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Quality management and process control in human resource management

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Η εργασία εκπονήθηκε στα πλαίσια του Προπτυχιακού Προγράμματος Σπουδών του τμήματος Μηχανικών Οικονομίας και Διοίκησης. Θέλω να ευχαριστήσω θερμά τον επόπτη καθηγητή μου κ. Γλύκα για την αξιόλογη βοήθεια που μου προσέφερε καθώς επίσης και για το χρόνο που μου αφιέρωσε.

Επίσης, οφείλω ένα ευχαριστώ ιδιαίτερα στους γονείς μου, καθώς ήταν εκείνοι που με ενθάρρυναν και με υποστήριξαν όλο αυτό το διάστημα. Επιπλέον, είμαι ευγνώμων σε όλα αυτά τα άτομα βοήθησαν αρκετά στην απόκτηση υλικού, το οποίο ήταν απαραίτητο για τη συγγραφή της εργασίας.

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ABSTRACT

The subject of this dissertation is Total Quality Management and its application to human resources. The purpose of this work is to study companies, in order to identify differences in both companies and the performance of their staff. To record the importance of Total Quality Management and the continuous effort for improvement by all the units that constitute a business.

The first chapter refers to Total Quality Management, the philosophy around this concept. What is its purpose, but also what are the reasons that adopted the Total Quality Management in companies and organizations. How some theories were developed and what their characteristics are, as well as how they can be applied in various organizations.

The second chapter analyzes the Human Resources Management and the importance that has been given to the human factor in recent years. Human capital is not only the abilities and skills of the Human agent, but also the workplace, where it is an integral part of a group of people who work collectively with the main goal of achieving specific goals.

The third chapter, in which this work is completed, mentions the characteristics of three companies that use Total Quality Management in their human resources. These are three companies that have been in the labor market for several years and the number of their employees is relatively large at the time of the survey.

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INTRODUCTION

Quality is an important asset for both a business and an industry in general. With continuous efforts to improve the quality, further develops the industrial and local community where the company operates. In other words, between Quality and the target customer there is a chain link since one is connected to the other. Quality was initially difficult to define and measure, since people when referring to Quality was often refer a general context. Specifically, in Greece there was quite a lot of difficulty until in an effort to motivate, involvements in cooperation with organizations, motivating private companies. Thus, soon after coordinated efforts, certification standards and Quality systems were devised and then implemented.

The countries that applied these standards experienced rapid development and growth, as long as they had full knowledge of the product where they produced. In Greece there was a significant delay until the completion of these systems. Today, however, in developed countries, Quality plays an important role in any product or service or process. It is highly sought after and is now measurable. There is now an ongoing effort in quality improvements, spending large sums of money.

Finally, when we refer to Quality Control we also refer to Human Resources, since employees are an important, if not the most important part of the production process. Thus, in recent years, special importance has been given to Total Quality Management in human resources, with the ultimate goal of improving the working conditions of employees, but also meeting market demands.

CHAPTER 1

1.1 HISTORICAL REVIEW FROM TRADITIONAL MANAGEMENT TO TOTAL QUALITY MANAGEMENT.

The concept of quality has always refer to expensive cars, luxury homes or expensive hotels, when in fact quality is synonymous with goodness, beauty and truth. Quality products or services can be characterized by perfection, and give prestige and value to their owner. But what does quality mean for a business?

In order for a business to be viable, it must rely on a certain set of values that will help the business, reassure customers that the product or service is the right choice, and attract new customers while always retaining existing ones. Quality is one of the most important aspects of a business or a product or service, as it could be related to many factors such as reliability, delivery, usability and an acceptable price that is well correlated with the quality it offers. Quality can have different meanings for different customers, as it could also be interpreted at many different events in one term. Reputation for quality is a valuable asset for a

company and it takes time to implement and achieve, however it can be very easily damaged.

It is worth noting that quality is not enough to simply meet customer requirements but as mentioned above, quality can be related to many different aspects of a product or service. Although quality is determined by customer requirements, a quality product or service could also mean meeting the minimum standards set by the company to complete a job that can be done in the construction sector, healthcare and human resources, etc.

Companies that consistently offer quality products often have a loyal customer base that continue to buy from the same supplier, but they also attract new customers to its base.

To be successful, quality in a business must be managed. Every player in the quality chain must understand customer expectations and requirements, if quality goals can be achieved and what their will be impact on the company's quality chain in case they do not meet their expectations.

1.2 WHAT IS TOTAL QUALITY MANAGEMENT?

But let's see what Total Quality Management (TQM) is in a business. TQM is a set of business-wide management practices that ensure that the business consistently meets customer requirements. Based on the views expressed in the literature on how companies or organizations

could achieve proper quality management, it can be said that the key to successful quality management goes through is continual improvement, changing the classic mentality of implementing out-of-date quality control measures, modernizing methods and providing effective staff training.

To better understand how applies to every business or organization, we have divided it into four basic pillars that must be adopted by businesses in order to achieve successful TQM. The four main categories are the philosophies, the standards, the methodologies as well as the awards of excellence, and each one will be analyzed separately below.

1.3 KEY FEATURES

The key characteristics given to total quality management are those of Commitment, Knowledge and Participation Specifically :

Commitment by company, executive and no executive persone, to a common goal is of utmost importance of the quality of the products or services of the company. Emphasis must be given to the important role that managers play leadership and motivating employees. As Hersey and Blanchard argued in 1972, leadership is the process by which an individual or group of individuals influence the actions of individuals within a business to accomplish certain goals in a particular

time period. Without effective leadership, a business cannot function effectively, Cannon argued in 1979¹. So desirable working conditions,

¹ Theodoratou , pages.224-225

communication and cooperation between the executives and employees, as well as the appropriate means for the correct and successful application of the new philosophy, this IOP.

In terms of knowledge, it is necessary for all company executives as well as its employees to possess technical knowledge and skills, in terms of the correct methods and techniques for the correct application of the IOP and the correct forecast for malfunctions of each company as this is exactly what the philosophy of DOP establishes.

Continuing with participation, as mentioned before, proper leadership is the secret for successful implementation of Total Quality Management. The term "Total Quality" refers to all human resources of a company, whether they are executives or employees, which requires a positive atmosphere of cooperation. Undoubtedly this should be understood by all executives, in order to eliminate the feeling of fear of communication and to promote the feeling of communication between employees, without secrecy and competition. When team spirit is achieved in a business then it is possible for problems to be prevented and solved as everyone will be part of a team working for a common goal.

1.4 OBJECTIVES OF IOP

The philosophy of DOP, as we mentioned, is a new application of traditional management we knew. With the implementation of the IOP, the company becomes more efficient and effective and increases its productivity.

The objective purposes of the application of IOP first of all² is the absolute satisfaction of customer which is known to be quite difficult in a highly international, competitive market, ultimately aiming at retaining customers. This is achieved by the continuous improvement of the quality of the products and services, which is essentially established by the idea of the IOP over the traditional management that prioritizes the cost. Of course, not only good quality in a product but also the right service on the part of the company's staff is enough.

Finally, a purpose of DOP is to promote company innovation as well as to be able to be flexible in whatever changes are necessary, in terms of products and their production processes but more generally in its philosophy since market preferences are constantly changing in Buy. Company executives must immediately realize if the philosophy is wrong that employees must be employed with specific tasks assigned to

² K.N. Dervitsioti,1997

them by Management. And to utilize as well as improve human resources through continuous training in order to gain a competitive advantage in the market is undoubtedly the key factor for a production system, as we will see below.

