CRITICAL SUCCESS FACTORS OF TOTAL QUALITY MANAGEMENT IMPLEMENTATION IN THE NIGERIAN BANKING SECTOR

BY

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CERTIFICATION

This is to certify that this project is the output of the research efforts of EKEOCHA, IJEOMA CHINENYE; Registration No.20004147418 of the Department of Project Management Technology Owerri and is hereby accepted as having met the requirement for the award of the degree of Masters of Business Administration (MBA) in Project Management Technology of the Federal University of Technology, Owerri.

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DEDICATION

Dedicated to my Friend, Lover, Husband, Counsellor and Soul mate

Late Sir Nnadozie Emenike Ekeocha (Flint)

ACKNOWLEDGEMENT

I wish to give all acknowledgement and glory to my Heavenly Father who made it possible for me to complete this project.

I also wish to recognize the encouragement and friendship from my course mates especially Mrs. Chi. Sanni, UcheMadubuike, Father Hillary and others to numerous to mention. The friendship and comradeship developed during our studies played a positive role in my attaining this feat.

I need to specially thank my supervisor Dr. O. T. Ebiringa for painstakingly review of my project. My lecturersProf. E. O.P.Akpan,Prof. F. P. O. Ukwuoma, Prof. G. F.Okorafor, Dr. E. C. Ubani and others.

My Late husband, flint who urged and motivated me to complete this work, unfortunately didn't live to witness this day. I dedicate this work to you for being a husband who believed and adored me. May the good Lord grant you the perfect peace you richly deserve.I also wish to thank my children for being there.

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ABSTRACT

This study investigates the critical success factors of TQM project implementation in the Nigerian banking industry as a strategy for improving the quality of service delivery to customers. In carrying out the study primary data were used and a combination of Factor and regression analytical tools was used in the analysis. The Objective Evaluation Questionnaire (OEQ) was the principal instrument used for data collection. Given the nature of the problem under study, one branch each of the twenty- four (24) bank licensed to operate in Nigeria at the time of the study were surveyed. The opinion of one (1) staff and one (1) customer in each instant were sought. To this end, a total of twenty-four (24) customers and twenty-four (24) staff formed our respondents. This therefore constituted the sample size for analysis. The results of the analysis among others shows that a four phased logically integrated approach made up of Design, Implementation, Enforcement and Sustainability can be adopted in the implementation of TQM projects by banks. The critical success factors of TQM Project design includes development of standard methods for quantifying customer satisfaction level; simplification of service process to reduce service time and formal documentation of top management policy on customer satisfaction. On the other hand the critical success factor of the implementation includes: continuous human capital training and development; commitment to reduction in Cost of service charged customers and promotion of the philosophy of team work among staff. As it relates to TQM policy enforcement, the critical factors includes: setting up of system for clear communication of rules, regulations and directives on standards; setting of system for customer involvement in product design and development and establishment of operational guidelines. A sustainability framework for TQM implementation for enhanced quality product/service delivery must ensure the setting up of mechanism for feedback from customers; setting up of a system for continuous monitoring and evaluation of levels of customer satisfaction and an effective system for staff motivation. The conclusion of the study therefore is that in the light of challenges of ever changing technology, economic and environmental issues, adopting the project management methodology in the implementation of TQM as found in this study by banks in Nigeria has the potential of leading to significant positive improvement in the quality of service delivered to customers.

Key words: Design, policy, implementation, enforcement, Quality, satisfaction, sustainability.

CHAPTER ONE

INTRODUCTION

1.1 OVERVIEW OF THE STUDY

Most bankers would like to believe that banks are in the finance industry, and not in the service industry. Thus they tend to compete in terms of financial prowess rather than service quality. People, resources, time, and systems are devoted more to managing assets and cash (operations) rather than managing customers and service (projects). In fact most bank systems are designed to control customers (objective of operations management) rather than satisfy customers (objective of project management). Products and procedures are set up for the convenience of the bank (non-project oriented) rather than that of the customer (project oriented). A big bank may have as many as many top executives as possible responsible such as General Managers: Information Technology (IT), Branch Development, Human Resources, Credit operations, Treasury operations, International Banking etc. for guarding its assets, but no one to take care of customer service and complaints. Banks usually give customer service and satisfaction very low priority, and accordingly assign it to low level managers, as the highest level officer for customer relations is mostly branch managers. Few or none of the bank's elaborate systems and structures are designed to ensure top management monitor and maintain customer loyalty.

The lifeblood of any business is its customers. Profit comes from sales minus cost. Sales must be realized first before cost becomes relevant. Customers decide sales based on their perception of product and service quality. In short, quality

determines profits, and customers alone define and determine what that quality is and should be, hence the need for business organizations to be project oriented.

Fast-food chains, airlines, hotels, supermarkets and other service sectors have started to embrace quality as their raison detre, following the success of the Project Management movement, known as Total Quality Management (TQM) in the manufacturing sector. Banks and other financial institutions, like insurance companies and investment houses, are relatively slow in shifting into this customer-first paradigm. Historically, banks were conceived as sophisticated control systems since it does business with the most liquid of assets: cash. Banks have to maintain image, reputation, and credibility in order to do their job as custodians of other people's money. But over the years, the complex systems and bureaucracy were set up and added in the name of control while sacrificing and neglecting customer service in the process.

Total Quality Management (TQM), which is about total customer service and continuous customer satisfaction, is applicable not only in the manufacturing industry but in the service sector as well, where the customer is just as important. In fact, customers in the service industry are more sensitive to service quality and service delivery than in manufacturing because they are always in contact with front-line service personnel, which is not the case with factory workers. These points-of-purchase contact or "moments of truth" decide whether the customer will come back or shift to the next door competitor.

The banking industry, often the biggest service industry in any country stand to benefit from TQM. For one basic reason: banks depend on customer satisfaction and loyalty for their survival, but ironically, very few really pay much attention to the plight of their clients - before, during, and after sales.

Many banks are managed by finance people, with little or no training in customer service. Good service does not happen naturally or by accident. Good service is planned and managed. Without planning, bad service is the natural state of affairs. As the quality guru, Deming put it, to improve service quality; one has to have profound knowledge of the service delivery system. Bankers tend to think that money - not the customer - matters. They find it hard to accept that banks are in the service industry in the same league as Hospitality organizations (Hotels and Eateries), transport services (Airlines and Shipping), Courier companies, Internet Access providers, Construction companies, Hospitals etc. Because of this antiquated paradigm, banks could not appreciate the excellent and valuable lessons in customer service and people management which these world-class service institutions could offer for free. Customer service will not improve if banks just learn and copy from other banks: the world class bank in terms of service does not exist yet.

In general, it may appear that the bigger the bank, the more inferior the service because of complacency and bureaucracy which stifle both innovation and efficiency in customer service. The big bank can lose customers because of bad or slow service but can easily replace them with new and even bigger customers, thus hiding the service problem.

1.2 STATEMENT OF PROBLEM

Presently banks are ranked, benchmarked, and judged of their success by sheer size, financial resources, and other quantitative measures which hardly indicate customer service quality: asset base, number of ATM's (automated teller

machines), number of transactions, number of depositors, amount of loans released, etc. Bank executives are mainly involved in asset management (the bigger the better), cash flow management, spread management (the wider the better), asset/liability management, and financial ratio analysis.

According to John A. Young, President & CEO, Hewlett - Packard, *"Our one major goal is to create satisfied customers. Hence, all systems, objectives, and measurements are designed to improve customer satisfaction."* A bank applying TQM should track as goals and benchmarks those that matter to the customer:

- processing times of key products and services, like loans, new accounts, ATM cards, credit cards, check encashment;
- waiting times like downtime and queuing time;
- customer complaints, written or verbal;
- friendliness and efficiency of staff;
- accuracy and timeliness of statements of accounts and records;
- effective interest rates, inclusive of all service and hidden charges;
- promptness in responding to customer inquiries such as in answering the phone, the number of rings before phone is picked up, and number of transfers before the caller talks to the right person.

1.3 OBJECTIVE OF THE STUDY

This study has the following as its objectives:

(i) To assess the level of perception and understanding of TQM as project management philosophy as well as a strategy for improved bank service delivery to customers by banks.

(ii) To identify the critical success factors for TQM project implementation for improved bank service delivery in Nigeria.

(iii) To assess the effects of successful TQM implementation in terms of measurable parameters of service delivery by banks in Nigeria.

1.4 RESEARCH QUESTIONS

In order to realize the above stated objectives, answers to the following research question will be sought:

1. What are the critical factors of successful TQM project design for improved service delivery by banks in Nigeria?
2. What are the critical factors of TQM project implementation for improved service delivery by banks in Nigeria?
3. What are the critical factors for successful TQM implementation for improved service delivery by banks in Nigeria?
4. What arethe critical factors of TQM policy enforcement for improved service delivery by banks in Nigeria?
5. What are the critical factors of TQM sustainability by banks in Nigeria?

1.5 STATEMENT OF HYPOTHESIS

H_{01} : TQM project implementation by the banksmay not led to significant positive improvement in the quality of service delivered to customers by banks in Nigeria.

1.6 SCOPE AND LIMITATIONS OF STUDY

In carrying out this work, the researcher faced a lot of constraints, the most imposing constraint was that of obtaining secondary data from the sampled banks. The researcher seeks to show the effect of TQM on bank service delivery and customer satisfaction. However, due to the unwillingness of banks to release secondary data on their operations, only primary data base on interviews of customers and staff as well as observations were used for empirical analysis. However, the study did not evaluate the effect of TQM adoption on the performances of the sampled banks as it relates to profitability and other financial indicators.

1.7 SIGNIFICANCE OF STUDY

This work will convey to the entire service industry especially banks the knowledge and importance of TQM as a strategic project management tool for ensuring continuous service quality improvement. Above all it emphasises the fact that customer satisfaction is a precondition for increased market share and profit maximization. To this extent the study brings to the fore the importance of proper Project Management knowledge in the development, implementation, monitoring, control and evaluation of systems designed to deliver services to customers. This to a large extent advocates the need for proper understanding that Project Management practice cannot be restricted to only engineering, construction and industrial processes. It therefore follows that Project Management application and practice knows no bounds.

CHAPTER TWO

LITERATURE REVIEW

2.1 Banking services defined

Financial services as well as other services, are characterised by intangibility, inseparability, perish ability and heterogeneity. (Meidan, 1996) They are intangible in comparison to goods, and it is difficult to separate production from consumption since the customer is part in the process of both producing and consuming. The perish ability lies in that the service cannot be stored for use later (Meidan, 1996; Grönroos, 1990). According to Meidan (1996) financial services very seldom can be standardised, thus the term heterogeneity. Meidan (1996) also argues that financial services lack identity. To customers, financial services look alike, andthe reason for using one before another is primarily due to convenience of for example branch location.When offering financial services three types of channels are needed (Peterson;Balasubramanian; Bronnenberg, 1997). These are communication channels for exchanging information between the service provider and the customer, distribution channels for the physical exchange of the service and transaction channels generating the sales activity.

Banking Services Delivery and the Internet: the need for quality improvement

Internet is a channel suitable for providing financial services since it enables two-way communication in real-time (Rust and Lemon, 2001) as well as distribution and transaction of financial services at the same time (Peterson; Balasubramanian; Bronnenberg, 1997).From the banks point of view, Internet

offers opportunities to create service processes that demand few internal resources, and therefore lowers the costs (Grönroos, 2000). Since Internet has no restrictions in location or hours of operations it also provides wider availability and a possibility to reach more customers. Real-time adjustments to a bank's offerings are possible, since the information presented on the Internet site can be updated at any time. Although on the Internet, the bank cannot differentiate the character of the branch from those of competitors. Instead it will be important to differentiate the service, concentrating on things like security, design and user friendliness of the Internet bank as well as creating of sustainable personal relationships with their customers. The absence of face-to-face contact might give customers a feeling of uncertainty and risk (Reichheld and Schefter, 2000) and a lot of reassurance might be needed before they will hand over personal details and preferences. Therefore it is important for the bank to show that it deserves the customers trust (Cappelli and Clancy, 1999), by using secure transaction software, provide clear explanations of the level of security and deliver one's promises.

