

Total quality management in production and service organizations

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Abstract:

Total Quality Management (TQM) has emerged as a vital framework for enhancing organizational performance and competitiveness in both production and service sectors. This abstract explores the principles, benefits, and challenges of implementing TQM in various organizational settings.

TQM is a comprehensive approach that aims to continuously improve processes, products, and services by involving all employees in quality enhancement initiatives. In production organizations, TQM principles such as process optimization, defect prevention, and customer focus lead to reduced waste, improved product quality, and increased customer satisfaction. In service organizations, TQM fosters efficiency, consistency, and responsiveness, resulting in enhanced customer experiences and loyalty.

The adoption of TQM requires a cultural shift, emphasizing employee empowerment, teamwork, and a commitment to quality. Challenges such as resistance to change and the need for sustained leadership support may arise. However, the long-term benefits of TQM, including cost savings, increased market share, and improved reputation, outweigh the initial hurdles.

TQM is a powerful management philosophy that can revolutionize production and service organizations, driving them towards excellence. Its principles align with the pursuit of quality, efficiency, and customer-centricity, making it a cornerstone of modern organizational success.

Key words: Total Quality Management (TQM), production organization , service organization, competitiveness, organizational performance.

Introduction

Lately, TQM has been known as an important factor equally in theory and practice, based on several ideas whose basis is always quality. It is often unclear to users what the TQM concept is because it has multiple meanings. Basically, it is described differently, so while some explain it as "a way of..." or "a culture of...", for others it is a "philosophy of..." or "an approach of..."

Today, it is considered that TQM represents the best management approach that foresees not only customer satisfaction and cost reduction, but at the same time restructuring the organization, increasing productivity and profit, and thus long-term sustainable development of the organization. But there is still resistance to the application of TQM, mostly for terminological, conceptual and individual reasons. The emergence of the ISO 9000 standard contributed to the mass application of the TQM concept. Now the managers see it as a new market barrier, and much less as a superior method in the direction of the development of the organization. The application of the TQM concept is the basis of any organization for gaining a competitive advantage.

In practice, TQM has already been proven as an effective process of improvement and functioning of the organization. Its value is replicated through an overall and thoughtful implementation process. TQM represents a set of measures of change and should be understood as a philosophy of operation that affects the way the organization is formed and operated.

TQM can be seen as a technological change in the direction of a change in the way of working. Only with the effective application of TQM will visible results be seen in the satisfaction of buyers or users, in the reduction of defects in a certain product and less waste. Also, results will be visible through increased production, reduced costs and improved profitability as well as in the organization itself where quality has a priority place.

TQM represents an organizational change in the way of performing work tasks, in the attitude of the management towards the employees, the attitude towards the users and the attitude towards the environment. With its application in the organization, technological changes (changes in production technology, means of production, technologies, other work functions), changes in employees (changes in their values, their skills and attitudes) and changes in products and services will be visible. (there are several reasons, but the main one is lack of interest among buyers). If changes in organizational culture and management are not implemented, TQM as a technological change will fail. This concept results in radical changes in the organization, in the organizational culture and the way of working in the organization itself. The goal of TQM is primarily to make the organization as a whole more efficient. The way of handling and managing the organizational change is a critical component with the introduction of TQM in the organization. Therefore, the main task of the management at all levels is to make an effort and convince the employees that they should leave the existing situation until the introduction of TQM and that everyone together should perform the assigned tasks in a new way. Going through that situation takes place through three stages of organizational changes:

- the current state - the status quo is the normal routine that the organization has before the introduction of TQM;

- transition - a period when employees separate from the status quo, do not behave as before, but have not yet fully accepted the new way of working;
- “future” state - organizational changes have been applied and are fully integrated into the organization.

Material and Methods

The research in this paper was carried out in accordance with the modern methodology of scientific research work. It is based on an analytical descriptive methodology that aims to provide relevant insights for the integration approach of total quality management, where organizations will answer the essential questions posed in the research.