1.5 BASIC CATEGORIES DOP

1.5.1 First Category: The Philosophies of Total Quality Management

Total quality management was founded in the USA by W.E. Deming, J.M. Juran and P.B. Crosby and expanded to Japan.

W. Edwards Deming was an American statistician, credited with the rise of Japan as a manufacturing nation and with the invention of Total Quality Management (TQM). The Deming method is a type of TQM based on statistical analysis and quality control.

Deming went to Japan immediately after the war to help census the Japanese population. While there, he taught "statistical process control" to Japanese engineers - a set of techniques that allowed them to make high-quality products without expensive machinery. In 1960 he was awarded a medal by the Japanese emperor for his services to the industry of this country.³ W.E. Deming put forward 14 points which, if applied to the US manufacturing industry, he believed would save the

³ <https://www.hci.com.au/deming-A/>

US from industrial disaster. These 14 points even today constitute basis for TQM, industry, education and in improving quality management.

The 14 points seem like a rucksack of radical ideas at first glance, but the key to understanding some of them lies in Deming's thoughts on variation. According to this method, commitment to quality improvement begins a chain reaction that leads to a healthy industry that provides jobs to employees.⁴

From this case, he set out his 14 points for management, which are listed below:

1. "Create purpose stability for improvement". Replace the short-term reaction with the long-term planning.
2. "Adopt the new philosophy". The consequence is that management must adopt its philosophy, not just expect from the workforce.
3. "Stop dependence on inspection". If the variance decreases, you do not need to check manufactured items for defects, as there will be none.
4. "Go to a supplier for any item." Many suppliers mean variation between raw materials.
5. "Improve continuously and forever". You are constantly trying to reduce the variation
6. "Training from the Institute at work". If people are poorly trained, not everyone will work the same way, and this will cause variations.

⁴ <https://www.bl.uk/people/w-edwards-deming>

7. "Leadership of the Institute". Deming distinguishes between leadership and simple oversight. The latter is based on quotas and targets.

8. "Get rid of fear". Deming sees fear management as counterproductive in the long run because it prevents employees from acting for the benefit of the organization.

9. "Remove barriers between sections". Another central idea of TQM is the concept of "internal customer", that each department does not serve management, but the other departments that use its results.

10. "Eliminate slogans". Another central idea of TQM is that it is not the people who make the most mistakes - it is the process in which they work. Harassing the workforce without improving the processes it uses is counterproductive.

11. "Elimination of goal management". Deming saw production targets as encouraging the delivery of poor quality goods.

12. "Remove obstacles to the pride of construction". Many of the other problems described reduce employee satisfaction.

13. "Education and self-improvement of the Institute".

14. "Transformation is everyone's job"⁵

⁵ https://en.wikipedia.org/wiki/W._Edwards_Deming

The Deming method identifies these fourteen points that companies must follow to be successful, but also seven deadly diseases that they must avoid.

Here, Deming describes the main obstacles that management faces in improving efficiency and continuous improvement. He was referring here to US industry and their management practices.⁶

1. Lack of stability in the design of products and services that will have a market and will keep the company running.
2. Emphasis on short-term profits and short-term thinking (just the opposite of the stability of the intention to stay in business), fueled by fear of unfriendly takeovers and demand from units and bank owners.
3. Performance evaluation and annual reviews.
4. Mobility of managers and job transition.
5. Management using only available data.
6. High medical cost.
7. High cost of liability.

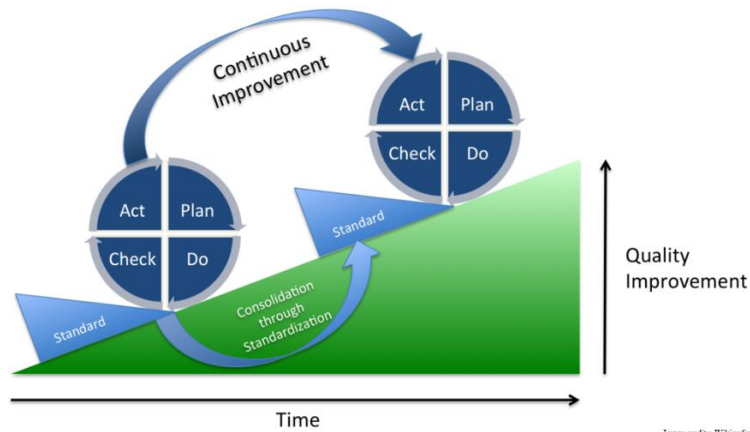
Deming said effective management and quality commitment are needed to combat these seven deadly diseases. He stressed the importance of communicating quality messages to all staff and building confidence in overall quality management.

⁶ <https://www.bl.uk/people/w-edwards-deming>

Walter Shewhart started the idea of the PDCA cycle and introduced it to Deming's theory. Deming promoted the idea widely in the 1950s and became known as the Deming Wheel or Deming cycle. The PDCA (Plan – Do – Check -Act) cycle consists of four steps or steps that they must take to move from “problem” to “problem solving”. The steps that follow the cycle are:

1. Design: Design a consumer research methodology that will update the details of the business process.
2. Do: Apply the design to measure its performance.
3. Check: Check the measurements and report the findings to decision makers.
4. Act: Draw a conclusion about the changes that need to be made and implement them.⁷

⁷ <https://www.simplilearn.com/deming-vs-juran-vs-crosby-comparison-article>



Repeating these steps forms a continuous improvement cycle consisting of the following steps: a) Change plan for improvement, b) Make small-scale changes first to test them, c) Check if the changes are working, and explore selected procedures and finally d) Act to get the most benefit from the change. Below we will refer in more detail to the PDCA cycle.

Continuing, with Joseph Juran, a Romanian-born American engineer and management consultant of the 20th century and a missionary for quality management. Like Deming, Juran's philosophy was also rooted in Japan. He stressed the importance of a broad, and organizational approach to quality - stating that overall quality management starts from the highest position in management and continues to the end. If we delve into what exactly Juran expressed, we come to the following:

The primary goal of every company, during Juran's time, was the quality of the final product, something that Deming also emphasized. Juran

changed a bit to focus on the human dimension of quality management. He stressed the importance of education and training of managers. For Juran, the root cause of quality issues was resistance to change and the problems of human relationships.

The Juran Quality Trilogy

He was one of the first to write about poor quality costs, and Juran developed a cross-sectoral management approach that includes three legislative procedures:

1. Quality planning: This is a process that involves realizing the need for improvement, setting some goals and designing ways to achieve those goals. This process is rooted in management's commitment to planned change that requires trained and qualified staff.
2. Quality control: This is a process for developing methods for product quality control. Deviation from the standard requires change and improvement.
3. Improving quality: This is a process that involves the constant drive towards perfection. Quality improvements must be constantly introduced. Problems need to be identified in the root causes for developing solutions. Management must analyze procedures and systems and report with recognition and praise when things are done right.

Juran also introduced three key steps forward that he believes companies must follow if they are to achieve high quality:

1. Complete improvements that are structured on a regular basis with commitment and a sense of urgency.
2. Create an extensive training program.
3. Cultivate commitment and leadership in the upper echelons of management.

As well as ten steps that organizations must follow to achieve better quality.