For the customer Internet enhances the possibility to take more part in the process of service production and consumption and to affect the performance of the financial service (Rust and Lemon, 2001). This is because the customer himself/herself to a great extent carries out services on the Internet, instead of the branch personnel (Rust and Lemon, 2001; Grönroos, 2000; Meuter, Ostrom, Roundtree and Bitner, 2000). Since Internet is not constrained by either location or time (Augustson, BergstedtSten, 1999), it is possible to make use of a service provided on the Internet from off-site locations at any time. Thereby the customer does not need to travel to the bank to consume a service. Another feature of the Internet is that it increases the transparency because it offers the customer a possibility of getting a total view of banks

available in the market (Augustson, BergstedtSten, 1999). It enables the customer to obtain information on various competing services, which makes it possible to compare them and then select the one that best meets his or her requirements (Peterson; Balasubramanian; Bronnenberg, 1997). Therefore, creating loyalty among customers might be even more important in online banking than in conventional banking. (Muphy, 2000).

2.2 DEFINITION OF TQM

The goal of TQM is to build in quality from the beginning by making it everyone's concern and responsibility. TQM is a method by which management and employees can become involved in continuous improvement of the production of goods and services. It is a combination of quality and management tools aimed at measuring business and reducing losses due to wasteful practices. According to Collard (1989), TQM is a systematic way of guaranteeing that all activities within an organization happened the way they have been planned. He added that TQM is a management discipline concerned with preventing problems from occurring by creating the attitude and control that makes prevention possible.

Organizations now understand that success in any form is only actualized when customers are satisfied with quality and price. Thus, it is necessary for management to initiate in all departments and personnel the need for quality. In other words, TQM is not only a technique but also a strategy that affects everyone in an organization and embraces all aspects of work from the organization's mission to goal and objectives of each aspect of the operating system (Bentley, 1992).However, TQM is a management approach that originated in the 1950s and has steadily become more popular

since the 1980s. TQM is a description of culture, attitude and organization of companies that strives to provide customers with products and services that satisfy their needs. The culture require quality in all aspect of company's operations, with processes being done right the first time and defect and waste eradicated from operations. TQM is a management philosophy that seeks to integrate all organizational functions (marketing, finance, design, engineering and production) to focus on meeting customer's needs and organizational objectives. TQM views organization as a collection of processes, it maintains that organizations must strive to continuously improve these processes by incorporating the knowledge and experience of workers.

According to Bardan (1997), he views total quality management as a way of doing things in an organization which enables the organization to plan and consistently achieve continuous improvement in the quality, activities, process and have results of the purpose of satisfaction and even exceeding the need and expectation of both the internal and external customers. From this, one can deduce that the simple objectives of TQM is "DO THE RIGHT THING RIGHT, RIGHT THE FIRST TIME AND EVERY TIME".

Similarly, Chukwuigwe (1997) defines TQM as a management that is concerned with quality improvement, quality development and quality maintenance aimed at full satisfaction of the public.Crosby (1990) defines TQM as an approach which involves managing al phases of a business for quality, and in such a way that customers are totally satisfied with the product and services that they received and at a minimum cost too. TQM is a foundation of activities which includes:

a. Commitment by senior management and all employees
b. Meeting customers requirements
c. Reducing development circle time
d. Just-in-time/Demand flow manufacturing improvement team.
e. Reducing product and services cost
f. System to facilitate improvement
g. Employee involvement and empowerment
h. Challenging quantified goal and benchmarking
i. Focus on processes/improvement plan
j. Specific incorporation in strategic planning

All these show that TQM must be practiced in all activities by all personnel - manufacturing, marketing, engineering, R&D, sales, purchasing, human resources, etc.

2.1.2 PRINCIPLES OF TQM

The key principles of TQM are as follows:

1. *Management Commitment*
    a.) Plan (drive, direct)
    b.) Do (deploy, support, participate)
    c.) Check (review)
    d.) Act (recognize, communicate, revise)
2. *Employee Empowerment*
    a.) Training
    b.) Suggestion scheme
    c.) Excellence teams

3. *Fact Based Decision Making*
    a.) SPC (Statistical process control)
    b.) DOE, FMEA
    c.) The Seven statistical tool
    d.) Top (tram oriented problem solving)
4. *Continuous Improvement*
    a.) Systematic measurement and focus CONQ
    b.) Excellence team
    c.) Cross functional process management
    d.) Attain, maintain, improve standard
5. *Customer Focus*
    a.) Supplier partnership
    b.) Service relationship with internal customers
    c.) Never compromise quality
    d.) Customer driven standard

2.1.3 THE CONCEPT OF CONTINUOUS QUALITY IMPROVEMENT

TQM is mainly concerned with continuous improvement in all work from high level strategic planning and decision making to detailed execution of work elements on the shop floor. It stems from the belief that mistakes can be avoided and defects can be prevented. It leads to continuously improving capabilities, people, processes, technology and machine capability. Continuous improvement must deal not only with improving result, but more importantly with improving capabilities to produce better result in future. The five major areas of focus for capability improvement are demand generation, supply generation, technology, operations and

people capability.A critical principle of TQM is that mistakes may be made by people but most of them are due to faulty systems and processes. This means that the root cause of such mistakes can be identified and eliminated, and repetition can be prevented by changing the process.

2.1.4 THREE MAJOR MECHANISMS OF PREVENTION

1. Preventing mistakes (defects) from occurring (mistake proofing or poka-yoke).
2. Where mistakes can be absolutely prevented, detecting them early to prevent them being passed down the value added chain.
3. Where mistake re-occur, stopping production until the process can be corrected, to prevent the production of more defect (stop-in-time).

2.2.1 PROCESS OF TQM IMPLEMENTATION

A preliminary step in TQM implementation is to assess the organization current reality. Relevant preconditions have to do with organization's history, its current needs, precipitating event leading to TQM, and the existing employee's quality of work life. If the current reality does not include important preconditions, TQM implementation should be delayed until the organization is in a state in which TQM is likely to succeed.If an organization has a track record of effective responsiveness of the environment, and it has been able to successfully change the way it operates when needed, TQM will be easier to implement if an organization has been historically reactive and has no skill at improving its operating system, there will be both employee skepticism and a lack of skill change

agent. If this condition prevails, a comprehensive program of management and leadership development may be instituted. A management audit is a good assessment tool to identify current level of organizational function and area in need of change. An organization should be basically healthy before beginning TQM. If it has significant problems such as very unstable funding base, weak administrative system, lack of managerial skills, or poor employee moral, TQM should not be appropriated. However, a certain level of stress is probably desirable to initiate TQM.

Kantars (1983) addresses this phenomenon by describing building blocks which are present in effective organizational change; these forces include departure from tradition, a crises or galvanizing event, strategic decision, individual “prime mover” and action vehicles. Departures from tradition are activities usually at lower level or organization which occur when entrepreneurs move outside the normal ways of operating to solve a problem. A crisis, if it is not too disabling can also help create a sense of urgency which can mobilize people to act. In the case of TQM, this may be a finding cut or threat or demand from customer or other stakeholders improvement quality of services. After a crisis, a leader may intervene strategically by articulating a new vision of the future to help the organization deal with it. A plan to implement TQM may be such a strategic decision such as leader may then become a prime mover, who takes charges in championing the new idea and showing others how it will help them get where they want to go. Finally action vehicle are needed and mechanisms or structures to enable the change to occur and become institutionalized.

2.2.2 STEPS IN MANAGING TQM TRANSITION

The high failure rate in the implementation of management concepts puts a large question mark behind the effectiveness of positional power. Following the reasoning of Foucault (2003) and Callon&Latour (1981), power is distributed and cannot be confined. A salient example of this is Bruno Latour's investigation of the 'death' of the advanced public transportation system Aramis (Latour, 1996). Through his investigations, Latour found that no formal decision was made to cancel the project, but the group's collective action (or lack thereof) created a collective sense of a 'dead' project. In other words, no one had the power to sustain or cancel the project – the power was contained in the group's interactions.

This notion applies to all action programs, not only technological innovations or management concepts. According to Latour (1986) every person that is faced with an idea is free to translate it as he sees fit, ignore it completely or design a contrary action program (anti-program). Thus, the strength of an inscription and its associated action program depends on what the receiver does with it (Latour, 1998). Artifacts contribute in the creation and stabilization of networks, supporting and enforcing certain types of behavior (Latour, 1992; 1998), and the stronger support an actor can mobilize from other actors (human or non-human) the stronger the action program (Callon&Latour, 1981; Latour, 1987). Inscriptions can be strengthened through the mobilization of various artifacts. In some cases artifacts (technical devices, legal requirements etc.) leave the user/receiver with no alternative than to adhere to the inscribed action program. The inscription thereby becomes a prescription.

Backyard and Pritchard (1992) have outlined the basic steps in managing a transition to a new system such as TQM, they includes; identifying tasks to be done, creating necessary management structures, developing strategies for building commitment, designing mechanisms to communicate the change and assigning resources.Task identification would include a study of present conditions (assessing current reality, as described above), assessing readiness such as through a force field analysis, creating a model of the desired state. In this case, implementation of TQM announces the change goals to the organization and assigning responsibilities and resources. The final step will include securing outside consultation and training, assigning somebody within the organization to oversee the effort. This should be a responsibility of top management.

In the word of Cohen and Braud (1993) and Hyde (1992) they asserted that management must be heavily involved in leaders rather than relying on a separate staff person. An organization wide steering committee to oversee the effort may be appropriate.

Models for analyzing translation to TQM based Service System

Following Skålén (2002), the process of implementing a new management concept in an organization can be understood in terms of translation. Within the general management discourse – or organizational field, in Skålén's terms – various ideas and institutions circulate. As they are disseminated to organizations, they are translated and thereby changed. Each time an idea passes from one group or one level of abstraction to another, translation occurs.

According to Skålén, we can follow the process of translation from the discourse level into an organization, where it is translated and incorporated into the formal structure of the organization (or discarded). When the formal structure is to be converted into action within the organization, we can see a new process of translation taking place, again changing the idea (or discarding it). When actions become a routinized part of the processes, they form an institution, again translated and changed.

