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THE MODEL OF QUALITY MANAGEMENT SYSTEM IN PUBLIC ORGANIZATIONS OF CONSTRUCTIONS

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(IN QUALITY MANAGEMENT)

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CONTENT

CONCEPTUAL REFERENCE OF RESEARCH

Actuality of the researched topic and the importance of the addressed issue. Infinite books and numerous articles have been written which attempt to define, explain and illustrate these subjects The Quality. An Israeli CEO of a construction company or a public organization, who is genuinely interested in improving the performance of its company or organization, will often encounter vague wording, unclear and rather general definitions, and examples that are not necessarily similar to what is happening in the respective company or organization. According to Sui Pheng Low & Joy Ong: "Intensifying global competition and increasing demand by clients for better quality have caused more and more companies to realize that they will have to provide quality products and/or services in order to successfully compete in the marketplace". International ISO-9000 series largely answers these questions in that it lists the minimum requirements necessary to establish a quality system in any organization. This, perhaps, is one reason why the ISO-9000 series became the new object of companies and organizations in the Israeli domain of construction interested in improving quality.

The degree of the scientific problem's elaboration. One can study and see that as quality control and management has evolved over time and continues to grow and expand; thus, the impact of the economic and professional development has rapidly transformed. Various factors and determinants were used during the research and development of the situation which all Local Authorities face in concordance with employees and timelines in the workplace. When the term management is indicated, it includes activities ranging from controlling, planning and creating a sense of order. Local authorities struggle with meeting deadlines, restraining costs, all while being effective leaders who motivate the employees who are the ones developing the visions.

Within the thesis, the totality of the conceptual approaches of the established authors who studied quality and quality management W. A. Shewhart, W. E. Deming, J. M. Juran, Ka. Ishikawa, Dr. G. Taguchi, A. V. Feigenbaum, P. B. Crosby, and others. The theories of the respective authors were the basis of the Quality Guide and its effectiveness in local authorities. Money, time and loss of quality in local authorities are the issues the author has validated in this PhD thesis.

The aim of the research is to identify and develop the process of management of "the project of construction at the public organizations" - to save money, time and to do them in the best quality. The research found promotes the effectiveness of the tools given as well as the level of impact made using the Quality Guide in Public Organization.

The objectives of the research are:

1. The identification and description, in an evolutionary approach, of the concepts of "quality", "quality management", "quality management system", which will lay the theoretical foundations of this scientific work.
2. Analysis of the specifics of the application of the quality management system in public construction organizations.
3. Development of a methodology for the research of the quality management system in the public construction organizations based on the identification and the hierarchy of the metric factors.

4. Improving the quality management system in the public construction norms based on the improvement of the Quality Guide in Public Organizations.

5. Improving the process of implementing engineering projects based on the correlation between metric factors and success factors.

6. New EMC model proposal based on Quality Guide for construction projects for public construction organizations.

The research hypothesis. The results of construction projects in local authorities are strongly influenced by certain success factors, such as employee involvement, internal motivation, guidance of a quality management consultant, experience with quality, instructions and multiple-participant meetings, while other factors have a less significant impact, such as deadline or timetable, involvement and commitment of management.

The research methodology of this thesis contains a comprehensive review of the author's research through which the basis of each company's successes of project management became clear. The metrics that the author uses in his research were studied very closely to optimize the pros and cons for the final results. The author sought to study the reasons and work environment to realize which of the success factors which yield the best work for employees of a company.

- Index of Success Metrics:
  - Length of implementation, changes in organizational culture, resistance and difficulties in work according to standard, amount and volume of procedures, improvement in performance of the authority, reduction of number of clients' complaints, improvement in project performance, and recommendations and satisfaction.
- Index of Success Factors:
  - involvement and commitment of management, experience with quality, motives for implementations, involvement of employees, the Impact of the quality manager consultant, deadline or timetable, and instructions and multiple-participant meetings.

The important scientific problem solved is to demonstrate the necessity of implementation of the Quality Guide in the Local Authorities in order to generate a more effective structure within the Local Authorities through Quality Control, Quality Assurance and Total Quality Management. Thus, several metrics were used and studied.

Scientific novelty and originality of the obtained results consists in improving the engineering project management process for local public authorities. The issue of quality in local authorities in Israel is studied. The author wishes to identify the success factors highlighted by Local Authority engineers in order to manage engineering projects as effectively as possible.

1. Using statistical methods, we recommend that quality management systems in construction organizations be designed based on statistical correlations. Thus, based on the results of the study, we state that it is important to use statistical analysis in other project management systems in the construction industry.

2. The EMC model, developed and proposed by us following the research, is recommended to be used through implementation in other public organizations.

