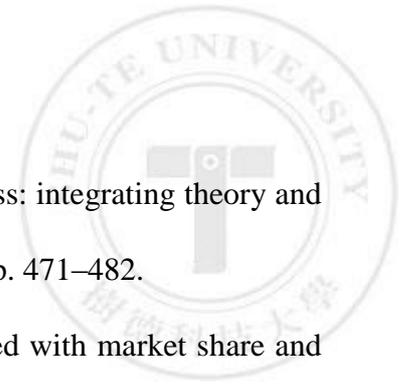
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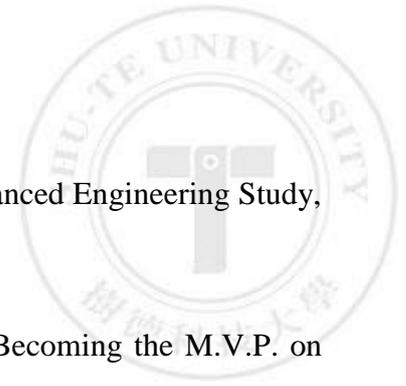
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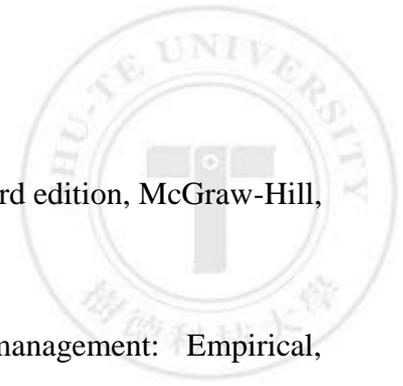
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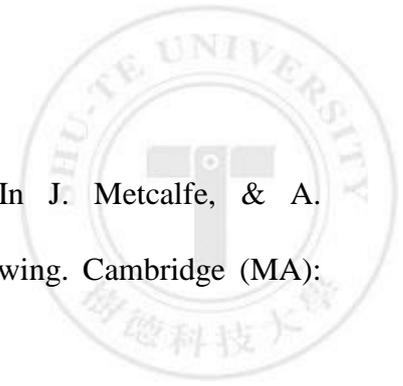
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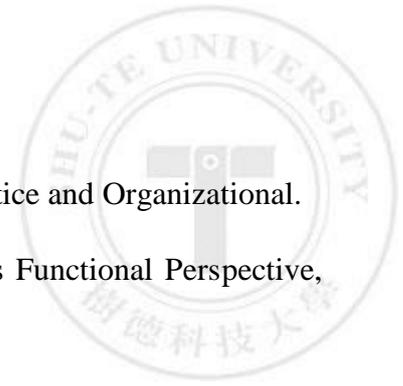
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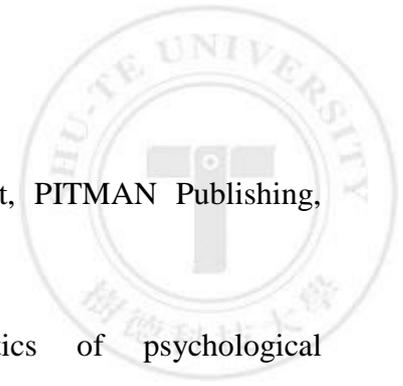
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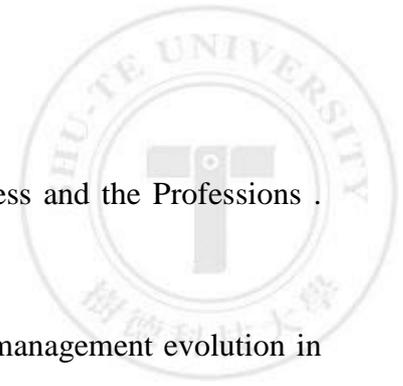
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## APPENDIX-2

### RESEARCH QUESTIONNAIRE SERVEY

Shu-Te University - Information Management Department

Dears, I am now a student who is finishing my master research under the control of Dr. Pi Chung Hsu in Information management department, Shu Te Uuniversity, Taiwan.

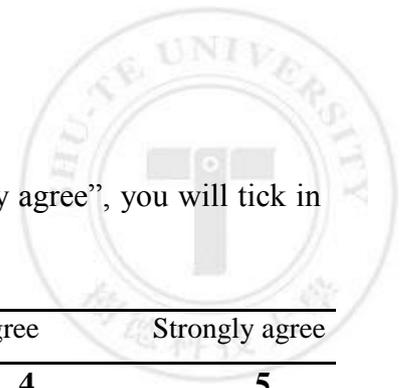
We want you to take part in this research. The name of the research is: “The impacts of totally quality management on Business performance of the telecommunication sector in VNPT Nam Dinh, Vietnam”

We always welcome and highly appreciate your opinion about the issue mentioned in this research. In research require you to complete the questionnaire (4 pages) which including your own opinion (if any). This research is part of my graduating conditions. Then, I would like you to read the question carefully before and answer all the questions. In this questionnaire, you don't have to supply your name or other specific personal private information. Any information that you give us will be kept in secret and it will not be revealed to any organizations or individuals. Thank you for your participation in this research. Sincerely yours,

Nguyen Van Tinh

#### **Part 1: Content of the questionnaire**

We would like you to read the following questions carefully and then tick in the part correlatively. There are 5 levels for answer numbered from 1 to 5, “Strongly disagree or Very low” to “strongly agree or Very high”. You can choose only one



option for each question. For example, if you choose “Strongly agree”, you will tick in these following cells.