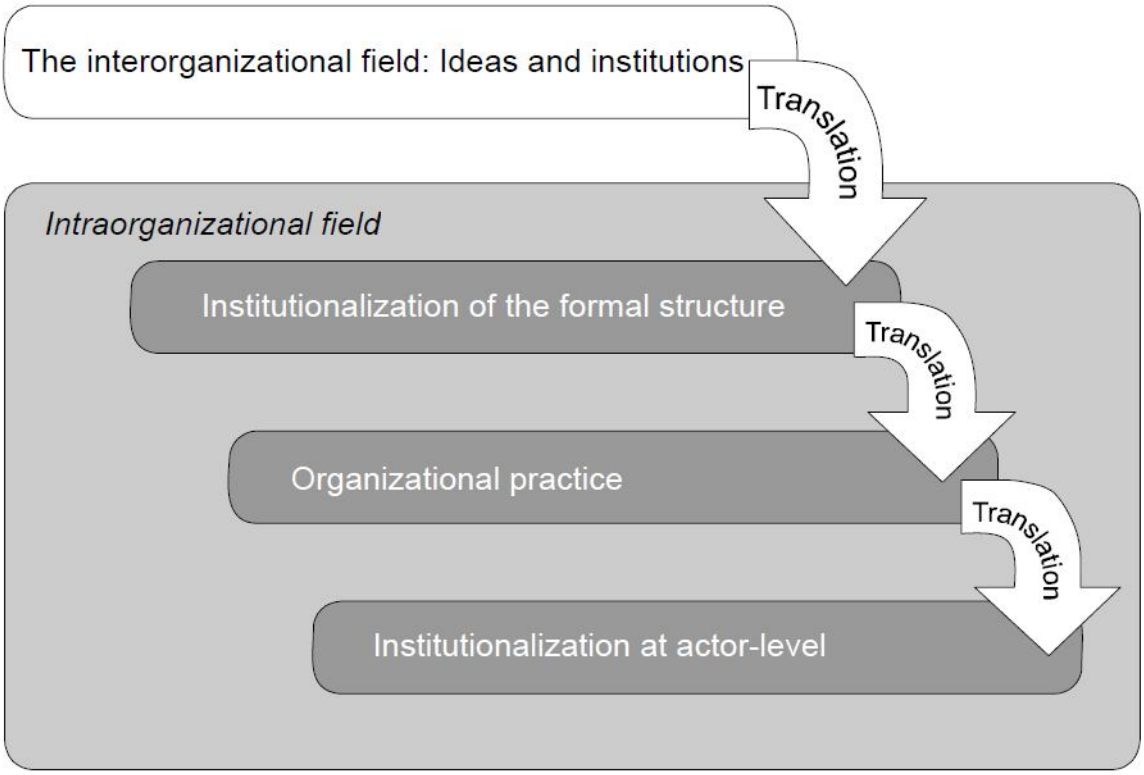


Figure 1 ***Tracing translation through three levels of abstraction, adapted from Skålén (2002, p. 45)***

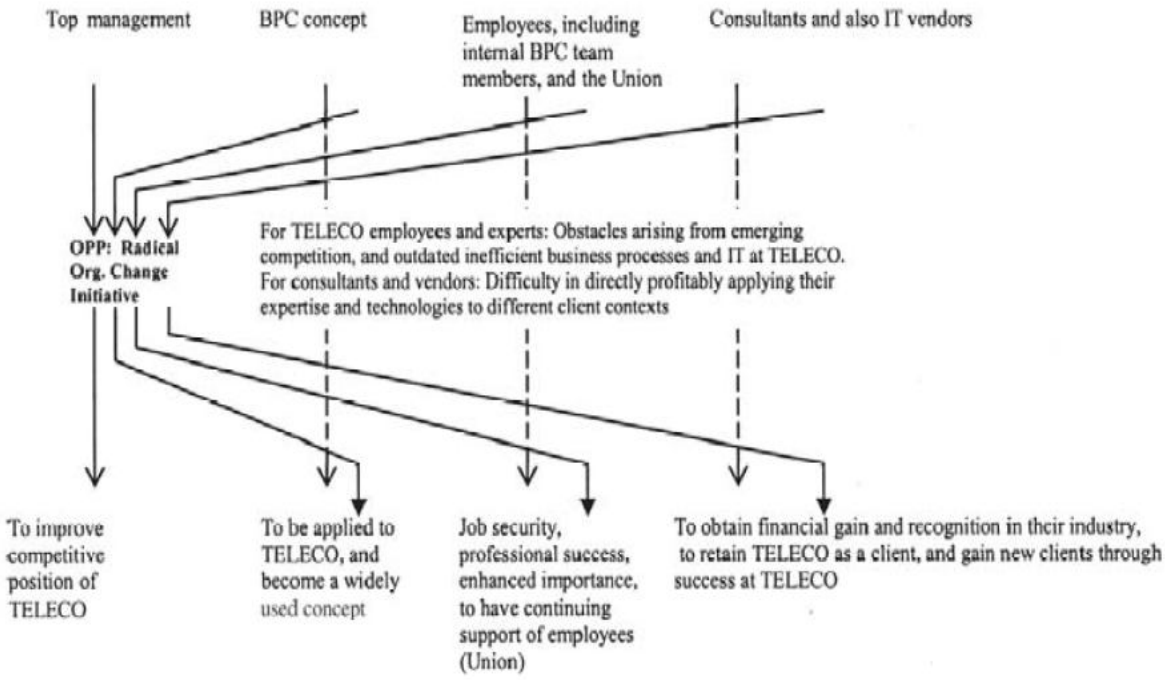
Skålén's model (above), illustrates the different levels of abstraction used in this thesis, the *interorganizational field* and the *intraorganizational field*. For

discussion purposes Skålén'sinterorganizational field can be divided into two parts, academia and practice, applying the term *discourse level* to represent the theoretical/academic production of management concepts.

According to Callon (1986a) a change process is a process of gaining power through creating and mobilizing a network of actors. In short, this is achieved through specifying an obligatory passage point (OPP) and translating it and each actor's interests so that all of the actors' interests are in line with the OPP.

In a change process studied by Sarker et al. (2006) top management concluded that there was a need to improve the market position of the company. In order to achieve this goal, the idea of a major change initiative was introduced.

Through comparing the interests of the various actors with the obstacles they face, the interests were translated and the idea of radical change was presented as a solution to the problems, and thus became an obligatory passage point.



In the illustration above we see that the Business Process Change (BPC) concept is seen as an actor with interests of its own. This is because of the interests (action program) that are inscribed in the concept. Viewing artifacts as actors and including their interests in the study of translation provides a deeper understanding of the change processes. Latour (1998) argues that artifacts are what make interactions durable, and that they therefore need to be included in organizational research.

2.2.3 THE BASIC APPROACH TO TQM

A successful total quality program must be based on certain basic concepts and principles (Collard, 1989). However, (Beslerfield, 1995) identified six basic concepts that are required in the implementation of a

successful TQM in any organization. These concepts which are better way to run a business include:

1. A committed and involved management to provide long-term top-to-bottom organizational support.
2. Unwavering on the customer both internally and externally.
3. Effective involvement and utilization of the workforce.
4. Continuous improvement of business and production processes.
5. Treating suppliers as partners.
6. Establishing performance measures for the process.

1. Top Management Commitment

Management must participate in the quality program. A quality council must be established to develop a strong vision, set long-term goal, and direct the program. Quality goals are included in the business plan. An annual quality improvement is established and involves input from the entire workforce. Managers participate on quality improvement team and also act as coaches to other teams. TQM is a continual activity that must be entrenched in the culture, it is not just a short program. It must be communicated to all people.

2. A Strong Focus on Customer

The key to effective program is its focus on the customer. We must listen to the voice of the customer and emphasize design quality and defect

prevention. Do it right the first time and every time for customers satisfaction is the most important consideration.

3. Effective Utilization of the Entire Workforce

TQM is an organizational-wide charge that is everyone's responsibility. A personnel must be trained in TQM, statistical process control (SPC) and other appropriate quality improvement skills so that they can effectively participate in project team work.

4. Continuous Improvement of Business and Production Process

There must be a continual striving to improve all business and production process. Quality improvement project such as just-on-time delivery, order-entry building error rate, customer satisfaction, scrap reduction and supplier management is a good place to bargain. Technical techniques such as SPC, concurrent engineering, benchmarking, quality function development, ISO 9000 and design experiments are excellent for problem solving.

5. Treating Suppliers as Partners

It is estimated that on the average, 40% of sale amount is from purchased product or services, therefore, the supplier quality must be outstanding. A partnering relationship rather than an adversarial one must be developed. Both parties have as much to gain or loose in the success or failure of the

product and services. The focus should be on quality and life circle costs rather than price. Suppliers should be few so that true partnering can occur.

6. Performance measure such as uptime, percentage non-conforming absenteeism, job completion rate and customer satisfaction should be determined for each functional area. These measures should be posted for every one to see. Quantitative data are necessary to measure the continuous quality improvement activity.

2.2.4 BASIC PRINCIPLES OF TQM

The basic principles of Total Quality Management philosophy of doing business are to satisfy the customer, satisfy the supplier and continuously improve the business process. Questions one may ask are;

1. How do you satisfy the customer?
2. Why should you satisfy the supplier?
3. What is continuous improvement?

1. SATISFY THE CUSTOMER:

The first and major TQM principle is to satisfy the customer, the person who pays for the product or services. Customers want to get their money worth from a product or service they purchased. If the user of the product is different from the purchaser, then both the user and customer must be satisfied, although the person who pays gets priority. Company philosophy must seek to satisfy the customer by providing them value of what they buy

and the quality they expect will get more repeat business, referral business, and reduced complaints and service expenses. Some top companies not only provide quality products, but they also give extra service to make their customers feel important and valued.

Internal Customer:

Within a company, a worker provides a product or service to his or her supervisor, if the person has any influence on the wage the worker receives, the person can be thought of as an internal customer. A worker should have the mind-set of satisfying internal customer in order to keep his or her job and to get promotion.

Chain of Customers:

Often in a company, there is a chain of customers, each improving a product and passing it through until it is finally sold to the external customer. Each worker must not only seek to satisfy the immediate internal customer, but also he or she must look up the chain to try to satisfy the ultimate internal customer.

2. SATISFY THE SUPPLIER

A second TQM principle is to satisfy the supplier which is the person or organization from whom you are purchasing goods or services.

Internal Supplier:

A supervisor must try to keep his or her worker happy and productive by providing good task instructions, the tools they need to do their job and good

working conditions. The supervisor must also reward the workers with praise and good pay.

External Supplier:

A company must look to satisfy their external suppliers by providing them with clear instructions and requirements and then paying them fairly and on time. It is only in the company's best interest that its suppliers provide it with quality goods and services if the company hopes to provide quality goods and services to its external customers.

Empower Workers:

One area of satisfying the internal supplier is by empowering the worker. This means to allow them to make decisions on things that they can control. This not only takes the burden off the supervisor but it also motivates these internal suppliers to do better work.

3. CONTINUOUS IMPROVEMENT

The third principle of TQM is continuous improvement. You can never be satisfied with the method used, because there always can be improvement. Certainly, the competitors are improving, so it is very necessary to strive to keep ahead of the game.

Working Smart Not Harder:

Some companies have tried to improve by making employees work harder. This may be counter-productive especially if the process itself is flawed. For example trying to increase worker output on a defective machine may result

in more defective parts. Examining the source of problems and delays and then improving them is what is needed. Often the process has bottlenecks that are the real cause of the problem. These must be removed.

Worker Suggestions:

Workers are often a source of continuous improvement. They can provide suggestions on how to improve a process and eliminate waste.

Quality Methods:

There are also many quality methods. Such as just-in-time production, variability reduction etc, that improves process and reduce waste.

2.3 HISTORICAL REVIEW

Before the concept and idea of TQM where formulated, much work had taken place over the centuries to reach this stage. During the early days of manufacturing, an operative work will be inspected and a decision will be made whether to accept or reject it. As business becomes larger, so too did this role, and fail time inspection job were created. Accompanying the creation of inspection function, other problem arose. More technical problems occurred, requiring technical skills, often not processed by production workers. Some of these problems include;

1. The inspectors lack training
2. Inspectors were ordered to accept defective goods, to increase output.
3. Skill workers were promoted into other role leaving less skilled workers to perform the operational jobs.

These changes led to the birth of separate inspection department with a “chief inspector” reporting to either the person in charge of manufacturing or the work manager. With the creation of this new department, there comes new services and issues, e.g. standard, training, recording of data and accuracy or measuring equipment. It becomes clear that the responsibility of the change inspector were more than just product acceptance, but a new way to prevent defect. Hence, quality control department emerged, in charge of which was a quality control manager.

In 1920, statistical theory begin to apply effectively to quality control and in 1924, Shewart made the first sketch of a modern control chart. His work was later developed by Deming and the early work of Deming and Shewart, Dodge and Proming constitutes much of what today comprises of theory of STATISTICAL CONTROL PROCESS (SPC). However, there was a little use of these techniques in manufacturing companies until late 1940s. At that time, Japan’s industrial system was virtually destroyed and it had a reputation for deep imitation product and an illiterate workforce. Japan recognized these problems and set about solving them with the help of some notable quality gurus like Juran, Deming and Peigenbuam. In the early 1950s, quality management practice developed rapidly in Japan such that by 1960, quality control becomes a national preoccupation. By the later 1960s/early 1970s Japan imports into the U.S.A. and Europe increased

significantly due to its cheaper and higher quality products compared to the western counterparts.