3. By implementing the EMC model proposed by us, the quality management system of the entire public organization can be improved, not only of the engineering department.

4. Our proposed model application results in significant improvement of engineering projects in terms of quality, without delays and with maximum savings.

5. The new EMC model represents an innovative and feasible solution in the management of engineering projects in local authorities.

- Some of the small local authorities are characterized with a process called "outsourcing", i.e. transferring the engineering project management process to an external body which manages the engineering projects instead of the Local Authority. In "big" local authorities, the entire engineering project management process is done within the Local Authority. Here, the function is slightly different from medium-sized and small local authorities since the engineering department is divided into sub-departments: water, electricity, roads, buildings, safety and more. Each sub-department checks the engineering project in all its stages - hence the advantage of a big Local Authority over a small authority.
- Quality Control, and mainly Quality Review, in the local authorities related to engineering project management, is performed, for the most part, by the project managers. The quality control system and quality assurance, intended to be achieved by the quality manager or the ISO-9001 series, is more detailed, more documented, and mainly more systematic than the traditional quality review used in the engineering departments.

The theoretical value of the thesis is composed of the concept of "quality" as a process which was analyzed, expanded and specified; the study considered a number of quality guidelines and clearly marked the difference between the two concepts: the quality guidelines and the ISO 9000 series it also suggested quality guidelines to the local councils.

The applicative value of the thesis. The obtained results of the research develop methodology for approaches to quality guidelines. They can serve as conceptual and methodological elements for further research in this area. Based on the research, the author has developed a quality manual that serves as a standard for all local authorities. He also proposed quality guidelines to local councils.

The main scientific results submitted for support. For quality management, the developed comprehensive personnel evaluation system, as well as the conclusions and recommendations can be directly used by local council enterprises, regardless of their size and sectors. The proposed personnel evaluation system will allow the implementation of more objective motivation policies at the level of local councils. Employee engagement factors, internal motives and quality manager are indeed the most significant factors for the success of engineering project management in Local Authorities. The results of the author's research led to the scientific substantiation of the need for cooperation and the establishment of relations with employees; to always be in contact with the various hierarchies in the field; to have internal reasons for employees to activate effectively.

Implementation of scientific results. The results, conclusions and practical recommendations of the thesis, including the implementation of a quality guide, can be used directly by local councils, the scientific results obtained from the research thus contributing to the development of the theory and practice of quality management in public organizations.

In the process of developing the EMC model, conference interviews were conducted and questions were formulated (in the form of a questionnaire) sent to 40 Local Authority engineers to answer and receive feedback on the results of its implementation. From the responses received, it can be seen that employee involvement factors, internal reasons and quality manager are indeed the most affected factors for the success of engineering project management in Local Authorities. The results of the author's research led to the creation of a new scientific concept that is based on cooperation between employee relations; to always be in contact with different hierarchies in the field; so that there are internal reasons for employees to work. The quality guide developed by the author as a result of the research is currently applied in 4 Local Authorities in Israel and is in the process of being implemented in 2 other Local Authorities. In parallel, the necessary steps were taken to the Ministry of the Interior for the application of the Quality Guide at the level of the entire country, within all Local Authorities in Israel.

Approval of search results. The main results of this research study were published in 11 scientific works, and one book with a volume of 6.15 c.a.

Dissertation structure. The thesis includes: the annotation (in Romanian, English and Russian), list of terms, introduction, three chapters, general conclusions and recommendations, bibliography (173 sources), 8 appendixes and is written on 141 text pages of main text, including 40 figures and 32 tables.

Keywords: quality, quality management, total quality management, local council, management, ISO-9000:2015, ISO-9001:2015, cost of the quality, Involvement of management, Index of experience, Index of motives.

THE CONTENT OF THE THESIS

The first chapter entitled "Theoretical approaches to quality management system applicable to public enterprises" puts emphasis on the analysis of the historical aspects of how and where quality began, evolved and came to be used. Total Quality Management (TQM), is a set of management practices throughout the organization, geared to ensure the organization consistently meets or exceeds customer requirements. TQM places strong focus on process measurement and controls as a means of continuous improvement. These aspects include the concluding quality, notion of quality and quality management in the evolution of time as seen throughout history. This conveys that the evolution of quality has shaped the way of organizing unions. This includes the essential sciences which enhances and signifies the structure of business. This procedure yields a decrease in costs by leading this management style and concluding with decreased costs, loyal customers and top-notch performance. The core concepts studies illustrate the core concepts and ideology for creating a successful and efficient environment within the workplace.

