

BASICS OF CONTROL OF THE STATISTICAL PROCESS IN QUALITY MANAGEMENT

Prof. Dr. Vehbi Ramaj
Prof. Dr. Husnija Bibuljica
Business Faculty
University „Haxhi Zeka“
Peja, Kosovo

Dr. sc. Mustaf Kadriaj
Economical Faculty
Business Kollege
Prishtine, Kosovo

Msc. Donika Ramaj
Economical Faculty
University „Hasan Prishtina“,
Prishtine, Kosovo

Dr. sc. Beke Kuqi
Business Faculty
University „Haxhi Zeka“
Peja, Kosovo

ABSTRACT

This research is intended to explain the role of quality management through the control of the statistical process by comparing the two Pro Credit Bank and NLB Bank banks. Of all the concentration is which of these two banks is well managed with the products / services they offer and how much they are. The control of the static process is the process of identifying and eliminating special cases of variation. The process capacity cannot be determined if the process is not under statistic control. The research also includes hypotheses that have been presented and tested through the questionnaire drawn up by the questionnaires. After analyzing them by using the appropriate methods to help us in all these issues.

Keywords: Management, quality, ISO Standards, statistical process, statistic control

1. INTRODUCTION

People determine quality in many ways. Some think of quality as a superiority or persuasion, others see it as manufacturing defect or lack of service, while others think about quality as related to product or price features.

Total Quality (CT) is a management system focused on people who are constantly aiming to grow customer satisfaction with a constantly low cost cost[1].

International standards developed by ISO are useful and usable by business organizations of all kinds, governments and other regulatory bodies, conformity and trade specialists, providers and consumers of products both in the private and public sector, and recently by all people in general as the final consumer of products and services. The control of the static process is the process of identifying and eliminating special cases of variation. The process capacity can not be determined if the process is not in statistical control. The banking system in Kosovo has managed to gain the confidence of individuals and businesses deeply considering their development from scratch. Many international reports, however, assess the banking sector as strong and sustainable in the face of financial crises in the region and beyond, our paper will take the case of two banks operating in Kosovo. A study without clearly defined objectives is groundless and invalid. Therefore, this paper aims to explain the role of quality management

through the control of the static process by making comparisons with two Pro Credit and NLB banks [8,9,10]. In order to contribute to the achievement of the purpose of this paper we will follow the structure as follows:

Methodology gives one review the reader how the study was conducted. The theories used in this research along with the data collected during the research process will serve to making comparisons with our theory and hypotheses. These will serve to have clear results and conclusions that will contribute to our study. Hypotheses are:

1. Quality is related to product features and price.
2. International standards developed by ISO are useful and usable by business organizations of all kinds.
3. Pro Credit Bank offers quality products to its clients and successfully manages its skills, better than NLB Bank [8, 9].

Due to the nature of the data collected during this research quantitative research methodology was used because of the data collection in figures and their reporting against the hypotheses set out at the beginning. The survey is based on primary and secondary data. The primary data used in this paper were taken from a sample drawn by the citizens of the Municipality of Drenas. All these were done through distributed questionnaires and direct observations.

Secondary data has been collected from various books in the field of management, works, publications, finding and analyzing the research results in the topic field that is generally dealt with.

2. QUALITY CONCEPT

People determine quality in many ways. Some think of quality as a superiority or perfection, others see it as defects in manufacturing or lack of service, while others think of quality as related to product or price features. Today, most managers are in the mood that the main reason for pursuing quality is to satisfy customer requirements. The National Standards Institute (ANSI) and the American Quality Association (ASQ) define quality as "the sum of the features and characteristics of a product or service that carries the ability to satisfy the needs given". Quality panoramas such as customer satisfaction are often referred to as adaptations for use. Manufacturing and service managers face different types of quality issues; Below we will give a brief overview of these issues. Although quality management details vary between manufacturing and service industries, defining customer requirements eliminates these artificial divisions and guarantees a unifying perspective [1, 6, 7].

3. QUALITY MANAGEMENT SYSTEM

The quality management system implies the entirety of organizational structures; procedures and resources that an entity needs to achieve the required quality [2].

The elements of running quality operations are:

a- Standards. Standard is understood as a technical specification adopted by the national standardization body for continuous use by manufacturers, traders, research institutions, public administrations and consumers and which defines the product / service safety parameters, processes to ensure their use in the environment , serving as a document for achieving quality. The standardization process in Kosovo is guided by the General Directorate of Standardization.

b- Technical rules; are understood the by-laws of a technical nature which determine the characteristics or processes of their production which also include the administrative measures that apply for their violation. They may also include requirements relating in particular to terminology, symbols, packaging, marketing, methods of analysis, labeling of products.

c- Technical Specifications; which means all the specifications given in a technical document that contains all of the required characteristics for a product such as: level of quality, safety, size, chemical composition, etc., including terminology, symbols, methods of analysis etc.