In 1960, the first national quality conference on quality control sponsored by Japan, America and Europe was held in Tokyo in a paper given by Feiyenbaum, the term “total quality” was used for the first time and referred to wider issues such as planning, organization and management responsibility.

In 1982, it was stated that Britain’s world trade share was declining and this was having a dramatic effect on the standard of living of the people, there was an intense global competition and country’s economic performance was made up of the reputation and performance of its individual companies and product/services, the British Standard BS5750 for quality system has been published in 1979 and in 1983, the national quality campaign was launched using BS5750 as its main theme. The aim was to bring to the attention of industry the importance of quality for competitiveness and survival in the world market place. Since then, the International Standard Organization (ISO) 9000 has become the international recognized standard for quality management system. It comprises a number of standards that specify the requirement for the documentation and maintenance of a quality system. TOTAL QUALITY MANAGEMENT (TQM) is now part of a much wider concept that addresses overall organizational performance and recognizes the importance of processes. There is also extensive research evidence that demonstrates the benefits from the approach.

As we move into 21st century, TQM has developed in many countries into holistic framework, aimed at helping organizations achieve excellent performance, particularly in customer and business results.

2.4 TOOLS AND TECHNIQUES USED IN TQM PROCESS STATISTICAL PROCESS CONTROL (SPC)

One of the technical tools for improving product and services quality is statistical process control (Cosby, 1984). Statistical method is a key component in manufacturing organization, where TQM generally starts by sampling a random selection of the product. The sample can then be tested for things that matter most to the end users. The cause of any failures are isolated, secondary measure of the production process are design, and then the causes of the failure are corrected. When parts measures drift into a defined "error band" the process is fixed. The error band has usually a lighter distribution than failure band so that the production process is fixed before failing parts can be produced.

After TQM has been in use, it is very common for parts to be redesigned so that critical measurements either cease to exist, or become much wider.It took people a while to develop test to find emergent problem. One popular list in a 'life test' is one which the sample product is operated until a part fails. Another popular test is called 'shake & bake' in which the product is mounted on a vibrator in an environmental oven and operated at progressively more extreme vibration and temperature until something fails. The failures are then isolated and engineers redesign and improve them.

A common discovered failure is for the product to disintegrate. If fasteners fail, the improvement might be to use measured-tension nut-drivers to ensure that screws do not come off, or improved adhesive to ensure that parts remain glued.TQM has not been independent of its environment in context of management accounting system, SIM and Killough (1998) show that incentives pay and enhanced the positive effect of TQM on customer and quality performance. Ittner and Tarcker (1995) demonstrate that product focused TQM was linked to timely problem solving information and flexible revisions to reward system.

Abrahamson (1996) argued that fashionable management discourse such as quality circle, tend to follow a life cycle in the form of a bell curve. Ponzi and Koeing (2002) showed that the same can be said about TQM, which peaked between 1992 and 1996.According to Besterfield (1995) the basic techniques of statistical process chart (SPC) includes;

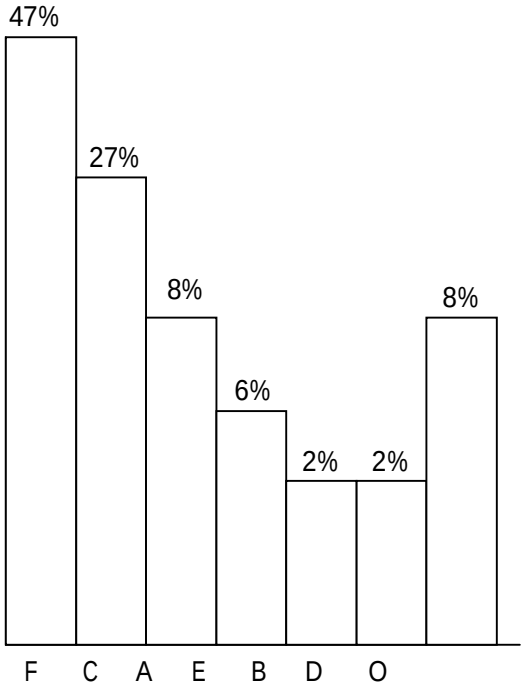
2.4.1.2 PARETO DIAGRAM

This technique is credited to Alfredo Pareto (1846 – 1923) who conducted extensive study on the wealth distribution in Europe. He found that there were a few people with a lot of money and many people with little money. This unequal distribution of wealth became an integral part of economic theory. Juran (1980) recognizes this concept as universal that could be applied to many fields. He coined the phrase “vital few and trivial many”

A Pareto diagram is a graph that ranks data classification in descending order from left to right as shown in the diagram below. In this

case, the data classifications are type of field failure. Other possible data classifications are problems, complaints, causes and so forth. The vital few are on the left and the trivial many are on the right.

FIG.1: PARETO DIAGRAM



Pareto diagrams are used to identify the most important problem usually, 80% of the total results from 20% of the items (Besterfield, 1995). From the diagram above, F and C type of field failure account for almost 80% of the total. The graph has the advantage of providing a visual impact, shows those vital few characteristics that needs attention. Resources are then directed to take necessary corrective action.

According to Acheson (1986), the following could be cited as examples of the vital flews;

- A few customers accounts for the majority of sale.
- A few processes account for the bulk of the scrap or rework cost.
- A few non-conformities account for the majority of customer complaints.
- A few supplies account for the majority of rejected parts.
- A few process accounts for the bulk of the process down time.
- A few items account for the bulk of the inventory cost.

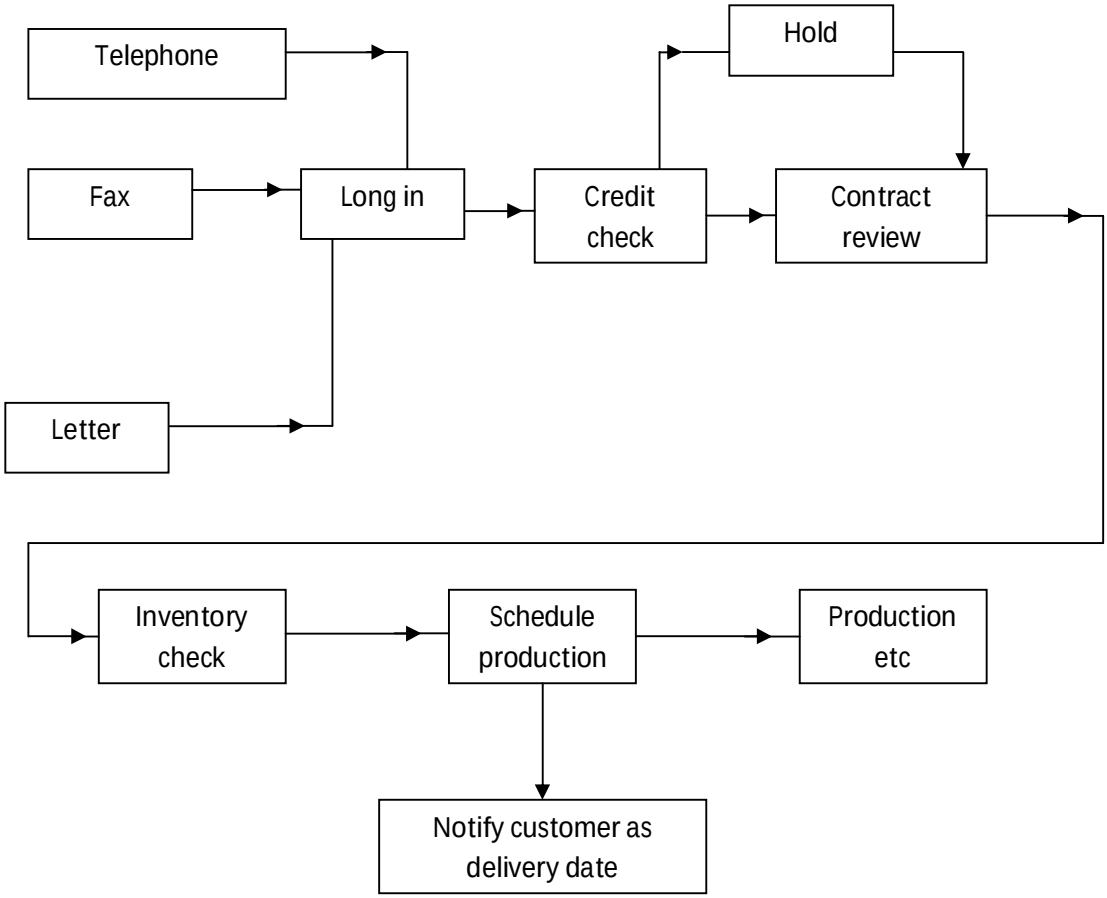
It is a settled case among various authors and TQM experts that a quality improvement of the vital few, say 50% yields much greater return on investment than a 50% improvement of the useful many.

The Pareto diagram is a powerful quality improvement tool; it is applicable to problem identification and the measurement of progress.

2.4.1.3 PROCESS FLOW DIAGRAM

Cosby (1984) states that it may be useful to construct a process flow diagram in any product or service. This diagram shows the product or service as it moves through the process operation. The diagram makes it easy to visualize the entire system, identify potential trouble spots and locate control activities.

FIG.2: An Order Entry Activity Flow Diagram



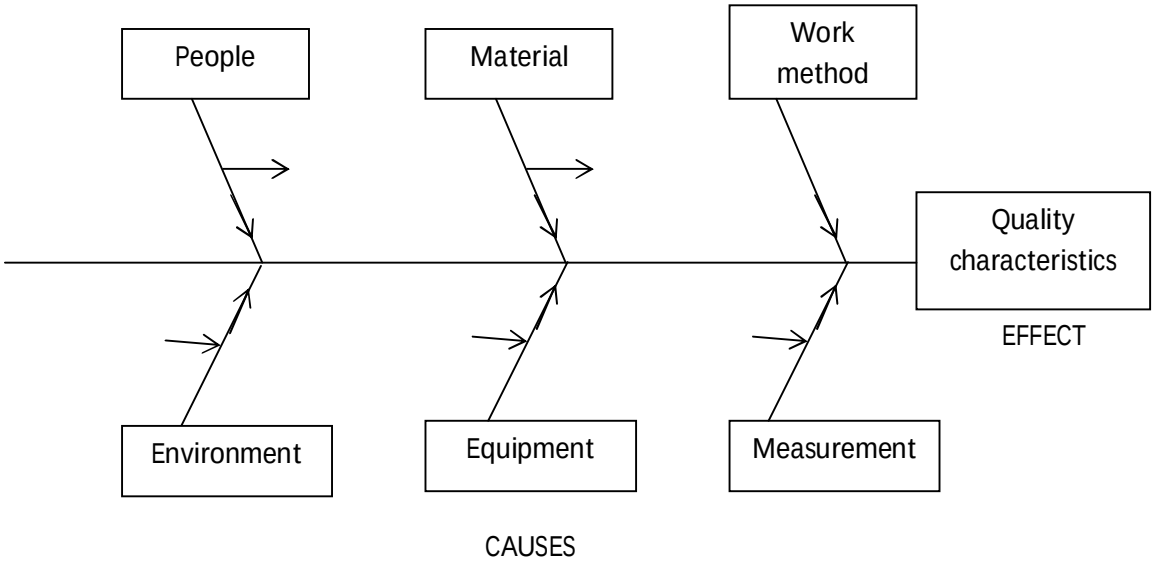
2.4.1.4 CAUSE-AND-EFFECT DIAGRAM

A cause-and-effect (C&F) diagram is another form of statistical process control tool employed in the implementation of total quality management. It is a picture composed of lines and symbols designed to represent a meaningful relationship between an effect and its causes. C&E diagram was developed by Ishikawa in 1943 and it sometimes referred to as

Ishikawa diagram or a Fishbone diagram because of its shape (Besterfield, 1995).