1. Define awareness of the need for improvement and opportunities for improvement.
2. Set goals for improvement.
3. Organization to achieve the set goals.
4. Provide training.
5. Implementation of projects aimed at solving problems.
6. Progress report.
7. Give recognition.
8. Communicate the results.
9. Keep the score.
10. Maintain your momentum by incorporating improvement into the company's regular system.⁸

Continuing with the third founder who can be said to belong to the same category as the previous two, for quality management Philip B. Crosby,

⁸ <https://www.simplilearn.com/deming-vs-juran-vs-crosby-comparison-article>

who was a writer and entrepreneur who contributed to management theory and quality management practices. He started his career in quality much later than Deming and Juran. He founded Philip Crosby and Associates, which was an international quality improvement consulting firm. Crosby's⁹ principle was to do it right the first time, and it was his response to the quality crisis. Defines quality as complete and perfect compliance with customer requirements. The essence of his philosophy is expressed in what he called Absolute Quality Management and Basic Elements of Improvement. Crosby defined four absolute quality management, which are:

The first absolute: The definition of quality is compliance with requirements

The second absolute: The quality system is prevention

The third absolute: The performance standard is zero defects and,

The final ultimate: Quality measurement is the price of non-compliance.

In addition, we should mention the great founder Armand V. Feigenbaum, an American quality expert, who coined the concept of Total Quality Control (TQC). This idea later became the cornerstone of TQM (Total Quality Management) flow. Feigenbaum¹⁰ believed that TQM was the most effective method of integrating the various quality multi-team activities into one organization, while enabling production and services to mitigate customer satisfaction at the most economical

⁹ <https://www.bl.uk/people/philip-crosby>

¹⁰ https://en.wikipedia.org/wiki/Armand_V._Feigenbaum

level. In addition, he believed that in the typical production environment outside TQM there was so much extra work to correct errors that there was essentially a "hidden" factory inside the factory. Most importantly, he believed that quality was everyone's job, and without top management being actively and visibly involved, no one would have done it. The following principles summarize the basics of Feigenbaum's¹¹ TQM system:

- Quality is a corporate process.
- The customer determines the quality.
- Effective quality requires both individual and team effort.
- Quality is a management philosophy.
- Quality and innovation depend on each other.
- Quality is an ethical standard.
- Quality requires continuous improvement.
- Quality is the most efficient way to improve productivity.
- For quality to work properly, it must be implemented as a whole system and include both customers and suppliers.

Although Deming, Joseph Juran and Philip Crosby are the most famous of the quality founders, it is worth mentioning Kaoru Ishikawa who laid the foundations of TQM by launching a company-wide quality control system (CWQC). His vision for CWQC was that quality was not just about product performance, but also about after-sales service, quality management, the company itself and human life. He believed that

¹¹<https://www.shmula.com/armand-vallin-feigenbaum-and-his-contributions-to-process-improvement>

quality improvement was an ongoing process that could always go one step further. He stressed that quality was important throughout the life of the product.

Finally, we should mention Shigeo Shingo who is a name highly respected among engineers and the dozens of people associated with quality control in all industries. He is said to have succeeded in Kaizen, the Japanese word for improvement. To be more precise, the concept in business refers to the perfect synergy between all the activities of an organization. This can be from the level of the CEO himself to the workers on the floor assembly line of thousands of factories around the world. During his lifetime, Shingo contributed significantly to the quality control process in the industry. His teachings can be integrated into three main topics: Just In Time (JIT), Single Minute Exchange of Dies (SMED), Zero Quality Control.

Just In Time (JIT): This concept in quality control was mainly developed by Shingo in collaboration with Mr. Taichii Ohno from the days of Toyota. To summarize the idea, this is a planned way to eliminate all waste along with continuously improving productivity. It includes a perfect synergy of all activities related to the manufacture of a particular product. Some key elements of JIT would be: To have only the required amount of stock at a given time, to improve the quality so that you do not have defects, to reduce the delivery time by reducing the installation times, to optimize the queue lengths and batch sizes. The key thing to remember is to achieve the above with minimal cost. If a

company applies the above principles, it will be able to reduce costs in an optimized and efficient way.¹²

Single Minute Exchange of Dies (SMED): Shigeo Shingo, as part of JIT, also helped promote and develop the existing SMED process. The basic principles that led to the study were: reduce matrix installation time, smaller batch sizes for spare parts, the above become very beneficial for companies wishing to reduce costs, as it allows the construction system to adapt quickly to design changes with very low cost for the company.

His idea was to isolate and determine the time required for installation in two main entities: internal time and external time. Many companies that have stamping operations have found great success using its methods.

Zero Quality Control: The method is based on some principles as stated below:

- Quality controls should be performed at the source of the process instead of the usual sampling inspections.
- Quick comments from quality controls and self-tests.

1.5.2 Second Category: The Methodologies For DOP.

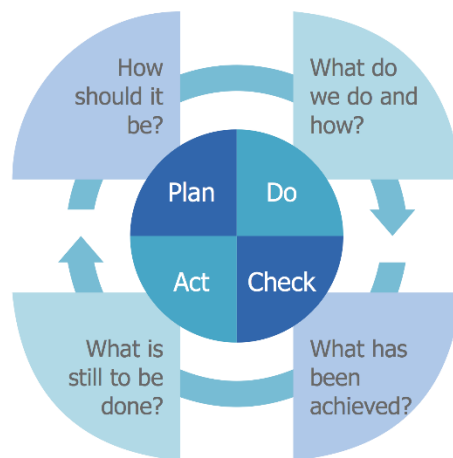
A methodology is defined as a real or conceptual structure that is intended to serve as a support or guide to building something that

¹² <https://www.shmula.com/27876-2/27876/>

extends the structure to something useful¹³. In this chapter we will analyze three basic methodologies related to total quality management and these are: the PDCA cycle, the EFQM model and Six Sigma.

1.5.2.1 The Plan Do Check Act Cycle - PDCA Cycle

The PDCA¹⁴, also known as the Deming Cycle, was first mentioned by W.E. Deming, American quality management specialist. This cycle mainly includes four stages which are the initials of its name: programming, implementation, inspection and processing.



¹³ <https://whatis.techtarget.com/definition/framework>

¹⁴ <https://iopscience.iop.org/article/10.1088/1757-899X/490/6/062033/pdf>

The concept of PDAC Cycle

1. Plan: design is the main link of quality management. The plan identifies the quality management policy and objectives, as well as the parameters and action plans required to achieve the objectives. The plan includes objectives related to quality management and quality assurance in action plans. The definition of quality management objectives is based on its own characteristics, in contrast to quality problems that may arise, and the difference between quality standards and the provisions of national regulations or user updates, higher quality requirements. For this reason, the quality standards that must be covered by the construction of the project must be defined, so that in its completion these standards are covered.

2. Do: This implementation includes two steps, which are the completion of the action plan and the technical activities of the construction work defined by the method and requirements specified in the plan. First of all, good work must be done in the design and implementation of the plan.

The application ¹⁵includes the application of the organization, the application of technology and materials. Secondly, in the construction activities carried out according to the plan, we rely on quality work assurance system to ensure the implementation of the quality plan. In particular, it is necessary to rely on the ideological work system

¹⁵ <https://www.conceptdraw.com/solution-park/management-plan-do-check-act>

to do a good job in ideological education, which is based on the organizational system, the improvement of the organization, the proper implementation of the system of responsibility, rules and regulations etc. Based on the quality control system of the product formation process, good work needs to be done for quality control of the manufacturing process, etc.

3. Check: The inspection is to check the design, to check the application and its result. During the implementation of the control if any deviation is detected, the deviations and problems during the implementation of the plan should be corrected immediately.