The classic descriptive research and the used quantitative methodology result in qualitative insights in the concluding observations in this paper.

An unstructured personal interview and a structured survey questionnaire were used to collect the data. The research covers organizations that belong to different activities, in order to identify organizations with a different degree of implementation of an integration approach to total quality management, and organizations that have not implemented this concept. 52 organizations from different activities participated in the research. The response rate was 73%.

The quantitative results obtained from the survey questionnaire were processed in the computer-statistics program Excell, while the qualitative data were descriptively presented.

In general, the research has an operational character, quite current in time and aimed at understanding the situations in a real and current period of operation.

Results and discussion

Every organization strives for successful operation, which means achieving greater work results. This means improving the quality of own products/services, and thereby gaining a competitive advantage. If the ultimate goal is to gain a competitive advantage by accomplishing the set tasks, organizations should approach the implementation of the integration approach of total quality management. Implementation requires the organization to meet several conditions in order to ultimately gain a competitive advantage.

Implementation of total quality management in manufacturing organizations

The very implementation of total quality management brings with it a series of changes in the operation of the organization. The concept itself does not only bring changes in tasks or

activities, nor only in the production process. By implementing the TQM concept, organizations will undergo a series of changes that will occur in the overall operation. Organizations will change their focus, they will change the way they act, they will change the way they plan and other changes will happen during the implementation of TQM. Below is a tabular presentation in order to compare the production organizations that have implemented TQM and those that have not.

Table 1: Comparison of production organizations with and without implemented TQM

Characteristic	TQM organization	Organization without TQM
Focus on	to the buyers	towards production
Measuring results	based on the facts	based on opinion
Purpose of the company	results-oriented activities	activities aimed at methods and tools for quality improvement
Mode of action	stock orientation	orientation towards unverified information
Leadership Appearance	professional leadership	amateur leadership
Scope of quality activities	quality activities cover all sectors and functions	quality activities cover only the most important parts of the organization
Scope of quality training	quality training for all employees	quality training only applies to employees in the quality function
A method of identifying targets	a systemic approach to identifying goals	intuitive goals without measurements
Planning	a long-term view of the organization's strategy, mission and vision	a short-term view of the organization's strategy, mission and vision
A way of solving problems	persistent problems are systematically identified, analyzed and solved	occasional and unsystematic solving of problems - "putting out the fire"
A way of acting on problems	preventive action on problems (proactive)	reactive action to problems
Employee engagement	inclusion and participation of all employees	individual engagement

Source: Own view

From the tabular presentation, the characteristics that highlight the advantages that organizations gain by implementing TQM in their operations are visible. Against them are the characteristics of operations of organizations that have not implemented the mentioned system in their activity.

Implementation of total quality management in service organizations

Table 2: Comparison of service organizations with and without implemented TQM

Banks applying TQM	Banks that do not apply TQM
Driven by user interests	Driven by the organization
Complete customer satisfaction	Customer satisfaction is less than 100%
Long term commitment	Profitability in the short term
Continuous improvements	High costs of providing services
Quality monitoring	Final quality check
Managing people and measuring variation	Ranking people and measuring results
High quality, low cost	Low quality, high costs
Cross-functional teams	Separate departments
High employee participation	Top-down hierarchy
Multi-level communication	Formal channels of top-down communication

Source: Arsenievic, Lj., „Standardizacija u savremenom bankarstvu” Univerzitet Singidunum, Beograd, 2010, str. 67-73