Strongly disagree	Disagree	No idea	Agree	Strongly agree
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Very low	Low	Average	High	Very high

**Question (Note: only one answer for each question)**

**Practice of total quality management**

**Leadership and policy**

Highest managing position (The person who takes charge of profit of the company) has responsibility for the result of quality

1 Vị trí quản lý cao nhất (Người phụ trách lợi nhuận của công ty) có trách nhiệm về kết quả chất lượng

Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					

Top management empowers employees to solve quality problems

2 Trao quyền cho nhân viên quản lý hàng đầu để giải quyết vấn đề chất lượng

Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					

Director of Departments, committee in the company has responsibility for the quality

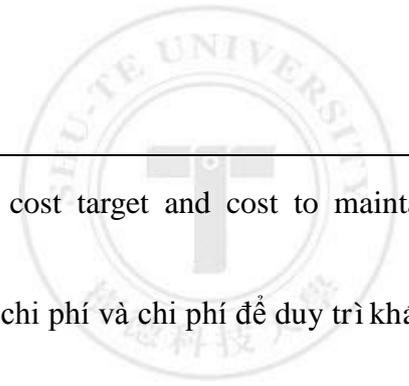
3 Giám đốc các Sở, ban trong công ty có trách nhiệm về chất lượng

Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					

Top managers support the process of quality improvement

4 Quản lý cấp cao hỗ trợ quá trình cải tiến chất lượng

Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					



The Importance of product quality in comparison with cost target and cost to maintain customers basing on the Company's view.

5

Tầm quan trọng của chất lượng sản phẩm so với mục tiêu chi phí và chi phí để duy trì khách hàng dựa trên quan điểm của Công ty

Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					

The level of overall quality plan in the organization

6

Mức kế hoạch chất lượng tổng thể trong tổ chức

Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					

### Staff's Participation

The level of cooperation between committees and departments related in the process of developing products

7

Mức độ hợp tác giữa các ban, ngành liên quan trong quá trình phát triển sản phẩm

Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					

Effectiveness of the program "quality group" or "People's participation" in the organization

8

Hiệu quả của các "nhóm chất lượng" chương trình hoặc "sự tham gia của nhân dân" trong tổ chức

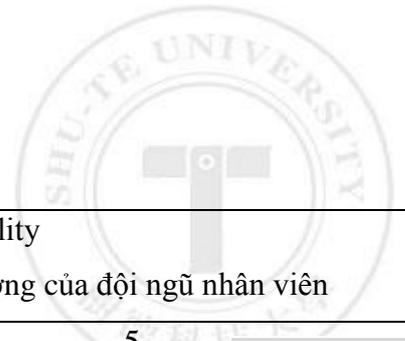
Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					

Level of staff's responsibility for output without mistakes during their operation

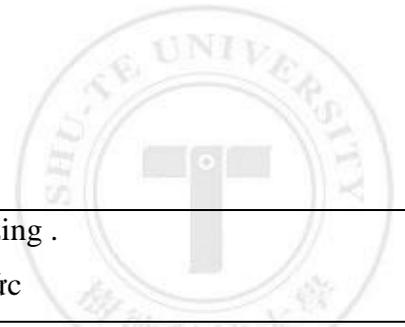
9

Mức độ trách nhiệm của nhân viên cho đầu ra mà không có những sai lầm trong quá trình hoạt động

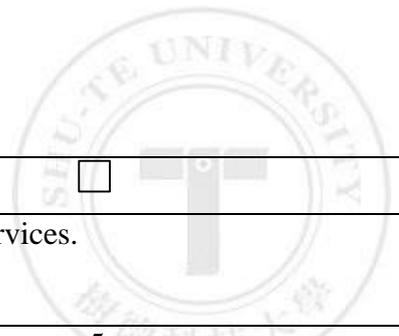
Very low	1	2	3	4	5	Very high
	<input type="checkbox"/>					