The inspection generally includes two aspects: First, checking whether the relevant instructions are strictly followed in the planned action plan and checking whether the actual conditions have changed. The reasons for failure should be identified if of course there is, or a summary of actions taken for the successful implementation of the plan. Secondly, the results of the implementation of the plan should be audited. That is, if the quality of construction meets the requirements and the necessary requirements of the standard, and must be carefully evaluated and confirmed.

4. Act: The action is based on the inspection, confirming the successful experience and the formulation of the standards facilitates its use as a basis for processing in future work and consolidation of the results. In addition, measures to correct deviations in the implementation of plans,

address deficiencies, correct errors, for problems that can not be solved, can be recorded and remain for resolution in the next cycle.

The application of PDCA Cycle

The quality management in the decision phase and the quality management before construction correspond to the first P link in the PDCA cycle. Their functions are equal and their goals are the same. Everyone collects materials, formulates templates and designs, proves expediency, and preparation. The design - application, is equivalent to the design stage. The designer must gather all the data and communicate with the interested party, in order to be able to offer him high quality designs. Quality and management in the construction process is equivalent to the second and third link in the PDCA cycle, D and C. In addition to the construction, the control and inspection of the project are also carried out in this link.

This is tantamount to building supervision. The main action of the project and the supervision, is to control and prevent the occurrence of quality problems. If quality problems occur, treatment is required at the time the problem occurs. This content takes into account the functions of the second and third stages of the PDCA cycle. Quality management after project completion is equivalent to the last link A in the PDCA cycle. In this link, all parties involved in the quality of the project, even the administration, check and summarize the quality of the project and ask questions, which can be resolved through

consultation. The resulting problems can be an important part of the future quality management project. Implementing the PDCA cycle in project quality management content can better promote the continuous improvement of project quality management¹⁶.

From this it can show that the quality assurance system operates according to the PDCA cycle. Once executed, the build quality will improve by one step. If there is a sign that these links are going wrong, they will lead to deviations in the quality of the project. Therefore, these four points, the connectors are interconnected and act as a machine gear.

1.5.2.2 The European Foundation for Quality Management model - EFQM Model

EFQM¹⁷ is an acronym for: European Foundation for Quality Management. EFQM was founded in 1988 with the goal of creating a platform where organizations can learn from each other to continually improve their performance. Benchmarking with other European agencies can lead to sustainable economic growth.

¹⁶ <https://iopscience.iop.org/article/10.1088/1757-899X/490/6/062033/pdf>

¹⁷ <https://www.toolshero.com/quality-management/efqm-model/>

EFQM wants to support managers to deliver on brainstorming and innovation with the help of the so-called EFQM model as a common framework. The EFQM model or EFQM business excellence model is the most popular quality management tool in Europe, used by many organizations to improve performance.

This quality management model aims at sustainable excellence in which quality, efficiency and sustainability are key elements. The basis of the EFQM Model consists of the concept of Total Quality Management (TQM). It consists of a global framework of concepts, thus allowing organizations to share information effectively, regardless of the different sectors, cultures and life stages in which they are located. Organizations can therefore take other organizations as a model, so as to obtain information about how well they satisfy the image of a high quality organization. The EFQM model consists of nine criteria subdivided into five Activators and four Outputs.

The application of EFQM Model

The five organizational areas show how these goals can be achieved:

- Leadership
- People
- Policy and strategy
- Collaborations and resources
- Procedures

The four results show what the goals are:

- Result of people
- Customer result
- Result of society
- Basic performance results



The EFQM model should be read from right to left, making it clear that the result areas focus on "what can be achieved?", After which it becomes clear that these organizational areas focus on "how can these be results »achieved? Next, "learning, creativity and innovation" indicates that measurement, evaluation and adaptation are not

individual actions but a continuous process. In the same process, organizations complete a step-by-step development.

The EFQM model consists of an EFQM evaluation that allows an organization to determine what stage of the quality process it is at. The evaluation begins with a review of the results. This is the basic principle of this model. To improve results, action must be taken in at least one of the organizational areas. The EFQM model and evaluation provide information on the level of maturity and viability of an organization. This is represented in five stages of development¹⁸:

Stage 1: Activity-oriented

Emphasis is placed on individual activities within an organization, activities are defined by work instructions and house rules or by the professionals themselves. Dependencies pay little attention.

Stage 2: Process oriented

Procedure and process control are key elements, clearly defining powers, duties and responsibilities. Improvements are made only after evaluation.

¹⁸ <https://qip-journal.eu/index.php/QIP/article/view/1415/1191>

Stage 3: System oriented

The body as a whole is examined. Process control concerns the internal and external orientation of customers in which cooperation is important. Trends and developments respond once identified.

Step 4: Chain Oriented

There is good control over the entire organizational process, including the relationship with suppliers, customers and other partners in the chain. Knowledge, ability and experience are optimized through the definition of new goals and are developed to the maximum potential of the organization.

Stage 5: Total Quality Management (TQM)

Total quality management (TQM) and continuous improvement is the basis at all levels of the organization. With regular performance measurement, quality remains high and trends and developments are adjusted proactively. At this stage the organization can be characterized as a high quality organization.

In implementing the EFQM model, ratings allow an organization to gain knowledge of the quality of its current business management. Improvements are

formulated and these can be implemented by an organization gradually. The evaluation itself consists of five steps:

1. setting standards for all nine key areas
2. defining the current quality of business management
3. formulation and prioritization of improvements
4. implementation and inclusion of improvements in the various (annual) plans
5. effective implementation and monitoring of corrective actions

1.5.2.3 Six Sigma

Six Sigma is a set of techniques and tools to improve the process. It was first mentioned by American engineer Bill Smith while working for Motorola in 1986. Jack Welch made it the core of his business strategy at General Electric in 1995. The Six Sigma process is a process in which 99.99966% of all opportunities for the production of a characteristic of a part is statistically expected to contain no defects.

Six Sigma strategies seek to improve the quality of a process result by identifying and removing the causes of defects and minimizing the variability of impacts on production and business processes. It uses a set of quality management methods, mainly empirical, statistical

methods and creates a special infrastructure of people within the organization who are experts in these methods. Every Six Sigma project run within an organization follows a defined sequence of steps and has specific value goals, for example: reducing process cycle time, reducing pollution, reducing costs, increasing customer satisfaction, and increasing profits.

The term Six Sigma is derived from the terminology associated with statistical modeling of manufacturing processes. The maturity of a production process can be described with a sigma rating that indicates the yield or percentage of products without defects it creates.

Six Sigma argues that continuous efforts to achieve consistent and predictable process results are vital to business success. Construction and business processes have characteristics that can be defined, measured, analyzed, improved and controlled.

Achieving continuous quality improvement requires commitment from the whole organization, especially from the top management. Features that distinguish Six Sigma from previous quality improvement initiatives include: a) a clear focus on achieving measurable financial returns from any Six Sigma project, b) Increased emphasis on strong and passionate leadership and management support, c) a clear commitment to make decisions based on verifiable data and statistical methods, rather than assumptions and conjectures.

In recent years, some practitioners have combined Six Sigma ideas with lean construction to create a methodology called Lean Six Sigma. The Lean Six Sigma methodology sees simplistic construction, which deals

with process and waste issues, and Six Sigma emphasizes variation and design as complementary disciplines that aim to promote "business and business excellence".