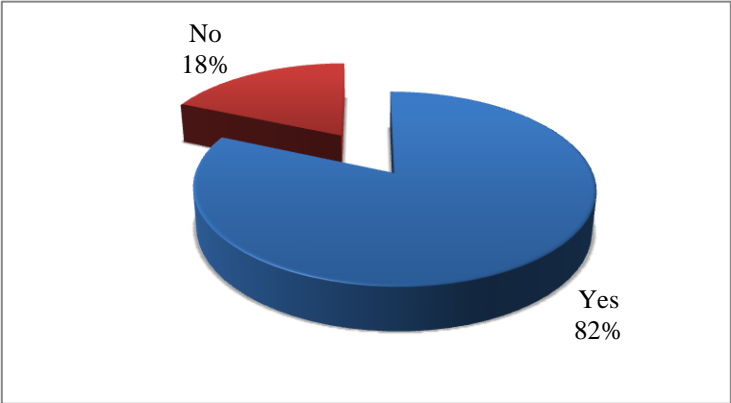
With the implementation of TQM in the service sector, differences appear between those organizations that have implemented it and those that have not. The table shows the differences between banks that apply TQM and banks that do not apply TQM.

Banks that apply TQM are driven by the interests of customers, and banks that do not apply TQM are driven by the organization. In these banks, the customer service is less than 100%, unlike the banks that apply TQM, where the customer service is complete. Banks with implemented TQM are long-term committed to meeting customer needs, and banks without implemented TQM see their profitability in the short term. With them, in the most common case, the costs of providing services are high, banks with implemented TQM strive for continuous improvement. A characteristic of banks with implemented TQM is monitoring the quality they offer to customers, while banks without implemented TQM only perform a final check of the quality of the service provided for a certain period of time. Leading people and measuring variations is another characteristic that is noticeable in banks that have implemented TQM in their operations, and banks with a traditional organization are characterized by the fact that they only rank people and measure results. Banks that apply TQM in their operations show high

quality and have low costs, which is the opposite of banks without TQM. Another characteristic that distinguishes banks with TQM is that they offer their services through cross-functional teams, unlike banks without TQM that provide services through separate departments. There is another peculiarity that characterizes the operations of banks with implemented TQM, and that is the high participation of employees in providing services to users. In contrast to them, in banks without implemented TQM there is a hierarchical arrangement in the system, from top to bottom. Multi-level communication is another characteristic of banks with TQM implemented, and in traditional banks there are formal channels of communication, again along the system, from top to bottom.

To the question: Are you familiar with the concept of "total quality management"?, 82% of organizations answered that they are familiar with the concept, and 18% that they are not familiar with it (Chart 1). This shows that the organizations are familiar with this modern concept, which represents a concept of the 21st century. It indicates the fact that organizations are also familiar with the positive effects offered by this concept for gaining a competitive advantage.

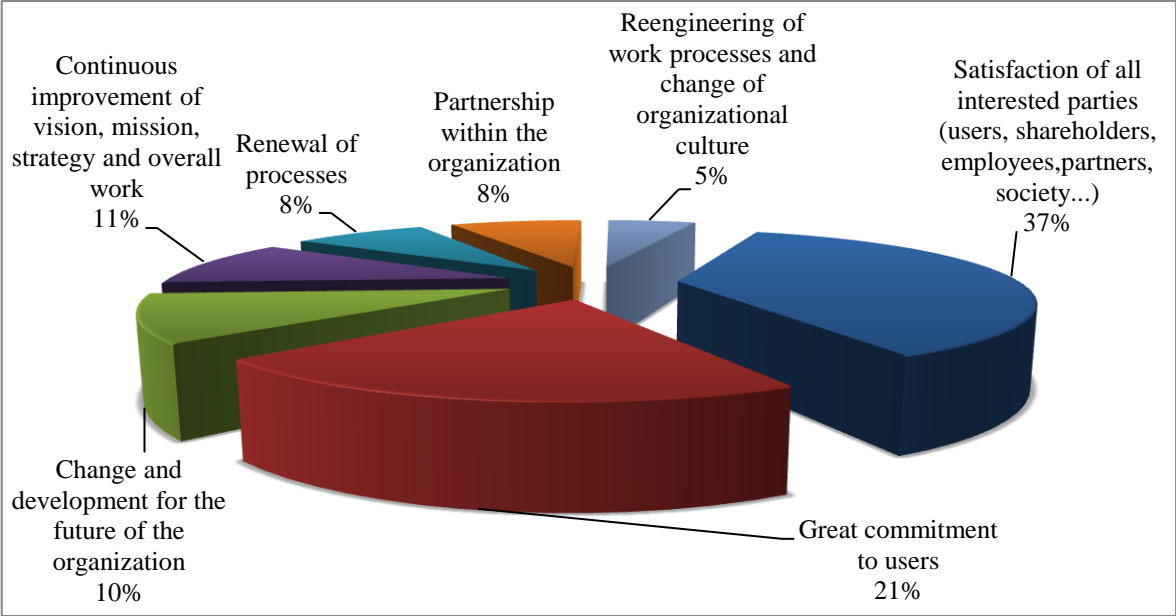
Chart 1: Are you familiar with the concept of "total quality management"?