Cause-and-effect diagrams are used to investigate either a “Bad” effect and to take action to correct the cause or a “Good” effect and learn numerous causes that are responsible for every effect. There are likely to be numerous causes. (Juran, 1980).

FIG.3



From the diagram above, the effect is on the right while the causes are on the left. The effect is quality characteristics that need improvement, which the causes are sometimes broken down into work method, materials, measurement, people, equipment and the environment.

According to Chase (1993) the first step in constructing C&E diagram is form the project team to identify the major effects or identify quality problems, these are then placed on the right side of large piece of paper by

the team leader. Next, the major causes are identified and placed on the left hand side of the paper to complete the picture.

Determining all the minor causes require brainstorming by the project team. Brainstorming is an idea-generating technique that is well suited to the C&E diagram. It is the creative thinking capacity of the team. Once the C&E diagram is completed, it must be evaluated to determine the most likely causes. The benefits of the C&E diagram are as diverse as its applications are unlimited in research, manufacturing, marketing, office operations, services and so forth.

Chase (1993) identified the usefulness of C&E as follows:

i. Analyze actual conditions for the purpose of product and services, quality improvement, efficient use of resources, and reduction in cost.
ii. Eliminate conditions causing non-conformities and customers' complaints.
iii. Standard existing and proposed operations.
iv. Educating and training personnel in decision making and corrective action activities.

CONSTRUCTING A CAUSE-AND-EFFECT DIAGRAM

1. Identify the Problem:

Write down the exact problem you face in detail; where appropriate identify who is involved, what the problem is, when and where it occurs. Write the problem in a box on the left hand side of a large sheet of paper. Draw a line

across the paper horizontally from the box, this gives you space to develop ideas.

2. Work Out the Major Factors Involved:

Next identify the factors that may contribute to the problem, draw line off the spire for each factor, and label it. These may be people involved with the problem, systems, equipment, materials, external forces etc. Try to draw out as many factors as possible. If you are trying to solve the problem as part of a group, then this may be a good time for some brainstorming. Using the "Fishbone" analogy, the factor you find can be through as the bones of the fish.

3. Identify Possible Causes:

For each of the factors you consider in stage two, brainstorm possible causes of the problem that may be related to the factor, show these as smaller lines coming off the "bones" of the fish. Where a cause is large or complex, then it may be best to break that cause down into sub-causes, show these as lines coming off each cause line.

4. Analyze Your Diagram:

In this stage you should have a diagram showing all the possible cause of your problem. Depending on the complexity and importance of the problem, you can now investigate the most likely causes further. This may involve

setting up investigations, carrying out surveys, etc. These will be designed to test whether your assessment are correct.

2.4.2 (ISO)

ISO as the name implies means the International Standard Organization for standard. ISO was founded in 1946 inGenevaSwitzerland, its purpose is to promote the development of international standard to facilitate the exchange of goods and services worldwide.

ISO 9000:2000 has replaced the old ISO 9001:1994 quality standard. In addition, the old ISO 9002:1994 and ISO 9003:1994 quality standards has been discontinued, they are obsolete now. Various authors have offered reasons for implementing a quality system that conforms to an ISO standard.

Besterfield (1995) said that the primary reason is that it is increasingly becoming a requirement for doing business with the European community. ISO 9000 is sweeping the world; it is rapidly becoming the most important quality standard. Thousands of companies in the world have already adopted it and many more are in the process of doing so. Why? Because it controls quality, saves time and money.

Robert (1992) writes that most organizations have found that the system has led to improved quality and increased productivity, reduction in one-conformities, an increase in on-time delivery, and improved customer satisfaction all which leads to increase in profit.

2.4.2.1 ISO 9000 SERIES

The term ISO 9000 refers to a set of quality standard. ISO 9000 currently includes three quality standards: ISO 9000:2005, ISO 9001:2000 and ISO 9004:2000.

ISO 9001:2000 represents requirement, while ISO 9000:2005 and ISO 9004:2000 represent guidelines. All of these are process standard (not product standard). The ISO 9000:2000 standards apply to all kinds of organizations in all kinds of areas. Some of these areas include manufacturing, processing, servicing, printing, electronics, computing, engineering, constructing, etc.

According to Williams (1992), it can be applied to construction, engineering, health care, legal and other professional services as well as the manufacturing of anything from nuts to bolts to spacecraft.

DEFINITION OF ISO 9000 SERIES

1. **ISO 9000:** Quality management and quality assurance standard guidelines for selection, explains fundamental quality concepts, defines key terms and provides guidelines for selecting, using and tailoring the ISO 9001, 9002, and 9003 standards even though 9002:1994 and 9003:1994 ISOs have been dropped.

2. **ISO 9001:** Quality system model for quality assurance in design/development, production, installation and servicing, the most comprehensive standard in the series. It is made of zero elements

covering the need for an effective quality system. From the receipt of a contract through the design and development stage and service requirement after delivery. It provides a number of requirements which an organization needs to fulfill if it is to achieve customer satisfaction through consistent product and services which meet customer expectations. It includes a requirement for continual (i.e. planned) improvement of the Quality management system, for which ISO 9004 2000 provides many hints. It should be noted that certification is not described as any of the needs of an organization as a driver for ISO 9001, but does recognize that it may be used for such purpose

3. **ISO 9004:2000** Quality Management System guidelines for performance improvement .This gives advice on what could be done to enhance a mature system.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter presents the method, tools and techniques adopted for the investigation of the stated research problem. It covers the types of data used, the study population and sample and the procedure for selection and the instrument used for the collection and analysis of the data.

3.2 RESEARCH DESIGN

The study is designed in such a way as to allow for objectivity in the assessment of the effect of TQM on banking operations and the extent to which they affect the realization of quality services and customer satisfaction. The above imply that the TQM factors are analyzed to see the nature and magnitude of their contribution to the customer perception level of banks. The research adopted a field survey approach for data collection, which took the researcher to bank branches as a way of reaching the targeted audience (bank customers and staff).

However, the study adopts a deterministic approach by way of responses weighting, maximum likelihood extraction, Varimax rotation for iterations, Kaiser Normalization of variations and effect model for its analysis.

- **TYPES OF DATA USED**

This study made used of both primary and secondary sourced data in its analysis. The primary data was generated by way of field surveys.

Above all the theoretical foundation for the study was established through extensive review of the literature by way of references to text books, Journals and Conference and Workshop papers.

- **THE SURVEY**

The Objective Evaluation Questionnaire (OEQ) was the principal instrument used for primary data collection. Given the nature of the problem under study, the head office branch of the entire twenty- four (24) bank licensed to operate in Nigeria at the time of the study were surveyed. While the opinion of two (2) staff and ten (10) customers were sought. To this end, a total of two hundred and forty (240) customers and forty-eight (48) staff formed our respondents. This therefore constituted the sample size for analysis.

3.4.1 DESCRIPTION OF THE QUESTIONNAIRE

The questions contained in the questionnaires were structured in line with the "Likert –5 –Point Scale of Responses". This gives the respondents the flexibility of multiple choice responses. The multiple responses include "Strongly agrees"; "Agrees"; "Undecided"; "Disagrees" or "Strongly disagrees" with each of the statements made in the questionnaire. However the ranking of the responses is in an increasing order of 1, starting from 1 to 5 respectively. Also the weighting of the responses is in a reverse order with the response corresponding to a ranking of 1, having a weighting of 5. The others equally follow in the like manner. The opinion expressed by each of the customers is expected to be an expression of their perception of service

quality as well as their level of satisfaction with the products and services offered by the associated bank. On the other hand the opinion of the staff is assumed to be their expression of the level of TQM process being applied by management in the development of products as well as delivery of services to customers by each sampled bank.

In the designing the questionnaire for bank staff, twelve (12) factors of TQM identified in the literature as shown on Table 3.1 and 3.2 formed the basis of the views expressed (see appendix 1).

Table 3.1: Definition of TQM Variables in Banking: Staff Perspective

s/n	VARIABLES DEFINITION	Code
1	Formal top management policy on customer satisfaction	SX1
2	Continuous human capital training and development	SX2
3	Promotion of the philosophy of team work among staff.	SX3
4	Development of standard methods for quantifying customer satisfaction	SX4
5	Commitment to reduction in Cost of service charged customers	SX5
6	simplification of service process to reduce service time	SX6
7	Customer involvement in product design and development	SX7
8	Clear communication of rules, regulations and directives on standards	SX8
9	Existence of mechanism for feedback from customers.	SX9
10	Continuous monitoring and evaluation of customer satisfaction level	SX10
11	Establishment of operational guidelines	SX11
12	Existence of effective system of staff motivation	SX12

Table 3.2: Definition of TQM Factor in Banking: Customer Perspective

s/n	VARIABLES DEFINITION	Code
1	Complaints are promptly handle	CX1
2	Staff are skilled and knowledgeable to deliver quality services	CX2
3	Staff listens and assists customers when in difficulty.	CX3
4	A standard methods for assessing service quality exist	CX4
5	Cost of service passed to customers are transparent and accurate	CX5
6	Service time has been on the decline	CX6
7	Products offered are designed in line with customer needs.	CX7
8	Customers communicate their satisfaction level to management each time a service delivered.	CX8
9	Services are delivered according to feature promised.	CX9
10	Products features are always communicated clearly to customers	CX10
11	Services are delivered in line with approved laws and regulations.	CX11
12	A transparent system for motivating customers exists	CX12

3.4.2 SOURCES OF DATA

Visits were made to the following banks:

- Union Bank PLc
- First Bank PLc
- AfriBankPLc
- Oceanic Bank International PLc
- Intercontinenal Bank PLc
- United Bank for Africa PLc
- Bank PHB PLc
- FinbankPLc
- GTBankPLc

- First City Monument Bank PLc
- Access Bank PLc
- Stanbic IBTC PLc
- Equatorial Trust Bank LTD
- Zenith Bank PLc
- Spring Bank PLc
- Fidelity Bank PLC
- Diamond Bank PLc
- Sterling Bank PLc
- Skye Bank PLc
- Unity Bank PLc
- Wema Bank PLc
- EcoBankPLc
- Standard Chartered Bank Ltd

The process of administration is the personal interview contact, which allows for a one-on –one approach in asking and answering of the questions.

Effects of TQM application in banking is analysed on the level of customer satisfaction achieved by the banks.

3.6 TOOLS FOR DATA PRESENTATION AND ANALYSIS

In analyzing, the data collected, weighted score distribution tables are used. Further analysis is performed on the weighted score using principal maximum likelihood analysis of the Factor analysis tool. Also the regression model was used to capture the effect of TQM on realistion of the customer satisfaction objective of modern banking process.

3.6.1 FACTOR ANALYSIS

Pallant (2004) commented on the frequently encountered problem in attitude research of finding out if, out of large factors that can account for the variability of effect can be measured and explained using Factor analysis. Factor analysis is a type of multivariate analysis which is based on the hypothesis that outcomes, for example, are seldom, if ever, attributable to one factor or influence. The relative importance of multiple factors affecting service quality in the Nigerian banking industry is examined from both operator and beneficiary perspectives.

Evidences available tend to suggest that Factor analytical technique has previously been used in consumer attitude related studies. In 1965, eighty variables affecting the consumption of products and services were obtained from computerized data from regular national surveys in the USA, which were related to the 5,424 male respondents who took part in the brand rating index survey. The result of the analysis led to the isolation of twenty-five (25) factors, in accord with the principal components method, by means of which consumer's buying behaviours/styles were characterized (Pallant, 2000).