The level of participation in decisions related to staff's quality	
Mức độ tham gia vào các quyết định liên quan đến chất lượng của đội ngũ nhân viên	
10	
Very low	1 2 3 4 5
<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Very high	
Level of staff recognized about with their excellent quality result	
Cấp độ của nhân viên được công nhận về chất lượng với kết quả xuất sắc của họ	
11	
Very low	1 2 3 4 5
<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Very high	
Level of Company's training staff with problems related to staff quality.	
Mức độ đào tạo nhân viên của công ty với các vấn đề liên quan đến chất lượng đội ngũ nhân viên	
12	
Very low	1 2 3 4 5
<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Very high	
<b>Control Process and improvement</b>	
Level of performing maintenance of equipment.	
Mức độ thực hiện bảo trì thiết bị	
13	
Very low	1 2 3 4 5
<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Very high	
Level of automation in the process	
Mức độ tự động hóa trong quá trình	
14	
Very low	1 2 3 4 5
<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Very high	
The level of the process are clear guidelines for staff	
Mức độ của quá trình này được hướng dẫn rõ ràng cho nhân viên	
15	
Very low	1 2 3 4 5
<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Very high	



The level of compliance in the process of people in organizing . Mức độ tuân thủ trong quá trình của người dân trong tổ chức							
16	Very low	1	2	3	4	5	Very high
		<input type="checkbox"/>					
Number of trials, review or test input Số lượng thử nghiệm, xem xét hoặc kiểm tra đầu vào							
17	Very low	1	2	3	4	5	Very high
		<input type="checkbox"/>					
Number of trials, review or inspection process and final output Số lượng thử nghiệm, xem xét hoặc kiểm tra trong quá trình và đầu ra cuối cùng							
18	Very low	1	2	3	4	5	Very high
		<input type="checkbox"/>					
<b>Service's quality</b>							
Considerable increase in data download, upload Tăng đáng kể trong dữ liệu tải về, tải lên							
19	Strongly disagree	1	2	3	4	5	Strongly agree
		<input type="checkbox"/>					
Considerable increase in the availability of the service. Tăng đáng kể trong sự sẵn có của dịch vụ							
20	Strongly disagree	1	2	3	4	5	Strongly agree
		<input type="checkbox"/>					
Considerable increase in the time used to set up service. Tăng đáng kể trong thời gian sử dụng để lắp đặt dịch vụ							
21	Strongly disagree	1	2	3	4	5	Strongly agree
		<input type="checkbox"/>					
Considerable decrease in the complaint of customers about service's quality. Giảm đáng kể trong đơn khiếu nại của khách hàng về chất lượng dịch vụ							
22	Strongly disagree	1	2	3	4	5	Strongly agree
		<input type="checkbox"/>					



<input type="checkbox"/>				
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Considerable increase in the speed of customers support services.

Tăng đáng kể tốc độ của dịch vụ hỗ trợ khách hàng

23

Strongly disagree	1	2	3	4	5	Strongly agree
	<input type="checkbox"/>					

Customers assess that the quality of Company's products and services meet their expectation.

Khách hàng đánh giá rằng chất lượng của sản phẩm và dịch vụ của công ty đáp ứng kỳ vọng

24

của họ

Strongly disagree	1	2	3	4	5	Strongly agree
	<input type="checkbox"/>					

**Business performance**

Our company often satisfy with our revenue.

Công ty chúng tôi thường đáp ứng với doanh thu của chúng tôi

25

Strongly disagree	1	2	3	4	5	Strongly agree
	<input type="checkbox"/>					

Our company often satisfy with the profit gained from outstanding assets.

Công ty chúng tôi thường đáp ứng với lợi nhuận thu được từ tài sản tồn đọng.

26

Strongly disagree	1	2	3	4	5	Strongly agree
	<input type="checkbox"/>					

Our company often satisfy with the speed of market share growth.

Công ty chúng tôi thường đáp ứng với tốc độ tăng trưởng thị phần

27

Strongly disagree	1	2	3	4	5	Strongly agree
	<input type="checkbox"/>					

Our company often satisfy with the improvement of staff.

Công ty chúng tôi thường đáp ứng với sự cải thiện của nhân viên.

28

Strongly disagree	1	2	3	4	5	Strongly agree
	<input type="checkbox"/>					



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Our company often satisfy with gained quality  
Công ty chúng tôi thường đáp ứng với tăng chất lượng

29

Strongly disagree	1	2	3	4	5	Strongly agree
<input type="checkbox"/>						

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Our company often satisfy with profit  
Công ty chúng tôi thường đáp ứng với lợi nhuận

30

Strongly disagree	1	2	3	4	5	Strongly agree
<input type="checkbox"/>						

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**Part 2: Extra question**

Please complete the following information

**1. Sex:**

Male  Female

**2. Ages:**

Below 30  30 – 39  40-49  Over 50

**3. Misson years:**

Below 1 year  1-5 years  5-10 years  Over 10 years

**4. Current Positon at your Company**

Leader  Manager  Worker  Other

**4. Deploma**

Primary  Intermediate  University  Master

For any information, please contact: Nguyen Van Tinh  
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Thank you for your cooperation

Thanks