To the question: What constitutes total quality for your organization?, 36.84% of organizations answered that total quality represents the satisfaction of all interested parties, 21.05% answered that it is a great commitment to users, 10.54% believe that it has changed and development for the future of the organization and 10.54% of organizations believe that it is a continuous improvement of the vision, mission, strategy and overall operation. 7.89% say that total quality is renewal of processes, and another 7.89% say that it is a partnership within the organization (Chart 2). Only 5.26% say that total quality represents a reengineering of work processes and a change in organizational culture. From the responses of the respondents, it can be concluded that organizations still need to work on increasing and improving the satisfaction of all interested parties. In fact, it is also the primary task of the integration approach of total quality

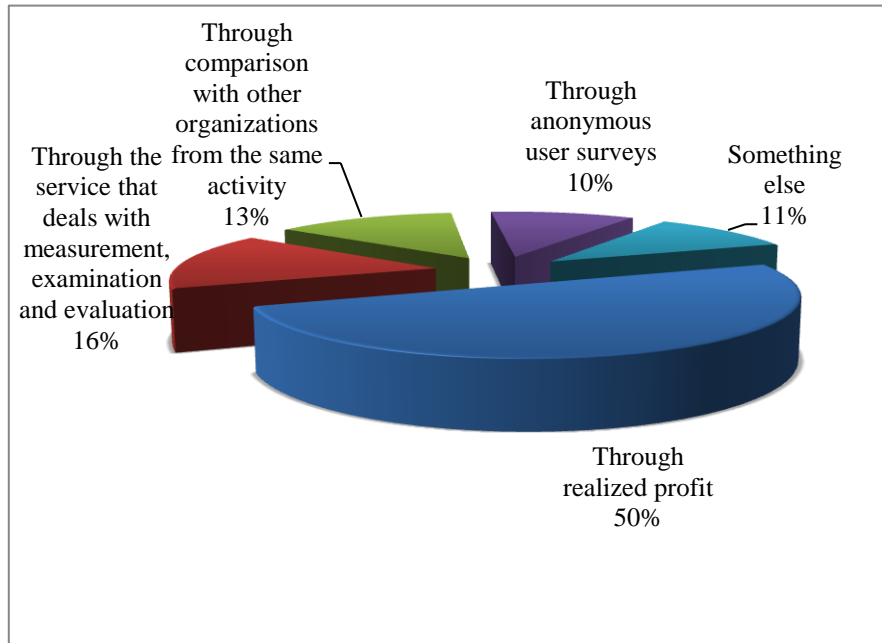
management. If organizations aim to satisfy all interested parties, then full quality would be achieved. However, all principles should be given equal importance to achieve full quality that results in increased competitiveness.

Chart 2: What does total quality represent for your organization?