Another example of the application of factor analysis to a marketing research problem involved a study of the quantitative attributes of coffee as reported in Watson et al (1988). Fourteen attributes of coffee were rated on a 10 point semantic differential scales. Ninety-four consumers randomly selected, rated each of the fourteen attributes after drinking a cup of coffee, the brand of which was unknown to them. In fact, only one brand was tested. The data was processed by appropriate computer programme. The findings revealed that four factors have significant influences in coffee preferences: comforting taste, heartiness of flavour, genuineness of product, and freshness. Other attributes such as alive taste and tastes like real coffee appeared related to the last

mentioned significant factor. The researchers concluded that this could imply that a major factor behind coffee preference may be the distinction between pure coffee and artificial coffee, advertisements could profitably accentuate the genuineness of their products.

Factor analysis therefore is a method of quantitative multivariate analysis with the goal of representing the interrelationships among a set of continuously measured variables (usually represented by their interrelationships) by a number of underlying. Linearly independent reference variables called factors. It seeks to collapse the numerous operating variables into fewer dimensions of interrelated attributes called principal components. The Eigenvalue determines the principal components, which are arthogonallyvarimax, rotated to obtain more evenly distributed factor loading within the components.

So, for the purpose of this study, factor analytical techniques was adopted to assess the significance of the twelve factors affecting TQM policy adoption by bank management and perception of effects of the adoption by bank customers.

THE *EIGENVALUES*

The n x n matrix A has eigenvalues if there exists a non-zero vector x, called an eigenvector associated with , for which:

Ax = X . . . 3.1

From equation 3.1, it follows that the matrix │A - │ is singular and therefore that det (│A - │) = 0 . . .

3.2

This is a polynomial equation in "" of degree "n" from which it follows that "A" at most assumes "n" eigenvalues. The polynomial 3.2 is the characteristic polynomial of "A".

Some roots of this characteristic equation may be repeated leading to the algebraic multiplicity of the eigenvalues in the same way as the multiplicity of roots of polynomials. In the event that the multiplicity of an eigenvalue is greater than the dimension of the vector space spanned by its associated eigenvalues, then the matrix becomes defective.

Solving the eigenvalue problem, that is finding eigenvalues and associated eigenvectors, in general is best achieved by methods other than solving the characteristic equation as shown below:

INVERSE ITERATION PROCESS:

Suppose that the smallest eigenvalue rather than the dominant one is required, the power method could be applied to the inverse matrix A^{-1} since the eigenvalues of A^{-1} are the reciprocals of those of A. But using the inverse matrix would be computationally expensive.

The inverse iteration algorithm for the smallest eigenvalue (using the Rayleigh quotient and normalizing son that $||X_i||_2 = 1$) can therefore be summarized as follows:

Input: Matrix A; required precision E; initial vector X_1 and initial $_1$

Compute:

$X_0 = X_1$; $_0 = _1$

Compute $|| X_0 ||_2$

$X_0 := X_0 \quad || X_0 ||_2$

Solve $Ly = X_0$

Solve $UX_1 = y$

$_1$: $= X_i^T X_0$

until $|_1 - _0| <$

Output: Approximate eigenvalue 1/1 and eigenvector X_1.

Origin Shifts:

The idea behind origin shifts is to use inverse iteration approach to find other eigenvalues. The eigenvalues of the matrix $|A - _0|$ are precisely those of "A" shifted by $_0$. That is is an eigenvalue of A if and only if $- _0$ is an eigenvalue of $|A - _0|$. In particular the smallest eigenvalue of $|A - _0|$ is the eigenvalue of A close to $_0 - _0 . = 0$.

Therefore to find the closest eigenvalue of A to $_0$, we apply the inverse iteration algorithm to $|A - _0|$ and add $_0$ to the result.

3.6.2 EFFECT MODEL FORMULATION

In this study, the linear regression model was adopted for evaluating the effect of extracted level of TQM adoption by bank management to the perceived satisfaction level of customers. Its formulation is as follows:

$Y = a_0 + b_1 X + e_0$ -------- 3.1

Where:

a_0 = Constant

b_1 represents the beta coefficient to be estimated.

X represents estimated level of TQM implementation extracted

e_0 - represents estimation error

Y : is the dependent variable which stands for objective of successful quality delivery.

The regression parameters were computed using the following formulae:

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 INTRODUCTION

This chapter undertakes the results of the analysis as well as interpretations and discussions based on responses obtained from customer relations offices and customers of the banks.

4.2 ANALYSIS OF THE LEVEL OF TQM ADOPTION BY BANKS

Table 4.1: Weighted Scores of TQM Factors by Bank Staff

Respondents	SX1	SX2	SX3	SX4	SX5	SX6	SX7	SX8	SX9	SX10	SX11	SX12
1	1	4	4	1	1	1	4	4	1	4	2	5
2	5	4	4	4	4	5	5	4	5	5	4	4
3	5	4	3	3	2	4	3	2	3	4	4	4
4	4	3	3	4	2	4	3	3	4	5	3	5
5	4	3	3	4	1	3	2	2	4	4	2	4
6	4	4	4	3	2	3	2	2	1	2	1	4
7	4	5	4	3	3	2	2	2	5	4	2	2
8	5	3	4	2	2	3	3	2	4	4	4	5
9	4	4	2	3	2	3	4	3	4	3	3	3
10	5	5	4	4	3	4	2	3	2	4	4	2
11	5	2	3	4	2	4	3	3	4	5	5	2
12	5	4	4	3	2	4	4	3	5	5	3	5
13	5	4	3	2	2	1	3	3	4	5	2	4
14	5	5	4	4	3	4	2	2	3	4	1	2
15	5	4	3	3	1	2	1	2	2	2	1	4
16	2	3	1	2	1	2	2	3	2	2	1	4
17	4	4	4	4	2	4	4	2	2	3	2	4
18	1	5	4	2	2	2	2	4	4	3	2	4
19	5	3	3	2	2	3	2	1	5	4	1	5
20	1	4	4	1	1	1	4	4	1	4	4	3
21	5	4	4	4	4	2	5	4	3	5	3	3
22	2	4	3	3	2	4	3	2	3	4	4	5
23	4	3	3	4	2	4	3	3	4	5	2	4
24	4	3	3	4	1	3	2	2	4	4	4	5
25	2	4	4	3	2	3	2	2	1	2	1	2
26	4	5	4	3	3	2	2	2	5	4	1	5

27	1	3	4	2	2	3	3	2	4	4	2	3
28	4	4	2	3	2	3	4	3	4	3	2	2
29	5	5	4	4	3	4	2	3	2	4	3	4
30	3	5	3	4	2	4	3	3	4	5	4	2
31	5	4	4	3	2	4	4	3	5	2	5	4
32	5	4	3	2	2	4	3	3	4	5	2	5
33	2	5	4	4	3	4	2	2	3	4	5	4
34	5	4	3	3	1	2	1	2	2	2	2	1
35	2	3	1	2	1	2	2	3	2	2	4	5
36	4	4	4	4	2	4	4	2	2	3	5	2
37	1	5	4	2	2	2	2	4	4	3	4	4
38	5	3	3	2	2	3	2	1	5	4	2	4
39	2	4	3	3	2	4	3	2	3	4	1	4
40	4	3	3	4	2	4	3	3	4	5	4	4
41	4	3	3	4	1	3	2	2	4	4	1	5
42	2	3	3	4	2	4	3	3	4	5	2	4
43	4	3	3	4	1	3	2	2	4	4	4	5
44	4	4	4	3	2	3	2	2	1	2	1	2
45	4	5	4	3	4	2	2	2	5	4	1	5
46	5	3	4	2	2	3	3	2	4	4	2	3
47	4	4	2	3	2	3	4	3	4	3	2	2
48	2	5	4	4	3	4	2	3	4	4	3	4

Source : Computed fro Field Survey responses

4.2.1 RESULTS

Preliminary Statistics

Multicolinearity Analysis

Table 4.2:

Correlation Matrix

		SX1	SX2	SX3	SX4	SX5	SX6	SX7	SX8	SX9	SX10	SX11	SX12
Correlation	SX1	1.000	-.134	.026	.330	.234	.277	.052	-.305	.282	.173	-.004	-.089
	SX2	-.134	1.000	.451	.045	.530	-.07	-.099	.193	-.100	-.121	-.044	-.208
	SX3	.026	.451	1.000	.078	.482	.090	.064	.003	-.037	.169	.062	-.063
	SX4	.330	.045	.078	1.000	.326	.649	.000	-.103	.122	.261	.225	-.160
	SX5	.234	.530	.482	.326	1.00	.299	.220	.115	.300	.346	.043	-.119
	SX6	.277	-.066	.090	.649	.299	1.0	.212	-.140	.210	.312	.329	-.027
	SX7	.052	-.099	.064	.000	.220	.212	1.000	.493	.120	.334	.335	-.053
	SX8	-.305	.193	.003	-.103	.115	-.14	.493	1.000	-.068	.194	.315	-.030
	SX9	.282	-.100	-.037	.122	.300	.210	.120	-.068	1.00	.506	.087	.280
	SX10	.173	-.121	.169	.261	.346	.312	.334	.194	.506	1.000	.223	.245
	SX11	-.004	-.044	.062	.225	.043	.329	.335	.315	.087	.223	1.000	-.004
	SX12	-.089	-.208	-.063	-.160	-.119	-.03	-.053	-.030	.280	.245	-.004	1.000

Source: Result of Computer with SPSS for Windows VER. 15.

Table 4.2 shows that the customer relations officers of the banks understood each of the factors of TQM philosophy as distinct from one another given that non of the paired correlation coefficients between the TQM policy implementation variables is close to unity (1.0) as shown. The highest correlation of 0.649 is between SX_4 and SX_6, hence no problem of multicolinearity exist among the factors. We can therefore use all the 12 factors in further analysis.

Analysis of Probable Influencing Powers on Successful TQM Adoption

Table 4.3:

Communalities

	Initial	Extraction
SX1	1.000	.491
SX2	1.000	.777
SX3	1.000	.583
SX4	1.000	.717
SX5	1.000	.809
SX6	1.000	.713
SX7	1.000	.630
SX8	1.000	.773
SX9	1.000	.685
SX10	1.000	.711
SX11	1.000	.555
SX12	1.000	.586

Extraction Method: Principal Component Analysi

Table 4.3 shows that all the 12 factors exhibits above 50% probability of leading to positive influence on successful TQM policy adoption by banks on the average as the least communality extracted of 0.491 (49.1%) relates to SX_1 (formal top management policy on customer satisfaction).

Normalized Loading of TQM Factors into Priority Groups

Table 4.4

Rotated Component Matrix[a]

	Component			
	1	2	3	4
SX4	.831			
SX6	.811			
SX1	.629			
SX2		.838		
SX5		.803		
SX3		.762		
SX8			.792	
SX7			.775	
SX11			.685	
SX9				.791
SX10				.695
SX12				.691

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 4.5

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.863	23.862	23.862	2.863	23.862	23.862	2.256	18.799	18.799
2	1.957	16.307	40.169	1.957	16.307	40.169	2.041	17.006	35.804
3	1.816	15.133	55.302	1.816	15.133	55.302	1.957	16.308	52.112
4	1.392	11.600	66.902	1.392	11.600	66.902	1.775	14.790	66.902
5	.926	7.714	74.616						
6	.708	5.901	80.517						
7	.613	5.105	85.623						
8	.512	4.265	89.887						
9	.482	4.020	93.907						
10	.274	2.281	96.188						
11	.246	2.048	98.236						
12	.212	1.764	100.000						

Extraction Method: Principal Component Analysis.