In 2011, the International Organization for Standardization (ISO) published the first standard "ISO 13053: 2011" which defines the Six Sigma process, which will be mentioned below.

SixSigma follows two methodologies derived from Deming's PDCA Cycle. These methodologies, consisting of five phases each, bear the acronyms DMAIC and DMADV. DMAIC is used for projects aimed at improving an existing business process, while DMADV is used for projects aimed at creating new product or process designs.

The DMAIC methodology

The DMAIC methodology has five phases:

1. Define the system, the client's voice and requirements, and the project objectives, specifically.
2. Measure key aspects of the current process and collect relevant data. calculate the "as is" possibility.
3. Analyze data to investigate and verify cause-effect relationships. Identify the relationships and try to ensure that all factors are taken into account. Look for the root cause of the defect under investigation.
4. Improve or optimize the current process based on data analysis using techniques such as experiment design, error correction, and standard

work to create a new, future status process. Adjust routes to determine process capability.

5. Check the future status process to make sure any deviations from the target are corrected before they lead to defects. Implementation of control systems such as statistical process control, production tables, visual workspaces and continuous process monitoring.

This process is repeated until the desired quality level is reached.

The methodology of DMADV

The DMADV project methodology has five phases:

1. Set design goals that are consistent with customer requirements and business strategy.
2. Measure and identify the features that are critical to quality, measure the capabilities of the product, the capacity of the production process and measure the risks.
3. Analyze to develop and design alternatives
4. Design an improved alternative, more suitable per analysis in the previous step
5. Verify the design, set up the pilot tests, apply the production process and hand it over to the process owners.

1.5.2.4 The Lean Six Sigma

Lean Six Sigma¹⁹ is a method based on a collaborative team effort to improve performance by systematically removing debris and reducing variation. It combines business lean and Six Sigma to eliminate eight types of problems: defects, overproduction, waiting, untapped talent, transfer, inventory, movement and extra processing. Lean Six Sigma not only reduces the flaws of the process, but also provides a framework for the overall change of organizational culture.

1.6 Third Category: Quality Standards and ISO

In London, in 1946, 65 delegates from 25 countries meet to discuss the future of International Standardization. In 1947, ISO officially came into existence with 67 technical committees. In 1987, ISO publishes its first quality

¹⁹ https://en.wikipedia.org/wiki/Lean_Six_Sigma

management standard. Standards in the ISO 9000 family have gone on to become some of the most well-known and best-selling standards²⁰.

1.6.1 ISO 9000

ISO 9000: 2015 describes the fundamental concepts and principles of quality management which are universally applicable to the following:

- organizations seeking sustained success through the implementation of a quality management system;
- customers seeking confidence in an organization's ability to consistently provide products and services conforming to their requirements organizations seeking confidence in their supply chain that their product and service requirements will be met
- organizations and interested parties seeking to improve communication through a common understanding of the vocabulary used in quality management
- organizations performing conformity assessments against the requirements of ISO 9001
- providers of training, assessment or advice in quality management
- developers of related standards.

ISO 9000: 2015 specifies the terms and definitions that apply to all

²⁰ <http://www.elot.gr/>

quality management and quality management system standards developed by ISO / TC 176.²¹

1.6.2 ISO 14000

This standard provides guidelines for a phased approach to establish, implement, maintain and improve an environmental management system (EMS) that organizations, including small and medium-sized enterprises (SMEs), can adopt to enhance their environmental performance.

The phased approach provides flexibility that allows organizations to develop their EMS at their own pace, over a number of phases, according to their own circumstances. Each phase consists of six consecutive stages. The phased approach enables an organization to develop a system that ultimately satisfies the requirements of ISO 14001²².

1.7 Fourth category: Quality Awards

1.7.1 The Deming Prize

The Deming Award is the longest-running and one of the highest TQM (Total Quality Management) awards in the world. Recognizes both individuals for their contribution to Total Quality Management (TQM)

²¹ <https://www.iso.org/popular-standards>

²² <https://www.iso.org/popular-standards>

and the companies that have successfully implemented TQM. It was founded in 1951 to honor W. Edwards Deming, who contributed significantly to the proliferation of statistical quality control by Japan after World War II. His teachings helped Japan build the foundation on which Japan's quality of products has been recognized as the highest in the world, originally designed to reward Japanese companies for significant improvements in quality. Over the years, it has developed, under the auspices of the Japanese Association of Scientists and Engineers (JUSE), where it is now also available to non-Japanese companies, although it usually operates in Japan, as well as to individuals recognized as having made significant contributions to progress of quality. As shown below, the Deming Prize categories are the Deming Prize for Individuals, the Deming Distinguished Service Award for Dissemination and Promotion (Overseas), the Deming Prize the Deming Grand Prize (former Japanese quality medal).

The Deming Award given to organizations has had countless influences directly and indirectly on the development of quality control / management in Japan.

Candidate organizations and company divisions sought new approaches to quality management that met the needs of their business environment and were challenged for the Deming Award. These organizations developed effective quality management methods,

established the structures for implementation and put the methods into practice²³.

Usually, those who have challenged the Award share the feeling that they have had valuable experience and that the principle of managing the success of a business through quality improvement has really worked. By observing the success of these organizations, many other organizations have been inspired to begin their own search for quality management. Learning from their predecessors, young professionals are convinced that quality management is an important key to the success of their business and that the challenge of obtaining the Award can provide a great opportunity to learn useful quality methodologies. Thus, quality management has spread to many organizations, its methods have evolved over the years and the methods have helped to promote the improvement activities of these organizations.

1.7.2 European Foundation for Quality Management - EFQM

The European Foundation for Quality Management

for Quality Management - EFQM) was established on 15 September 1988 by 14 largest companies in Europe. It is a non-profit organization with the mission "to motivate and, where necessary, support European companies and organizations in the assimilation and application of the

²³ http://www.juse.or.jp/deming_en/award

principles of Total Quality on their path to business excellence and to improve the competitiveness of European companies.

It is a practical tool that helps companies recognize where they are on the path to excellence, understand their mistakes and take action to improve. Within this framework, there are eight principles that underpin the EFQM Business Excellence Model. Behaviors and activities based on these principles are often referred to as "Total Quality Management" (TQM).

Thus, the model provides those organizations that use it with a common language of communication at the administrative level, while helping to disseminate knowledge and "correct methods" between its member organizations and different business sectors in Europe.

The Business Excellence Model is a general framework of action that is open to many approaches in an organization's path to excellence. However, it is supported by a list of eight key principles, which are presented below:

Emphasis on results. Business Excellence depends on the satisfaction of employees, customers, suppliers, shareholders and society in general.

Customer focus. The customer is considered as the final and ultimate judge of products - services. Focusing on the needs of current and potential customers contributes to better customer service and consequently to customer loyalty and loyalty and increases market shares.

Leadership & Commitment to Business Excellence. The highest

Executives of an organization create clear goals and a work environment in which the organization and its people can reach perfection, coordinating and systematically implementing all the efforts of the organization to excellence.

Procedures & Data Management. Internal activities of the organization are clear and systematically managed in the form procedures. Every decision is made using trustworthy information then, while emphasizing the consistency of the facts outputs of procedures with the expected and control of discrepancies.

Human Resources Development and Participation. All its possibilities human resources of an organization are released through common values and a culture of mutual trust, empowerment and motivating all employees to participate brings development opportunities to employees by contributing to the dissemination of knowledge.