"Management" is concerned with producing order and consistency through actions such as planning, budgeting, organizing and controlling while leadership is concerned with producing and movement by vision building motivating, aligning people and communicating. This is not to imply that leadership is "good" and management "bad" to recognize that they serve different purposes and require different skills management serves us well in static situations (one might think of the

situation of ford in early 20th century) however, more dynamic situation require leadership [1, p. 826]. Traditional organizations have tended to emphasize control and organization (management) over vision and motivation (leadership). This results in static organizations good at doing what they have always done, and focused on ensuring management instructions are carried out, but poor at responding to changing environments and developing situations which are increasingly the norm in the modern business environment" [2, p. 11]. In daily usage, quality contracts with luxury, because, in the past, obtaining a product with good features that lasted for a long time involved a high price. The question arises whether the product cost is part of its features.

The professional definitions of quality are numerous and varied:

- **Feigenbaum:** defines quality as "the total composite product and service characteristics of marketing, engineering, manufacturing and maintenance through which the product and service in use will meet the expectations of the customer" [3, p. 925].
- **Juran:** defines quality as "fitness for use or purpose, regardless of product condition" claiming that in this definition he takes into account two more definitions of quality, which are "product features" and "freedom from deficiencies" [4, p. 8].
- **Deming:** defines quality as "predictable degree of uniformity and dependability at low cost with a quality suited to the market" [5, p. 27].
- **Low Sui Pheng:** quality is a term difficult to define, judging from the sheer volume of literature attempting to do so [6, p. 51].
- **S. P. Mukherjee:** Quality is not a goal—it is a march forward. Even zero-defect is not the ultimate goal to be achieved. Since we can always have a more stringent definition of defect, scope for improvement always remains -in materials, processes, procedures and systems [7, p. 2].
- **Steve Goodhew:** quality is the main focus of partnering. The team aspect looks to reduce the impact of traditional definitions and roles of the different team members and allow the team to focus on what the client requires, much of which may well coincide with a sustainable building, appropriately constructed and run [8, p. 34].
- **Taguchi:** defines quality by defining its opposite. According to Taguchi, non-quality is "the loss imparted to society from the time the product is shipped". Taguchi is aiming at the costs of non-quality, and what he means is that the more the product is of higher quality, the smaller the loss of society as a result of the costs of non-quality. Taguchi refers to the test of society and not to the test of a company. Later the author will see that this broad reference to the topic of quality is common to all experts on the subject.
- **Carlos J. F.:** defines the "quality" of the strategy content resulting from the process depends also on the cognitive limitations of the participants, their emotional involvement, their fears, their resistance to change, and the time available for decision making and implementation [9, p. 150].
- **The American Federal Quality Institute:** defines as follows: "performing the right job correctly from the first time, relying on assessment learned by knowledge throughout the performance improvement".
- **Armand Feigenbaum's:** definition: "customer satisfaction".

- **Crosby:** (1979) "conformance to requirements. The more compatible product features are to customer requirements, the more this product is of good quality" [10, p. 466].
- **International Standard** ISO 9000 series "the degree to which a set of inherent characteristics of a product fulfill customer requirements".
- **Omer and Sefy Akili:** "the production of a product by an organization, or presenting a service of high quality that can satisfy the needs and requirements of the customers in a manner that aligns with their expectations and gaining their favor and joy, and this is implemented by predetermined measurements in the production process of the product or the service and finding a unique feature" [11, p. 22].
- **John S.:** The accepted and simplest definition of quality is: "satisfying customer needs" or "meeting customer requirements".
- **David Hoyle:** "in discussions in which the word quality is used, people will differ in their viewpoint either because the word quality has more than one meaning or that they have different perceptions of what the word quality means or because they are drawing conclusions from different premises or concepts. Some of the people are perhaps thinking that quality means goodness or perfection or that quality means adherence to procedure, following the rules etc. or that fewer defects means higher costs or that quality means high class and is expensive. Others might be thinking that controlling quality means rigid systems, inspectors in white coats or that if they push production, quality suffers, or that quality management is what the quality department does" [12, p. 23].

Based on the professional definitions of quality that are presented above, the author suggests that the definition of Deming is the broadest one. Juran's definition is also so similar to Deming's. The rest of the definitions all agree with these two broad definitions and are elaborated accordingly. Which suggests that most of the experts who worked on the issue of quality adopted Deming's and Juran's view and elaborated their own perspectives accordingly [13].

Standard ISO-8042 and Israeli Standard 1432 define quality as: "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs". This definition is used by ISO-9000:2015, as well as by the Israeli Standard 9000:2015 [13].

The Quality Triangle, one can express the manner of reference to quality as part of the forces working to create a product, using the model described in figure 1 [14, p. 207]. This model, often called "triangle quality", explains that in addition to the minimum cost and minimum time, the author must strive for maximum quality when manufacturing a product. Also, the model emphasizes that a product cannot be defined in terms of cost and time only and regardless of its quality [15, p. 38].