Table 4.4 shows that the TQM project strategy of banks can efficiently be implemented in four phases (component) based on the factors that maximally load in each of the four components/priority groups, while Table 4.5 shows the percentage of variance each of the phases to successful implementation of the project. The table shows that based on the analysis of weighted scores of customer relationship officers of the banks sampled the level of adoption of TQM principles by the banks is measured as 66.902 percent.

Phase 1: TQM project Design:

Table 4.4 shows that SX_4 (Development of standard methods for quantifying customer satisfaction level) in the opinion of the respondents should be the most critical important factors in TQM design by banks. This is followed by SX_6 (simplification of service process to reduce service time) and SX_1 (formal top management policy on customer satisfaction) respectively. The combined effect of the above factors on successful TQM project design is as shown on equation 4.1.

Phase 1: $0.831SX_4 + 0.811SX_6 + 0.621SX_1 = 0.1880$ . . . 4.1.

Answer to Research Question 1

Equation 4.1 imply that the critical factors of successful TQM design are:

- Development of standard methods for quantifying customer satisfaction level
- Simplification of service process to reduce service time
- Formal top management policy on customer satisfaction.

Using the above three factors in the formulation of the TQM programme by banks in Nigeria has the ability of leading to 18.80 percent improvement in the level service quality to customers.

Phase 2: TQM project Implementation:

Table 4.4 that SX_2 (Continuous human capital training and development) in the opinion of the respondents should be the second most critical important factors in TQM implementation by banks. This is followed by SX_5 (Commitment to reduction in Cost of service charged customers) and SX_3 (Promotion of the philosophy of team work among staff.) respectively. The combined effect of the above factors on successful TQM project implementation is as shown on equation 4.2.

Phase 2: $0.838SX_2 + 0.803SX_5 + 0.762SX_3 = 0.1701 \ldots$ 4.2

Answer to Research Question 2

Equation 4.2 implies that the critical factors of successful TQM implementation by banks are:

- Continuous human capital training and development
- Commitment to reduction in Cost of service charged customers
- Promotion of the philosophy of team work among staff

Using the above three factors in the formulation of the TQM programme implementation plan by banks in Nigeria has the ability of leading to 17.01 percent further improvement in the level service quality to customers.

Phase 3: TQM project Enforcement:

Table 4.4 that SX_8 (Clear communication of rules, regulations and directives on standards) in the opinion of the respondents should be the third most critical important factors in TQM enforcement by banks. This is followed by SX_7 (Customer involvement in product design and development) and SX_{11} (Establishment of operational guidelines) respectively. The combined effect of the above factors on successful TQM project enforcement is as shown on equation 4.3.

Phase 3: $0.792SX_8 + 0.775SX_7 + 0.685SX_{11} = 0.1631$ . . . 4.3.

Answer to Research Question 3

Equation 4.3 implies that the critical factors of successful TQM enforcement by banks are:

- Clear communication of rules, regulations and directives on standards
- Customer involvement in product design and development
- Establishment of operational guidelines.

The above three factors if considered by banks will help the enforcement of TQM programme by banks in Nigeria and the ability of leading to 16.31 percent further improvement in the level service quality to customers.

Phase 4: TQM project Sustainability:

Table 4.4 that SX_9 (Existence of mechanism for feedback from customers) in the opinion of the respondents should be the fourth most critical important factors in TQM sustainability by banks. This is followed by SX_{10} (Continuous monitoring and evaluation of customer satisfaction level) and SX_{12} (Existence of effective system of staff motivation) respectively. The combined effect of the above factors on successful TQM project sustainability is as shown on equation 4.4.

Phase 4: $0.791SX_9 + 0.695SX_{10} + 0.691SX_{12} = 0.1479$ . . . 4.4.

Answer to Research Question 4

Equation 4.4 implies that the critical factors of successful TQM sustainability by banks are:

- Existence of mechanism for feedback from customers
- Continuous monitoring and evaluation of customer satisfaction level
- Existence of effective system of staff motivation.

The above three factors are critically important to the sustainability of the TQM programme by banks in Nigeria and has the ability of leading to 14.79 percent further improvement in the level service quality to customers.

Quantification of Factor loadings Using Equation 4.1 to 4.4

The above TQM project phase models are applied to Table 4.1 data to generate a quantification of the level of success being attain in the adoption of the TQM management philosophy by the banks sampled based the weighted responses of their customer relations managers as shown on Table 4.6.

Table 4.6: Quantified/Predicted Success Level of TQM Project Banks

Respondent	X_1	X_2	X_3	X_4	$\sum X_1 . . X_4$
1	-3.08789	0.03952	1.26178	-0.05158	-1.83817
2	1.24103	1.19715	2.10171	1.12953	5.66942
3	0.79592	-0.38612	0.1337	-0.017	0.5265
4	0.67676	-0.74629	0.60544	1.05845	1.59436
5	0.52856	-1.13071	-0.77559	0.32398	-1.05376
6	-0.18186	0.31065	-1.2885	-1.2169	-2.37661

7	-0.08624	1.63224	-1.01551	0.16697	0.69746
8	-0.10732	-0.40561	-0.09518	1.13078	0.52267
9	0.0443	-0.65253	0.79187	-0.37326	-0.18962
10	1.21823	1.32099	0.34151	-1.35586	1.52487
11	1.67938	-1.32086	1.28784	-0.0811	1.56526
12	0.26771	0.27378	0.71999	1.56191	2.82339
13	-1.20067	0.1074	-0.0777	1.16848	-0.00249
14	1.20701	1.52276	-1.10204	-0.71363	0.9141
15	-0.36621	-0.56863	-1.88302	-0.94589	-3.76375
16	-1.47351	-2.00374	-0.42228	-0.89555	-4.79508
17	0.74663	0.17077	-0.00256	-0.7286	0.18624
18	-2.10295	1.1627	0.23605	-0.00342	-0.70762
19	-0.05608	-0.66024	-1.8955	1.70452	-0.9073
20	-2.57445	-0.02152	1.94132	-0.98772	-1.64237
21	0.14028	1.45513	1.7361	0.2844	3.61591
22	0.01839	-0.38729	0.41074	0.22087	0.26271
23	0.7461	-0.61185	0.38946	0.74628	1.26999
24	0.5529	-1.34764	-0.28173	0.55819	-0.51828
25	-0.26546	0.44843	-0.93877	-2.09864	-2.85444
26	-0.66902	1.55884	-1.47906	1.41528	0.82604
27	-0.78796	-0.06901	-0.07524	0.30344	-0.62877
28	0.11365	-0.51808	0.57588	-0.68543	-0.51398
29	0.79848	1.29955	-0.06015	-0.49767	1.54021
30	0.81206	0.44117	1.07408	-0.51255	1.81476
31	0.54394	0.01271	0.96096	-0.07928	1.43833
32	-0.21766	-0.12006	0.12084	1.36778	1.1509
33	0.64118	1.1397	0.22461	-0.39744	1.60805
34	0.21658	-0.49523	-1.41947	-2.1942	-3.89232
35	-1.35549	-2.30315	0.34945	-0.73928	-4.04847
36	1.35375	0.02725	0.95486	-1.7427	0.59316

37	-1.91558	0.99774	0.7918	-0.15933	-0.28537
38	0.20064	-0.69076	-1.55574	1.23645	-0.80941
39	-0.09964	-0.08789	-0.36099	0.0646	-0.48392
40	0.93347	-0.77681	0.94521	0.59038	1.69225
41	0.27184	-1.10019	-1.11536	0.79205	-1.15166
42	0.33643	-0.57799	0.61541	0.64478	1.01863
43	0.5529	-1.34764	-0.28173	0.55819	-0.51828
44	0.14421	0.41457	-1.16472	-1.99714	-2.60308
45	-0.58737	2.04928	-1.4965	1.55202	1.51743
46	0.03137	-0.13673	-0.52715	0.50644	-0.12607
47	0.11365	-0.51808	0.57588	-0.68543	-0.51398
48	0.20803	1.40231	0.16798	0.07386	1.85218

Source : Generated from Factor Analysis Prediction file using Table 4.1.

4.4 ANALYSIS OF EFFECT OF TQM ADOPTION ON SERVICE QUALITY AND CUSTOMER SATISFACTION

Service quality is measured from four perspectives: product/service design (Q_1); cost of products/services (Q_2), service delivery time (Q_3) and customer acceptability (Q_4), all these translated to customer satisfaction level.

Table 4.7: Weighted Scores for Service Quality

Respondent	Weighted Score for Customer Satisfaction	Level of TQM Philosophy Adopted
1	12	-1.83817
2	20	5.66942
3	15	0.5265
4	20	1.59436
5	14	-1.05376
6	13	-2.37661

7	19	0.69746
8	18	0.52267
9	13	-0.18962
10	20	1.52487
11	18	1.56526
12	20	2.82339
13	12	-0.00249
14	19	0.9141
15	13	-3.76375
16	12	-4.79508
17	19	0.18624
18	12	-0.70762
19	15	-0.9073
20	14	-1.64237
21	20	3.61591
22	18	0.26271
23	20	1.26999
24	14	-0.51828
25	12	-2.85444
26	18	0.82604
27	14	-0.62877
28	12	-0.51398
29	20	1.54021
30	18	1.81476
31	17	1.43833
32	20	1.1509
33	18	1.60805
34	14	-3.89232
35	12	-4.04847
36	19	0.59316

37	14	-0.28537
38	17	-0.80941
39	14	-0.48392
40	15	1.69225
41	18	-1.15166
42	16	1.01863
43	17	-0.51828
44	17	-2.60308
45	17	1.51743
46	14	-0.12607
47	12	-0.51398
48	18	1.85218

Source: Field Survey, Sept., 2009.

The effects of the TQM adoption by banks on service quality is analysed using the association between the total estimated total score for level TQM adoption (X) as shown on Table 4.6 and the weighted score of level of service quality (Y) attain based on the opinion of our respondents (customer relations managers) as shown on Table 4.7. This analysis is carried out using the regression tool of SPSS.

Table 4.8

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.784[a]	.614	.579	1.87130	2.139

a. Predictors: (Constant), TQM Phase 4, TQM Phase 3, TQM Phase 2, TQ Phase 1

b. Dependent Variable: Service Quality

Table 4.8 shows that 78.4 percent correlation exist between the service quality level of the sampled banks (Y) and the level of success recorded at various phases of the TQM project implementation (X_1; X_2; X_3 and X_4); It equally shows that

57.9 percent of error free variations in service quality in the bank can be associated to difference in level of success recorded at various phases of the TQM project implementation by the management of the bank. The estimation error associated with the above is not significant as standard error of the estimate is below the limit of acceptability given the Durbin-Watson statistics of 2.139, which is less than 4 for order 2 multicolinearity test. It therefore follows that a serial correlation does not exist between and among the phases of TQM project implementation by the bank.

4.4 Analysis of Effect of TQM Adoption on Service Quality in Bank

Table 4.9:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.104	.270		59.623	.000
	TQM Phase 1	1.717	.273	.596	6.289	.000
	TQM Phase 2	1.126	.273	.391	4.124	.000
	TQM Phase 3	.444	.273	.154	1.626	.111
	TQM Phase 4	.833	.273	.289	3.051	.004

a. Dependent Variable: Service Quality

Using Table 4.9 estimates we establish a relationship model between service quality (Y) and level of success recorded at various phases of TQM project implementation (Phase 1 = X_1; Phase 2 = X_2; Phase 3 = X_3 and Phase 4 = X_4) by the bank as shown on equation 4.5.

$$Y = 16.104 + 1.7173X_1 + 1.126X_2 + 0.444X_3 + 0.833X_4 \quad \ldots \quad 4.5$$
$$(6.289) \quad (4.124) \quad (1.626) \quad (3.051)$$

TESTING OF HYPOTHESIS

The hypothesis earlier stated is tested using equation 4.5.

H_{01} :TQM project implementation by the bank does not have the potential of leading to significant positive improvement in the quality of service delivered to customers by banks.