Continuous Improvement Innovation and Learning. Management and dissemination knowledge in a culture of continuous learning, innovation, improvement and benchmarking, has as consequently maximizing organizational performance.

Development of mutually beneficial Partnerships. The existence of long-term, mutually beneficial relationships with suppliers, based on confidence and the synchronized effort towards common goals, contributes to the most efficient operation of an organization.

1.7.3 Singapore Quality Awards Framework

The Singapore Quality Awards (SQA) framework is used as the basis for evaluating Singaporean organizations for the highest standards of quality and business excellence. The award aims to establish Singapore as a country committed to world-class business excellence. The framework and award are administered by SPRING Singapore. The framework consists of seven categories: Leadership Skills, Design, Information, People, Processes, Customers, Results²⁴.

²⁴ <https://www.bpir.com/total-quality-management-business-excellence-models-bpir.com.html>

CHAPTER 2

2.1 HUMAN RESOURCES MANAGEMENT - HISTORICAL BACKGROUND

Historically, human resource management developed in the second half of the 19th century based mainly on meeting the needs of employees. In the first stage, it was based on a simple guide to improving the unfavorable working conditions at that time. second stage In industrial development in Europe and America, emphasis was placed on employee-employee relations and it became necessary to set up and develop a staff management department. In the third stage, due to the rapid development in all sectors, human resource management, incorporating the responsibilities of personnel management, was developed and emerged in most areas of a company from staffing and training to employment. Planning, evaluating and strategizing the decisions regarding Human Resource Management are made by executives who are at the top of the management pyramid in a company²⁵.

However, with the passage of time and the evolution of companies and organizations, the need has arisen for the existence of an executive who will be able to supervise and control the organization of the human

²⁵[http://repository.edulll.gr/edulll/bitstream/10795/1302/5/1302_02_%CE%94%CE%B9%CE%BF%CE%AF%CE%BA%CE%B7%CF%83%CE%B7%20%CE%91%CE%BD%CE%B8%CF%81%CF%8E%CF%80%CE%B9%CE%BD%CF%89%CE%BD%20%CE%A0%CF%8C%CF%81%CF%89%CE%BD%20\(%CE%9C%CE%AD%CF%81%CE%BF%CF%82%20%CE%91%CE%84\).pdf](http://repository.edulll.gr/edulll/bitstream/10795/1302/5/1302_02_%CE%94%CE%B9%CE%BF%CE%AF%CE%BA%CE%B7%CF%83%CE%B7%20%CE%91%CE%BD%CE%B8%CF%81%CF%8E%CF%80%CE%B9%CE%BD%CF%89%CE%BD%20%CE%A0%CF%8C%CF%81%CF%89%CE%BD%20(%CE%9C%CE%AD%CF%81%CE%BF%CF%82%20%CE%91%CE%84).pdf)

resources of the company. Also, this person was responsible for the education and continuous training of the company's staff, for the assignment of responsibilities to the employees as well as for providing incentives to the employees of the company. Furthermore, this person, because he was often educated and fully informed about the activities of the company and the employees, took on the role of negotiator between the employees and the company. This trend seems to have developed especially in the period after World War II, when more and more employees were University Education. (Iodranoglou, 2008)

2.2 DEFINITIONS FOR HUMAN RESOURCES MANAGEMENT

It is a fact that in recent years a great emphasis has been placed on the human factor within a company or organization. Human capital includes, in addition to the chapter on skills and abilities, the emotional as well as the social, that is, the emotions that people experience within their work environment, such as enthusiasm, or the passion for achieving their goals, anger, or lack of meaning for what they are called upon to implement and develop, as well as the relationships they develop with the rest of their colleagues. (Iodranoglou, 2008)

Human resource management can be defined as all the processes of prompting or searching for and finding, selecting, training, developing, utilizing and adapting human resources to organizations, businesses or services. (Kanellopoulos, 2002)

An important part of scientists and researchers consider that human resource management is a modern interpretation of the concept of personnel management, while some others state that personnel management is considered a concept that is defined with narrower boundaries compared to human resource management. (Byars & Rue, 2004)

For the concept of human resource management, different definitions have been given depending on the approach followed by different researchers. Only the most important of them are mentioned in the work below.

As human resource management²⁶, is presented the administrative function that studies, implements and supervises a series of activities, which are directly related to the management and development of the human factor within a company or an organization. (Koustelios, 2014)

Another definition that can be given for human resource management is the following: It is the administrative function of the company, which aims to plan and organize all activities related to human resource management, with particular emphasis on the role which the human factor is called to play as the main competitive advantage in order to achieve the business objectives. (Bourandas & Papalexandri, 2003)

In addition, human resource management is a function of the company or organization, which deals with attracting, training, evaluating, and

²⁶ Human resources reputation and effectiveness. *Human Resource Management review*

rewarding human resources. This process takes into account the working relationships within the company or organization, health, safety and justice, while the person is placed at the center as the most important factor to achieve the goals of the organization. (Charalambidis, 2014)

Human resource management is an administrative function that contains certain activities that are designed in such a way as to manage and coordinate human resources inside and outside the organization. At the same time, it should be emphasized that human resources within an organization or a company constitute one of the largest investments. At the same time, human resource management as a function facilitates organizations and companies in the effective use of their employees depending on the techniques and skills possessed by each of them, so that there is the best possible achievement of the goals of both the company or of the organization, as well as of the employees themselves in terms of their efficiency. (Byars & Rue, 2004).

Human resource management, as a function of an organization, specializes in the management of the human factor, giving great importance to the following: the crucial role that employees are called to play in achieving the goals and competitive advantage. In human resource management practices that should be related to the business strategy of the company.

The proper management of human resources is such that the appropriate assistance is provided to the top management in order to meet its objectives effectively but also with social justice. (Koustelios, 2014)

Below, the individual functions that constitute the content of the Human Resources Management of a company are briefly presented.

- *Human resource planning*

They are the ways in which the company provides the necessary number of employees with the appropriate qualifications. The main actions are: checking the skills and abilities of existing employees, forecasting human resource needs based on the current production or possible expansion of the company and technological changes, analyzing the labor market and the supply relationship and designing programs to address shortages to technical, scientific and administrative executives. In general, it is a function related to the physical flow of the company's staff, but also to its new plans.

- *Hirings*

It includes the attraction, selection and installation of staff within the company. Personnel management identifies the sources from which staff can be drawn and uses a selection system that helps it make the final decision on recruitment or rejection in collaboration with the

managers of the other departments. It also ensures the smooth installation of staff in the various jobs with appropriate orientation and introductory training programs for new recruits.

- *Education – Development*

This activity concerns the training needs of the staff that are determined in cooperation with the competent executives of each directorate. Thus, the general program is prepared and the necessary actions are taken for its implementation. The executives, in coordination with the personnel department, also undertake the training of the subordinates, the improvement of their performance, the rotation in the work of certain employees, the selection of their deputies as well as other relevant responsibilities, aimed at staff development and preparation. for taking positions with more responsibilities.

- *Evaluation*

This activity concerns the training needs of the staff that are determined in cooperation with the competent executives of each directorate. Thus, the general program is prepared and the necessary actions are taken for its implementation. The executives, in coordination with the personnel department, also undertake the training of the subordinates, the

improvement of their performance, the rotation in the work of certain employees, the selection of their deputies as well as other relevant responsibilities, aimed at staff development and preparation. for taking positions with more responsibilities.