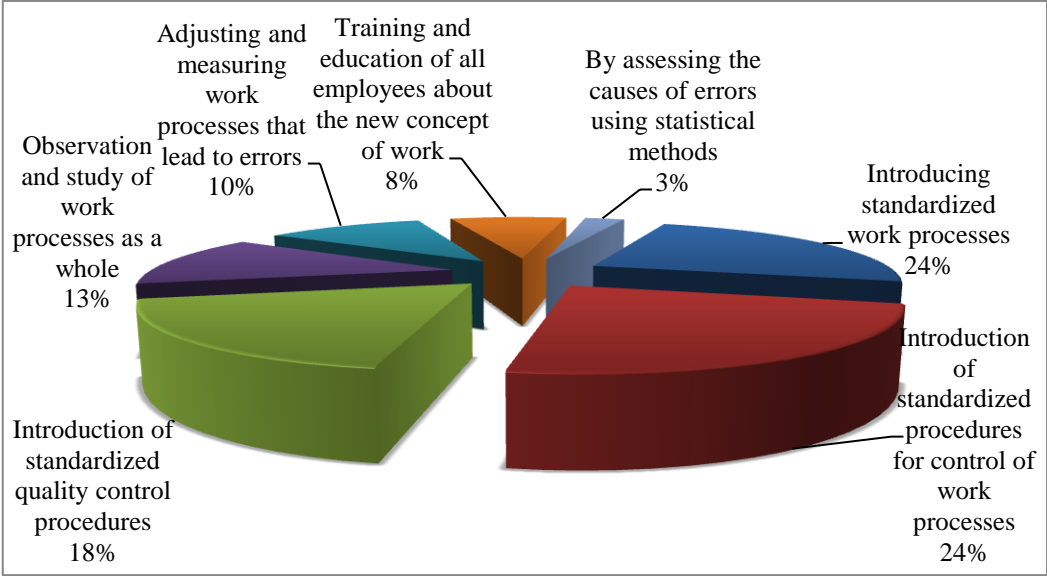
To the question: How do you measure the quality of your products and services?, 50% of organizations do it through the achieved profit, 15.79% through the service that deals with measurement, testing and evaluation, and 13.16% comparing with organizations from the same activity. 10.54% measure the quality of their products/services through anonymous user surveys, and 10.54% do so through other forms of measurement Chart 3). It shows that profit is still the leading measure of quality. Quality measurement is part of the "House of Quality" and is a significant link in the process of achieving better quality. The organizations that measure the quality know to what extent it is the same and in relation to that they direct the overall work towards its improvement. Quality improvement is achieved by implementing the integration approach of total quality management. Those organizations that implement TQM improve quality, and consequently become more competitive.

Chart 3: How do you measure the quality of your products/services?



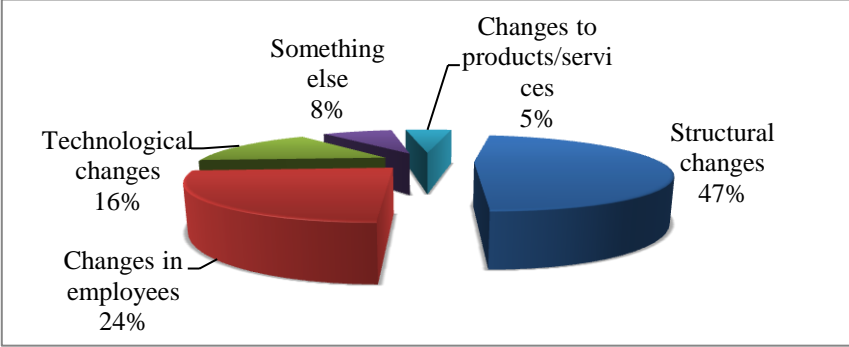
To the question: In what way would the complete quality management be practically realized in your organization?, 23.68% of organizations believe that it would be realized through the introduction of standardized work processes, and 23.68% answered that it is possible through the introduction of standardized procedures for control of work processes (Chart 4). 18.42% think that the realization of full quality management would be implemented through the introduction of standardized procedures for quality control, and 13.16% through the observation and study of work processes as a whole. 10.54% opted for the realization of this concept through adjustment and measurement of work processes that lead to errors, and 7.89% for training and education of all employees for the new concept of work. Only 2.63% of organizations decided to implement full quality management by assessing the causes of errors using statistical methods. All these answers point to the fact that organizations choose different ways to realize TQM. Depending on the activity and the goals that the organizations want to achieve, the management chooses the way in which the full quality management is realized to achieve a greater competitive advantage.