Table 4.10

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	239.904	4	59.976	17.127	.000[a]
	Residual	150.575	43	3.502		
	Total	390.479	47			

a. Predictors: (Constant), TQM Phase 4, TQM Phase 3, TQM Phase 2, TQM Phase 1

b. Dependent Variable: Service Quality

The F calculated value of 17.127 as shown on Table 4.10 is significant at 0.0001 level, implying that equation 4.5 is reliable for predicting bank service quality based on TQM project implementation success levels.

The tcal. Value of 6.927 associated with X as shown on Table 4.9 is significant at 0.0001 level; implying that at 0.01 level for a two tailed test, the effect of X on Y as established is equation 4.5 is significant. We therefore reject the hypothesis and conclude that TQM project implementation by banks has very significant potential of leading to positive improvement in the quality of service delivered to customers.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATION

5.1 Conclusion

Based on the data collected and the result of the analysis the following findings were made:

- A logical- integrated four phased approach can be adopted in the implementation of TQM in banking.

- The phases include:
  - Design
  - Implementation
  - Enforcement
  - Sustainability.

- The critical success factor of the design includes:

- Development of standard methods for quantifying customer satisfaction level
- Simplification of service process to reduce service time
- Formal documentation of top management policy on customer satisfaction.

- The critical success factor of the implementation includes:

- Continuous human capital training and development
- Commitment to reduction in Cost of service charged customers
- Promotion of the philosophy of team work among staff.

- ❖ The critical success factor of the TQM enforcement includes:

- ➢ Setting up of system for clear communication of rules, regulations and directives on standards
- ➢ Setting of system for customer involvement in product design and development
- ➢ Establishment of operational guidelines.

- ❖ *The critical success factor of the TQM sustainability includes:*

- ➢ Setting up of mechanism for feedback from customers
- ➢ Setting up of a system for continuous monitoring and evaluation of levels of customer satisfaction.
- ➢ Setting up of an effective system for staff motivation.

- ❖ Bearing the challenges of variation in technology, economic and environmental a logical integration of the four phases has the ability of leading to leading to 66.90 percent success in TQM programme implementation by management of banks in Nigeria.

- ❖ TQM project implementation by the banks in Nigeria has the potential of leading to significant positive improvement in the quality of service delivered to customers by banks.

The conclusion therefore is that TQM project implementation is a strategic tool for delivery of quality financial products and service by bank to customers.

5.2 Recommendations

Based on the findings and conclusions the following recommendations are made as a way forward for improved product and service delivery by banks operating in Nigeria to their customers:

Setting of TQM Strategic Project Units (TQM-spus)

Given the phased orientation of the TQM adoption and implementation for quality service delivery by banks in Nigeria, it is critically important every bank undertaking such programme set up a TQM project unit with clear mandate. The TQM-spu at the head office should be responsible for TQM policy formulation, and re-evaluation, while at the branch level the TQM-spus should be responsible to TQM policy monitoring and enforcement.

Structure of the TQM Strategic Project Units

A multilayered matrix structure that allows designated TQM project staff to interface with line staff charge with operational responsibilities at head office and branch levels will ensure that the TQM project is not constrained by bureaucratic bottlenecks associated with operations.

Procedure for TQM Strategic Project Implementation by banks.

The process and procedure for TQM policy design, implementation and enforcement must ensure adequate internal stakeholders involvement. To this extent the bank must building its internal capacity by way of continuous staff orientation to ensure customer satisfaction at all times. This must be supported by formal communication by top management to all internal stakeholders.

Input to TQM Strategic Project Implementation by banks

The customers remain the most critical source of information in the design, implementation, enforcement and sustainability of the TQM programme by banks. To this extent banks need to set up s robust system for customer information gathering as it relates to their needs and wants based on changing taste, fashion and economies. This can be achieved by setting up both on-line and off-line customer suggestion and complaints channels in all branches.

Critical Requirement of TQM Project Sustainability in Banks

In order to ensure sustainability of the TQM project for enhance service quality by banks effort must be made by to ensure continuous training and motivation of its workforce. Continuous training of staff will ensure that they are exposed to modern methodologies of service design and delivery, while adequate motivation will ensure that they are happy with the job they are doing.

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Appendix 1

Questionnaire

S/N	Opinion	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1.	TQM application to banking process will led to increased delivery of service within quality specifications					
2.	Successful implementation of TQM in banking process will depend on the level of top management support, commitment and leadership					
3.	Successful application of TQM to banking process depends on the level of manpower training and development undertaking by workers					
4.	Successful application of TQM to bankingprocess depends to a large extent on the existence of the philosophy of team work among workers.					
5.	Successful application of TQM to bankingprocess depends on the availability and understanding of suitable statistical methods					
6.	Cost of quality is a critical factor in tracking the effectiveness of TQM applicationto bankingprocess					
7.	Supplier commitment to the TQM philosophy is a critical factor in successful application to banking process					
8	Customer service in each phase is important for the overall quality performance ofbankingprocess					
9	Banking specific factors are important in successful application of TQM to bankingoperations					
10.	Observance of codes, standards and client's requirements are critical in the application of TQM to banking process					
11.	The quality of service/product design and specifications are two sets of issues that affect the application of TQM to banking process					
12.	Operatability is a major factor affecting the application of TQM to banking process					
13.	ISO standard provides an excellent baseline for application of TQM to banking process.					

Appendix 2

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FACTOR
  /VARIABLES SX1 SX2 SX3 SX4 SX5 SX6 SX7 SX8 SX9 SX10 SX11 SX12  /MISSING
  LISTWISE /ANALYSIS SX1 SX2 SX3 SX4 SX5 SX6 SX7 SX8 SX9 SX10 SX11 SX12
  /PRINT INITIAL CORRELATION EXTRACTION ROTATION FSCORE
  /FORMAT SORT
  /CRITERIA MINEIGEN(1) ITERATE(25)
  /EXTRACTION PC
  /CRITERIA ITERATE(25)
  /ROTATION VARIMAX
  /METHOD=CORRELATION .
```

Factor Analysis

[DataSet0]

Correlation Matrix

		SX1	SX2	SX3	SX4	SX5	SX6	SX7	SX8	SX9	SX10	SX11	SX12
Correlation	SX1	1.000	-.134	.026	.330	.234	.277	.052	-.305	.282	.173	-.004	-.089
	SX2	-.134	1.000	.451	.045	.530	-.07	-.099	.193	-.100	-.121	-.044	-.208
	SX3	.026	.451	1.000	.078	.482	.090	.064	.003	-.037	.169	.062	-.063
	SX4	.330	.045	.078	1.000	.326	.649	.000	-.103	.122	.261	.225	-.160
	SX5	.234	.530	.482	.326	1.00	.299	.220	.115	.300	.346	.043	-.119
	SX6	.277	-.066	.090	.649	.299	1.0	.212	-.140	.210	.312	.329	-.027
	SX7	.052	-.099	.064	.000	.220	.212	1.000	.493	.120	.334	.335	-.053
	SX8	-.305	.193	.003	-.103	.115	-.14	.493	1.000	-.068	.194	.315	-.030
	SX9	.282	-.100	-.037	.122	.300	.210	.120	-.068	1.00	.506	.087	.280
	SX10	.173	-.121	.169	.261	.346	.312	.334	.194	.506	1.000	.223	.245
	SX11	-.004	-.044	.062	.225	.043	.329	.335	.315	.087	.223	1.000	-.004
	SX12	-.089	-.208	-.063	-.160	-.119	-.03	-.053	-.030	.280	.245	-.004	1.000

Communalities

	Initial	Extraction
SX1	1.000	.491
SX2	1.000	.777
SX3	1.000	.583
SX4	1.000	.717
SX5	1.000	.809
SX6	1.000	.713
SX7	1.000	.630
SX8	1.000	.773
SX9	1.000	.685
SX10	1.000	.711
SX11	1.000	.555
SX12	1.000	.586

Extraction Method: Principal Component Analysi

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.863	23.862	23.862	2.863	23.862	23.862	2.256	18.799	18.799
2	1.957	16.307	40.169	1.957	16.307	40.169	2.041	17.006	35.804
3	1.816	15.133	55.302	1.816	15.133	55.302	1.957	16.308	52.112
4	1.392	11.600	66.902	1.392	11.600	66.902	1.775	14.790	66.902
5	.926	7.714	74.616						
6	.708	5.901	80.517						
7	.613	5.105	85.623						
8	.512	4.265	89.887						
9	.482	4.020	93.907						
10	.274	2.281	96.188						
11	.246	2.048	98.236						
12	.212	1.764	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component			
	1	2	3	4
SX5	.699	.445	-.231	.263
SX6	.698	-.254	-.182	-.358
SX10	.684	-.207	.302	.330
SX4	.635	-.151	-.363	-.399
SX1	.426	-.366	-.418	-.031
SX2	.158	.807	-.264	.172
SX3	.368	.572	-.229	.261
SX8	.148	.445	.737	-.103
SX7	.451	.111	.620	-.174
SX11	.436	.002	.441	-.414
SX12	-.010	-.390	.288	.592
SX9	.510	-.391	.075	.516

Extraction Method: Principal Component Analysi

a. 4 components extracted.

Rotated Component Matrix[a]

	Component			
	1	2	3	4
SX4	.831	.121	.085	-.067
SX6	.811	.027	.218	.081
SX1	.629	.006	-.228	.210
SX2	-.132	.838	-.021	-.237
SX5	.316	.803	.119	.223
SX3	.042	.762	.011	.030
SX8	-.347	.159	.792	-.034
SX7	.066	.035	.775	.156
SX11	.279	-.086	.685	-.026
SX9	.234	.062	.003	.791
SX10	.267	.149	.366	.695
SX12	-.255	-.194	-.073	.691

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Component Transformation Matrix

Component	1	2	3	4
1	.692	.423	.423	.405
2	-.356	.785	.229	-.451
3	-.455	-.296	.801	.251
4	-.433	.341	-.356	.755

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Component Score Coefficient Matrix

	Component			
	1	2	3	4
SX1	.284	-.023	-.157	.070
SX2	-.096	.433	-.043	-.107
SX3	-.039	.385	-.046	.030
SX4	.396	-.005	.018	-.142
SX5	.064	.384	-.014	.107
SX6	.372	-.057	.084	-.062
SX7	-.012	-.033	.398	.029
SX8	-.198	.055	.425	-.036
SX9	.015	.032	-.069	.452
SX10	.025	.049	.126	.365
SX11	.123	-.108	.365	-.102
SX12	-.188	-.060	-.071	.449

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Component Score Covariance Matrix

Component	1	2	3	4
1	1.000	.000	.000	.000
2	.000	1.000	.000	.000
3	.000	.000	1.000	.000
4	.000	.000	.000	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Appendix 3

Regression

[DataSet0]

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	11.17	21.94	16.10	2.059	48
Residual	-4.102	3.576	.000	2.017	48
Std. Predicted Value	-2.398	2.835	.000	1.000	48
Std. Residual	-2.012	1.754	.000	.989	48

a. Dependent Variable: Y

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.784[a]	.614	.579	1.87130	2.139

a. Predictors: (Constant), TQM Phase 4, TQM Phase 3, TQM Phase 2, TQ Phase 1

b. Dependent Variable: Service Quality

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.104	.270		59.623	.000
	TQM Phase 1	1.717	.273	.596	6.289	.000
	TQM Phase 2	1.126	.273	.391	4.124	.000
	TQM Phase 3	.444	.273	.154	1.626	.111
	TQM Phase 4	.833	.273	.289	3.051	.004

a. Dependent Variable: Service Quality

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	10.3860	21.4558	16.1042	2.25928	48
Residual	-3.40093	3.21186	.00000	1.78990	48
Std. Predicted Value	-2.531	2.369	.000	1.000	48
Std. Residual	-1.817	1.716	.000	.957	48

a. Dependent Variable: Service Quality