- *Industrial Relations*

The personnel department plays an important role in trade union-management relations, because the personnel manager usually acts as the head of the negotiating team with the union and often as a representative of the company's top leadership. Advises on setting overtime, handling transfers and redundancies and assists in the dispute resolution process and employee communication with management. In order to maintain a good working relationship, the personnel manager and the department in general have a duty to create a climate of friendship, honesty, trust and cooperation between employees, so that they have a sense of belonging to the company.

- *Survey of "opinions" and employee satisfaction*

It is the research around the human problems of the organization, such as the mood for the performance of the employees, the prediction for administrative success, the correct communication, the team behavior at work, etc. The implementation of the findings of such a survey is the responsibility of the human resources department.

Personnel management can not be considered as a function completely separate from the rest of the company. That is why it is essential that there be harmonious cooperation between staff experts and senior executives, so that there is effective staff management. (Drakopoulos, 2006)

2.3 EDUCATION AND DEVELOPMENT OF DAD

Training is the provision of specific skills or assistance to employees in order to carry out their tasks. Also, the training focuses exclusively on the current job, as well as on the immediate needs of the company. Another version of the definition of education is that education is defined as a systematically designed process that aims to explore knowledge and learn behaviors that will contribute to achieving the goals and strategy of the company. (Xirotyri-Koufidou, 2010)

Education plays a vital role for the business since without it it will not be possible to achieve the goals of the business. It also plays an important role for both senior executives and the employer himself. This way, employers ensure that the employees of the company really work in order to achieve the goals of the organization. In order for training to have the desired results, that is, for an employee to learn to transfer, to use his knowledge and in the end to achieve the goals, it must be taken seriously as an activity that determines the future of the company.

There are also four core values on which many theories are based, such as: keeping each employee in unilateral control, maximizing wins and minimizing defeats, suppressing negative emotions, and finally supporting and evaluating goals. his behavior.

In order for a company to have the results it wants, it must first at the stage of staff training determine its stages, which are the following: First, the recognition of the knowledge and skills required, second, the recognition of current levels of knowledge, thirdly, the diagnosis of educational needs and the preparation of the program, the training methods as well as the place of training and finally the evaluation of the employees. When designing and implementing an effective training program, the following elements should be considered: first, the identification of needs, the definition of objectives, as well as the definition and content of the courses that will be taught to employees. Also, the selection of participants, the determination of the best schedule, the selection of the best facilities and the correct selection of teachers. Finally, the selection of the right audiovisual media, the coordination of the program and in the final stage the evaluation. (Donald & Kirkpatrick, 2009)

Company-trained staff is classified into three categories.

- a) New inexperienced staff,
- b) To experienced new staff and

c) To regular staff.

Initially, the inexperienced staff at the initial stage is given an overview of the organization of the business and then each employee is led to the department where his training follows. Next, the experienced staff uses various programs such as lectures in order for the new staff to learn the various business policies. Finally, the regular staff uses various seminars and training trips in order to broaden the horizons of the employees for the benefit of the company. The methods by which a company can train vary depending on what the trainee needs to learn about it are divided into four categories.

First, they are the methods that concern all levels of a business and include the installation and information of educational staff, cooperation with educational institutions where many companies are informed by attending universities for developments in technology and science, and the development of creative thinking which means the ability of employees to perceive the problem and solve it quickly.

Methods that refer to ordinary employees and include on-the-job training, mentoring where the trainee is supervised by a supervisor, and pre-training where the company has a specific space for the trainee in the actual workplace and is trained there .

Methods for lower and middle managers that include on-the-job training, job rotation where the head of the company is transferred to a

corresponding position in another area of the company, internships, theoretical training, and mentoring.

Methods for executives that include business games, sensitivity training, and assessment centers. (Xirotyri-Koufidou, 2010)

In international education there are three categories.

- First, preparatory training for expatriates, ie when an employee is assigned for an international mission then the company should know if the candidate has the required knowledge and skills for abroad.
- Secondly, once he is properly trained, he should be given ways to get acquainted with the work of the local environment.
- And thirdly, there is training for nationals and third-country nationals who are provided with such training that facilitates the understanding of corporate culture and business strategy.

When a company seeks to be effective in its goals and innovative it should take into account that its human resources should be properly trained and have the following characteristics: first, to give the right jobs to its employees so that there is a better coordination of teams that may at some point work as a team. Also, the positions of employees allow them to develop their skills in other areas of the business. And thirdly to give excellent rewards so that there are incentives for greater performance. Also, a company should take into account the number of training hours of the trainees, the percentage of the trained staff, as well as the percentage of the training hours during the working days.

2.4 HUMAN RESOURCES EVALUATION

The Human Resources Department contributes to the strategic and operational goals of the company through strategies for maximizing organizational education between management and employees. The main functions of the Human Resources department are the following (Papalexandri & Bourandas, 2003):

- The organization, ie the design of the organization chart and the jobs.
- Finding human resources. It includes the planning of the coverage of the needs in personnel, as well as the selection of personnel.
- Monitoring staff performance and evaluating it.
- Determining and providing rewards and incentives.
- The development of human resources.
- Changes in service status
- Employee relationship management
- Complaints handling and discipline system.
- Hygiene and safety in the workplace.
- Collective labor agreements.

One of the main functions of the human resources department is to evaluate the performance of the staff. The concept of employee performance appraisal has preoccupied researchers who give it many different meanings. According to Zavlanos, 1999 as performance means the set of results produced in a particular job or activity over a specific period of time. Campbell, 1990 believes that performance is behavior

and should be separated from results because they can be altered by system factors.

Bernardin & Kane, 1995 consider that it should be determined as the result of the work, because this provides the closest connection between the strategic goals of the company, customer satisfaction and financial contribution. In practice, staff performance appraisal is a process by which management tries to determine how well an employee responds to his or her job and how much better or worse he or she is compared to others in the same team, according to Fanariotis, 1990. It is, therefore, a structured process that aims to assess and influence the employee's contribution to the effective execution of the work. For the typical organization of a company, the evaluation of employee performance is a useful guide in its effort to formulate systems of production, transfers, remuneration, human resource planning. (Xirotyri-Koufidou, 2011)

In its modern approach, management science approaches the performance appraisal of development-oriented employees, recording their performance but supporting their continuous improvement through learning, motivation, and information. The role of the evaluated employee is essential and energetic in this process since he also participates in all its stages. (Papalexandri & Bourandas, 2003)

The creation of a reliable method of evaluating staff behavior is based on a series of basic procedures, which are the following: (Xirotyri-Koufidou, 2010)

- The analysis of the project of a specific position. This analysis aims at the study of tasks and obligations, financial resources, the way of behaving to achieve the goals and determining the knowledge and skills required to carry out this project successfully.
- The project analysis of a specific position takes place during human resource planning.
- Defining desired results. In this way, success is separated from failure.
- Developing ways to measure results, usually adopting a kind of scale to avoid errors and enhance the reliability of the evaluation.

According to Bourandas & Papalexandris, 2003, in order for an evaluation system to be effective, it must be defined as

1. Specific and clear to all,
2. Aligned and matched to the specifics of each business,
3. Accepted by the evaluated,
4. Reliable and as objective as possible,
5. Focused on goals and results,
6. Efficient in the sense of acceptable management costs.

CHAPTER 3

3.1 OBJECT OF RESEARCH

This chapter analyzes the methodology we followed in our research. The research focuses on the need for the use of Total Quality Management in the management of human resources in a company or organization, but also the importance for their proper operation, for the management and the results produced by its use. IQ in human resource evaluation. Below, we will report and analyze the data integrated in 3 specific companies that apply Total Quality Management in the evaluation of their human resources, focusing on the factors that shape or prevent management through their use to draw conclusions and better performance. unit.