4. STATISTICAL PROCESS CONTROL BASES (SPCs)

The control of the static process, or the SPC, has been one of the foundations of Japanese quality control according to the lessons learned by Deming in the 1950s in Japan. Control of the statistical process is the process of identifying and eliminating specific cases of variation. The process capacity can not be determined if the process is not in statistical control. Exactly are the control graphs that study variation and help in making the right decisions for continuous improvement of quality. Importance and understanding of statistical process control (SPC). Why managers need to recognize statistical quality methods. The principles of statistical thinking are: - all work is carried out in a system of interrelated processes; - variation exists in all processes; Understanding and reducing variation are the keys to success. Then, the realization of statistical thinking is achieved when the employees of the organization are trained in acquiring knowledge on statistical methods of quality. The statistical point of view is lacking in those organizations that think under the traditional concept that this is the responsibility of statisticians. But, as is well known, statisticians are focused primarily on the technical aspects of statistics, rather than on the importance of reducing the variation for continuous improvement in output performance of the production and service or of the organization as a whole. This outcome largely depends on the decisions and actions of managers and principals (including senior managers) taken in the context of determining the effects of variation on the currently and perceived performance score. On the other hand, workers organized in quality teams, empowered with authority to carry out self-management or self-control in accordance with MCT principles, need to take a short, short-term operational decision on reducing the variation in work them. This can not be achieved if they are not included in the learning process among others and basic statistical knowledge. Variety study tools are control graphs. Management has the responsibility to demonstrate proper engagement in the use of control graphs, in taking corrective measures and continually improving them. Employees through the use of control charts are able to understand the variation in their work process, to understand the degree of its impact on the performance of the process and the organization. This helps to understand the responsibilities, that this is not a manager's wish, but a need. Education and training for all employees is absolutely necessary. Everyone in the organization needs to understand why controlling the statistical process (SPC) is being used and what it can do to improve quality and help workers do a good job. So employees have to understand that the SPC will help and is not a scheme invented by managers to reproach them [1, 2, 6, 7].

Statistical Process Control, or SPC, is a methodology that uses control graphs to assist operators, supervisors and managers in monitoring the output of a process for identifying and eliminating specific variation cases. SPC is a proven technique for reducing scrap and recompile, resulting in increased productivity. Also, the SPC provides the basis for determining process capacity and foreseeing output from a process. In many industry providers or suppliers are required to provide evidence of statistical process control (SPC) for their customers. Survivors in the top global market competition will be those organizations that can demonstrate their quality capability. SPC provides the meaning to do so.

The use of statistical process control is related to two basic reasons: First, the SPC allows us to determine the termination of the process, ie when we take an action to regulate a process that is out of control. Secondly, the SPC allows us to determine the continuation of the process when the process is under control. Knowing when action should be taken to halt the process is important in preventing defects and reducing inspections and solving quality problems not after a significant amount of products have been produced or a volume of services have been carried out . Knowing when to leave a process to continue work is equally important because it keeps the variation to a minimum. Many production workers have difficulty in this concept because they do not understand the nature of variation and the difference between the variation of ordinary and special causes. They often believe that when the output process is out of the range,

some adjustments have to be made. Only a few adjustments will in fact increase the output variation, as it will affect the change of average values and the range of initial tolerances.

5. PRESENTATION OF TWO BANKS, PRO CREDIT BANK AND NLB BANK

ProCredit Bank is a commercial bank, oriented towards development. We offer quality services to small and medium businesses as well as to private clients who wish to save. In our operations we stick to a number of basic principles: we appreciate transparency when communicating with our customers, we do not promote consumer credit, we are dedicated to reducing environmental pollution, and we offer services that are based on the state of every client and in sound financial analysis [9].

Our focus is to provide services to small and medium-sized enterprises, because we are convinced that these businesses create the largest number of jobs and make a substantial contribution to the economies in which they operate. By providing simple depository services to private clients as well as by investing considerable resources in financial education we aim to promote a saving culture that can bring sustainability and security to families.

Our shareholders expect a sustainable return on long-term investment and are not interested in maximizing short-term profit. We make major investments in staff training in order to create a satisfactory and efficient atmosphere work, and offer professional and convenient services to our customers.

NLB Bank aims to be one of the highest quality services banks and the most reliable institution in the Kosovo market. We will achieve this by focusing on the needs of our customers and the service we serve, thus delivering lasting long-term value to our stakeholders [10].

We are committed to developing a customer focused culture, risk awareness, integrity, efficient processes and social responsibility. Respecting the mutual trust of our customers, employees, shareholders and the society in which we work gives us great responsibility. With integrity and uncompromising integrity we build this trust by working together with the parties for positive change, long-term growth and successful achievement for excellence. Including our values in everything we do, we have the power to shape our environment and contribute further to positive change.

NLB Bank will be focused on quality and day-to-day services delivered to customers and will try to meet or exceed customer expectations.

At NLB Bank, we materialize the following fundamental values within our common culture:

- Responsibility and accountability to clients, actors, employees and the social environment
- Commitment to fulfill
- Our promises and goals
- Communication and open cooperation
- Mutual benefit,
- Efficiency in fulfilling commitments.