Chart 4: In what way would the complete quality management be practically realized in your organization?



To the question: Do you think that the application of total quality management will mostly lead to: 47.37% of organizations think that there will be structural changes, 23.68% think that there will be changes in employees, and 15.79% say that the application of this concept will mostly lead to technological changes. 7.89% answered that the mentioned application will lead to other changes, and 5.26% think that this concept will lead to changes in products/services (Chart 5). The respondents believe that depending on the activity of the organization, TQM will lead to appropriate changes. However, the number of organizations where the application of TQM has led to changes in products is still small. Changes should relate to improving quality, through technological changes, changes in employees, changes in products/services and other changes. The goal of TQM is to achieve improved quality, through increased effectiveness and efficiency that leads to increased competitive advantage.

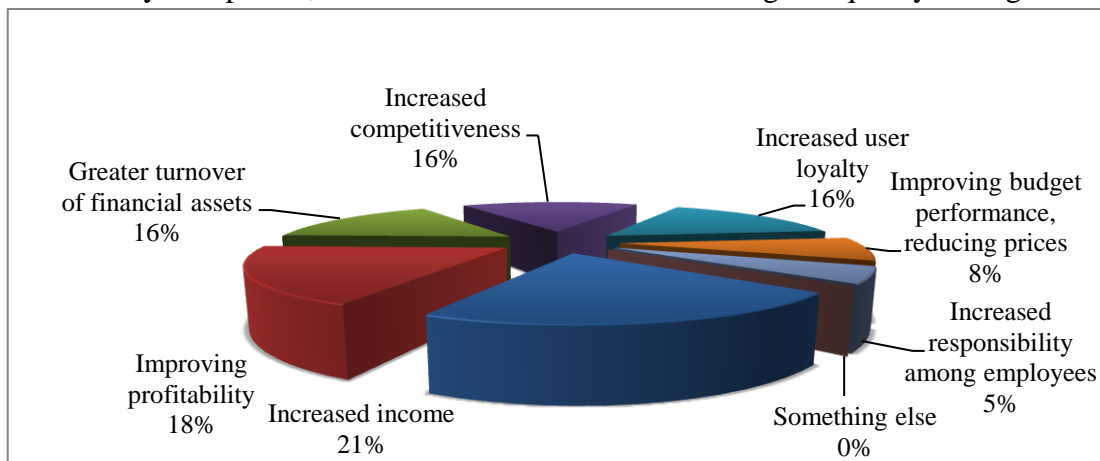
Chart5: Do you think that the application of total quality management will mostly lead:



To the question: In your opinion, what are the benefits of introducing full quality management?, 21.05% consider the increased income as the biggest benefit, and for 18.42% it is an improvement in profitability (Chart 6). 15.79% think that the biggest benefit is the greater

turnover of financial assets, 15.79% answered that it is the increased competitiveness, and another 15.79% think that there will be an increase in the loyalty of users. For 7.89%, the benefit is the improvement of the performance of the budget, and the reduction of prices, and 5.26% consider the increased responsibility of employees as a benefit. No organization indicated any other benefit from the introduction of TQM. Despite the already implemented TQM concept, it is noticeable that organizations in the Republic of Macedonia are still focused on increasing revenues and profitability. Although TQM has a number of advantages and offers a number of benefits, organizations still point to increased revenue as the biggest benefit. However, increased revenues will result from increased sales of quality products. That is also the goal of TQM. Achieving high quality by reducing total costs leads to increased efficiency. Increased sales on the one hand is the result of satisfied customers, and on the other hand it brings organizations more profit and gaining a competitive advantage.