In the following section, the research questions posed to the organizations will be analyzed, which we believe will contribute to the focus of our research and to the conclusions we want to reach, and which we have divided into the following three main categories:

1. The importance of IAS in an economic unit.
2. The effect of IOP on the achievement of objectives and the realization of the vision in an economic unit.
3. The importance of combining the IAS and the management of an entity, as a result of achieving the objectives.

3.2 RESEARCH METHODOLOGY

According to the bibliographic review and the study of articles based on the basic issues and the theory of Total Quality Management in the research that was conducted we included research with the collection of questionnaires. The research approach was done by recording the theoretical framework and in contrast to the inductive one, where the theory emerges as a result of research²⁷. Quantitative and qualitative research are the two alternatives. Quantitative research deals with the analysis of data with quantitative determination, while on the contrary, qualitative focuses on words and creates new theories. In our research, the quantitative method was used.

The questionnaire in the first phase was distributed electronically via e-mail, but due to specific difficulties that arose, a telephone call was eventually made to three companies in Greece. All three of our companies were asked to remain anonymous, but we can mention the sectors in which the three companies are engaged, two of which belong to the shipping industry, while the third belongs to the food sector. This

²⁷ Kiriazopoulos and Samanta, 2010,

sample offers us the opportunity to provide reliable results because companies are samples of successful companies in the Greek economy. The first company has 130 employees, the second 28 and Tuesday more than 300 people.

Starting from the demographic characteristics of the respondents, the first concerns a 50-year-old woman, where she has been working for the company for over 20 years and has done undergraduate studies. In the second he was a 48-year-old man who has also worked for the company for 20 years and over and has a higher education degree. Finally in the third company she was a woman 40, she works up to 10 years and has carried out up to postgraduate studies.

They were also asked if during their work, they have attended training seminars on human resource management and in all three cases the answer was positive.

When asked if they have been trained in human resource management, only two companies answered in the affirmative, the company of 130 and 300 employees, while the smaller one answered in the negative.

For the staff selection methods the company of 130 and 300 employees, use interviews, CV and recommendations as well as evaluation test, while the smaller company answered positively only for the CV and the recommendations. The answer was positive for all three companies as to whether they have an organized training department.

When asked which categories of employees participate in training programs, the company of 28 employees, mentioned only for middle executives and managers. The company of 130 employees mentioned the specialized and unskilled employees, as well as the executives. Finally, the company of 300 employees, mentioned all the answers offered in the questionnaire, that is, managers and middle executives, junior executives, administrative staff, skilled workers and unskilled workers. All three responded positively to whether there is a system for evaluating the performance of employees in the company.

Asked if there is employee involvement in the quality system implemented by the company, the company of 130 employees mentioned the implementation of the evaluation system and its performance. The company of 28 employees refers to the performance of employees, the operation of working groups. While in the third company there are all the answers, that is, the performance of the employees, the operation of working groups, the interpersonal relationships, the remuneration system, the involvement of the employees in the quality system applied by the company.

The answers to the question whether there are written job descriptions of the employees of the department were positive for both the 2 largest companies, while they were negative for the smaller company, that of the 28 employees.

For questions related to the tools of Total Quality Management for the staff treated by the companies, the company of 130 employees, reported

the assigned to the company, as well as the smallest, while the third company, that of 300 employees, reported a mixture . On whether the evaluation of staff is done within the company or by an external partner, all three companies reported that it is done within the company. For each time quality control is applied, the company of 28 employees responded every year while the other two every 6 months. As to whether Total Quality Management is implemented and whether it is applied to all human resources departments, the answers were positive for the two largest, while for the smallest it was negative. Whether the implementation of the total poet management system is a big cost, all three answered in the affirmative. Nevertheless, all three admitted that it contributed to the productivity and efficiency of employees, but also to the improvement of the quality of products and services, to the improvement of profits, to the increase of customers.

As to whether he contributed to the cooperation of the administration with the staff, all three companies answered quite a bit.

To the question, whether the communication of the management with the staff plays a role in the total quality management and the three companies answered positively, as well as for the cooperation of the management with the staff, the financial satisfaction of the staff, the possibility of staff development and learning and if the staff is positive in the evaluation.

When asked what kind of mistakes your staff makes, the company of 130 employees reported the lack of information, as did the company of 28 people but also answered unavoidable mistakes and the third company answered everything.

When asked how you would describe the management cooperation with the staff, the smaller company answered very well and the two largest answered quite well.

When asked why I made the company pursue Total Quality Management in staff, the company of 130 people mentioned competitiveness, the company of 28 people mentioned the improvement of quality and the third mentioned the improvement of quality, competitiveness and some other reasons.

For how the needs of the staff are determined, the company of 130 employees responded with the relevant manual, the company of 28 employees reported based on the needs of the job but also based on the manual and the third and largest company reported the evaluation and staff group.

On whether the age of the employees plays a role in their performance, all three companies responded positively. For what is the average age of employees all companies answered with the same age range from 35 to 44.

The answers were positive for all three companies as to whether the working environment plays a role in employee performance. On whether the psychological state affects the performance of employees, all three companies answered in the affirmative. For whether marital status plays an important role in employee performance and for the three companies the answer was yes. The question of whether the financial situation plays a role in the performance of the employees was positive, the answer of the company of 130 and 28 employees, while the answer of the company of 300 employees was negative.

3.3 RESEARCH RESULTS

Regarding our research that Total Quality Management seminars have been attended by all three representatives of the companies surveyed, the collection of CVs and interviews are for companies the most important process in which they select staff. It is important that all three companies have an organized training department, which shows the importance of staff training for companies. It is worth noting that all companies have a department of evaluation systems of their employees, even this company with 28 employees.

Written instructions for the duties of employees are available only to the 2 largest companies. The evaluation is done by the companies themselves without resorting to external partners.

In conclusion, the implementation of Total Quality Management, for all three companies helped to improve several areas of the organization, some of which are worth mentioning:

First is the human resources department where, with clear guidelines for hiring, employee performance, and training as well as the incentives they offer to employees. The HRM plan describes all the procedures for encouraging and supporting staff for further action. Incentives given to employees to increase efficiency and productivity, where these incentives are usually various bonuses, salary increases or even some corporate benefits, such as free travel or car benefits.

Concluding the above research, we conclude that there must be a great effort by all members of an organization, for proper training and implementation. We came to this conclusion because while there was a positive climate and some positive results, from existing but also from managers for a proper implementation of TQM, we conclude that some problems arise which to be solved and get the right results are:

- Proper and specialized training for TQM in human resource management.
- ensuring the necessary standards

From the implementation of Total Quality Management they report that they have seen better results but they also stated that its implementation has quite a high cost. Our research certified that all three companies refer to the contribution of employees to productivity and the improvement of products and services from the implementation of Total Quality Management. As for increasing both the profits of both customers.

In addition, they confirmed the fact that there should be good communication and cooperation between management and employees. The companies also confirm that satisfaction, development, evaluation and change are elements of improving Total Quality Management.

Finally, all three companies reported that the implementation of Total Quality Management was done in the direction of improving the business. Also, in relation to employee performance, our research effort concluded that the work environment and professional stagnation were reported as factors that affect employee performance as well as their psychological and family status.

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