NLB Bank is an innovative bank by creating simple customer choices and a strategic focus on the segment of credit for small and medium businesses and for individuals:

- Champion in simplicity (easy to understand products and services, low costs, fast processes);
- Innovator of services (innovative choices for clients);
- Focus on clients (all-in-one driven by customer needs);
- Local specialist (consistent strategy based on unique understanding of local markets).

NLB Bank will be a sustainable profitable bank, mainly working with clients in key segments of the market where we can achieve and maintain position among the three largest competitors in terms of profitability (relative) and market share [12].

5.1. Analysis and interpretation of data

In the following, we will give some of the survey data in these two banks.

Now we will test the hypothesis using the SPSS package. This would help to analyze the data extracted from the questionnaire presented in the SPSS database. Initially we will look at each variable (variables) descriptive statistics, consider regression analysis, questionnaire reliability, and correlation analysis of how variables are interlinked with each other [3, 4, 5].

5.2. Testing Hypotheses

In the following, we will present only some of the tables with SPSS application software that help us test the hypothesis, data are obtained from the questionnaires we have conducted in the Drenas region in the two banks presented before.

Table.1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.797 ^a	.636	.624	.297

Source: Data provided by the questionnaire / convert ne SPSS

The Table Model Summary gives the R values for the overall fitness rating of the model. The adjusted square of R in this case is: 0.624. This shows that the three independent variables in our model account for 62.4% variance in the dependent variables.

Table.2. Tabela Anova

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	14.814	3	4.938	55.800	.000 ^a
Residual	8.496	96	.088		
Total	23.310	99			

Source: Data provided by the questionnaire / convert ne SPSS.

The results of the Anova chart give a hypothesis analysis. According to the value of "F" of 55,800 and with a corresponding p-value which is given as less than 0,000. Therefore, we can safely reject the Ho hypothesis and accept its alternative that "Quality is not related to product features and price".

Perhaps not in all types of businesses can apply quality standards, depending on the activity they develop however, they find their implementation and are useful. Also as part of the standards is the control that detects possible errors that may occur in order to improve the quality of the product.

H0: Pro Credit Bank offers quality products to its clients and successfully manages its assets.

H1: Pro Credit Bank does not offer quality products to its customers and does not manage its skills successfully.

6. CONCLUSIONS

After a long and tiring work, step by step we reached our conclusions and recommendations. Throughout this paper, name

we got acquainted with the quality term and explained in detail the role and function that has the quality to provide the most quality products and services. Special role was also given to the study of International Quality Standards which provide standards for organizations, companies and individuals to fulfill them in order to provide the best quality products and services.

What puts the lid on this paper is the detailed elaboration of the data from the converted questionnaires in the SPSS program, which provide accurate data to analyze and interpret the results obtained from the ground. This paper contains a sample of 100 observations. Referring to these results we can accept or reject our hypotheses as:

Ho: Quality is related to product features and price.

On the basis of these data, we reject this hypothesis and accept its alternative. Quality does not only mean a high price but quality and functional products / services.

The second hypothesis relates to international quality standards.

Ho: International standards developed by ISO are useful and usable by business organizations of all kinds.

And, based on the results we extract, we reject the Ho hypothesis and accept its alternative. Certainly, based on these data, such a hypothesis would be rejected, as if we had a greater number of observations, we would have other results as well.

The latest hypothesis concerns the Pro Credit and NLB banks, the quality they offer to the latter.

Ho: ProCredit Bank offers quality products to its customers and successfully manages its assets, better than NLB Bank.

Based on the statistics and financial statements presented to it two banks ProCredit and NLB. Both offer the right conditions for their customers, quality and affordable products as well as security in customer asset management. Bank ProCredit has a long tradition of managing its assets especially in Kosovo as one of the first banks after the war.

Certainly the conclusions of the rejection of our hypotheses stand in the aspect of the small number of observations, which is because of the inability to assume a considerable number and, as such, remain the Ho's hypothesis.

6. LITERATURE

- [1] Nakuqi. V.: Menaxhim i cilesise, Tirane, 2010
- [2] Talka.Q.: "Manaxhimi i prodhimit dhe operacioneve": Tirane, 2008
- [3] Krasniqi.B.: Metodatat kerkimore ne shkenca sociale, Prishtine, 2012
- [4] Kumar.R.: Metodologjia e hulumtimit, Trustees of Indiana University, 2017
- [5] Livoreka, R.: Marketing research, Prishtine, 2012.
- [6] Rexhepi, G.: Total quality management, Shkup, 2012
- [7] Ramaj,V; Havolli,R; Prebreza,A; "Quality Management of Wines in the Republic of Kosovo", 9th Research Conference, with international Participant, Neum B&H, 2015
- [8] <http://nlb-kos.com/>
- [9] <https://www.procreditbank-kos.com/>
- [10] https://www.procreditbank-kos.com/repository/docs/AR-2016-ALB_949196.pdf
- [11] <https://bqk-kos.org/index.php?id=57>
- [12] <http://www.riinvestinstitute.org/uploads/files/2016/October/19/>