Chart6: In your opinion, what are the benefits of introducing full quality management?



Resistance in introducing TQM

The very changes in terms of technology, production and the structure itself, especially among employees, cause resistance to the introduction of TQM. Resistance usually occurs because people try to manage the environment, ie. to have the situation under their control. But such control is lost immediately after the introduction of the change in operation. Because each person has their own form of resistance and shows it differently, the strength of resistance varies from organization to organization. Therefore, resistance should be seen as a natural phenomenon. If the change is greater in relation to the status quo, then the resistance will be greater, regardless of whether it is a positive or negative change.

The introduction of changes usually results in reduced productivity, mistrust of management, increased costs, reduced employee morale and a pessimistic view of the news.

Before implementing TQM, due to its specificity, it is necessary to prepare a plan of activities with which employees will gradually accept the changes.

In introducing TQM and identifying resistance, two types of resistance are distinguished. One arises as a result of fear, ignorance or unwillingness to change something in the existing state. Other resistance can be objective due to lack of funds, lack of technologies, lack of people and so on.

The resistance to the introduction of TQM can be overcome by stimulating the employees, which predicts their greater engagement in the direction of achieving the common goal. In that way, the employees will feel their contribution in the joint engagement towards achieving better results. Resistance will be reduced when the sum of the three factors is greater than the total cost of the change. Mathematically it would seem:¹

$$\text{Successful change (Change)} = (A+B+D) > X$$

Whereas, "A" represents the level of dissatisfaction with the current situation, "B" marks the desired changes, and "D" marks the practicality of the changes. "X" shows the cost of change which includes time spent on learning and training employees, time and resources spent on adapting to new procedures and rules, etc.

When it comes to resistance as a result of a lack of knowledge and skills, it is necessary for the management to determine the same and through learning and training programs all employees in the organization will go through. It is important to identify the nature of the resistance and, accordingly, to make an appropriate plan to overcome it, so that the TQM concept can be successfully implemented. At the same time, costs should be as low as possible, and the employees should be satisfied.

Conclusion

Based on the theoretical and practical research done in the field of this issue, it has been shown that the integration approach of total quality management is an excellent way to achieve the following goals of the organizations:

- anticipation and creation of the future of organizations;
- increased quality;
- loyalty of buyers/consumers;

¹ Bojanic, R., „Programi kvaliteta u funkciji kreiranja konkurentne prednosti preduzeca”, Univerzitet Singidunum Beograd, 2012, str.212

- organizational and technological restructuring of organizations;
- reducing costs, increasing productivity and making a profit;
- socially responsible behavior;
- long-term growth and development;
- realizing a competitive advantage.

The basic principles through which the structure of the integration approach to total quality management in organizations is built are:

- Leadership, oriented towards creative thinking, innovation, change and development. Management in organizations should have a clear vision and a well-defined strategy, create space for the participation of all employees in creating the future of the organization, improving and achieving results that establish a balance in meeting the needs and interests of all stakeholders (consumers, employees , society).
- Satisfaction of consumers and employees, a principle based on the opinion that the focus of attention should be consumers, the satisfaction of their demands and needs while simultaneously satisfying the needs and demands of employees in order to realize the demands of consumers.
- Continuous improvement, in all aspects of operation, and from an external aspect in terms of a better and higher quality product, quality and better service, and as a result satisfied consumers/users, a better position in the market and achieving a higher income, and from an internal aspect in terms of better utilization of resources, efficient production process, fewer errors and defects, and as a result lower costs and higher income.
- Focusing on the facts, which implies a greater, better and correct use of the available resources, data and information in order to satisfy the demands of consumers and achieve the set goals.
- Participation of all, a principle that implies a single commitment of all stakeholders in achieving the goals.

Namely, for the successful implementation of the integration approach of total quality management in organizations, two models can be applied: a model of excellence based on the achievement of outstanding performance with internal organization and results of operations and a model based on standardization in operations with the aim of promotion on the same.

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