Another possible model, which better matches the various definitions of quality, and which explains the role of quality as part of the forces working to create a product is depicted in figure 2. This model explains that quality means durability of costs, schedules and fulfillment of all other product features (all according to customer needs) [10, p. 207].

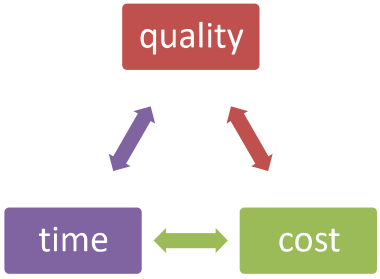

Figure 1. The Force Triangle - Quality, Cost, Time [10, p. 207]

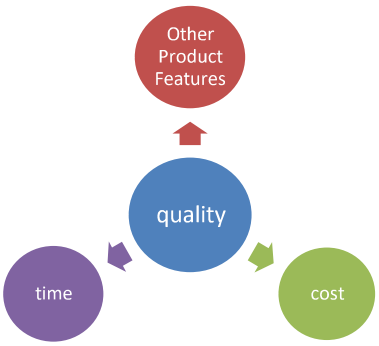

Figure 2. The Quality Triangle [10, p. 207]

The difference between the two models above also explains, in part, the development of the concept of quality in the different approaches. Quality turns from being another characteristic of the product to the source of its definition [10, p. 207].

Quality Control Stage, in conformity with ISO 9000 series, is "a part of quality management that focuses on the requirements of quality". This means planning for testing from the beginning of the production or service, through the use of modern statistical methods for quality supervision. This contributed to the discovery of errors and defects at an early stage, but it was not possible to prevent the flaw and predict it. The author can say that all quality control is considered a more developed stage of testing in terms of the complexity of the methods and the development of the procedures used.

Quality Assurance Stage, Quality assurance stage has been defined in accordance with ISO 9000 series as a "part of quality management which concentrates on providing security that quality is achievable". This stage focuses on directing all efforts at all management levels to participate in the design and quality supervision, to prevent a defect or error. This stage prevents the defect from happening right from the start, and focuses on the requirements of the customer who became the target of organization and factory occupation [10, p. 466] and creates the easement of product definition, and prevention of errors at the initial stage, which increases quality assurance for the customer [16, p. 22].

The Quality Management Stage is an inclusive stage of product manufacturing which includes all employees and aims to continually improve the quality and long-term performance. Thus, can the organization implement quality management to achieve maximal achievements, and by that, ensuring that customer requirements are implemented. In this method, the organization or company can implement its goals [10, p. 466].

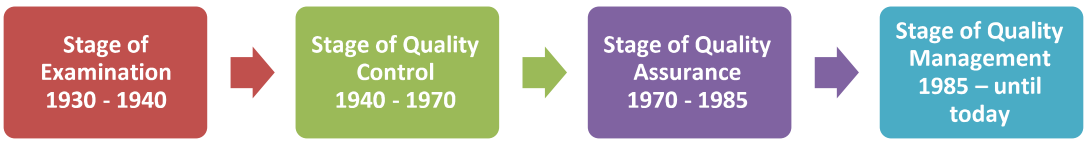

Figure 3. Quality development stages [17, p. 11-15]

Costs of Quality Management: The concept was weaved by Feigenbaum in the 40s. Since then, and to the present day, the components of these costs have not

changed, Feigenbaum divides quality costs to "Costs of Quality Control" and "Costs of Quality Control Failure", Feigenbaum uses the word "control" in the broadest sense and his intention is actually to all quality activities. When saying "Quality Control", he actually refers to the quality system. Therefore the author shall use the terms "Costs of Quality System" and "Costs of Quality System Failure" instead of "Costs of Quality Control" and "Costs of Quality Control Failure". Some call "Quality Costs" by the name "Costs of Non-Quality", because those are costs which quantify the non-quality in the system and not the other way around [18, p. 85].

Chapter 2 entitled "Quality management systems of local authorities in the State of Israel" the assessment reveals that there is no direct correlation between the size of the local authority and the success metrics. The critical analysis of the ISO-9001:2015 revealed that many countries are in dire need for significant improvement for Quality standards. While size does not matter, the metrics of success and the factors of success matter. The indexes of the rate of success of engineering projects were isolated, which are: length of implementation, cultural changes, behavior and difficulties, amount of procedures, improvement in performance of Authority, reduction in number of complaints, improvement in performance of projects as well as recommendations and satisfaction. Additionally, a weight was set for each rate of success between 10 and 20%.

Israel has 257 local authorities, two of which are industrial local authorities. Each Local Authority has an Engineering Department (sometimes called the Engineering Division or Engineering Administration). The data was collected using a questionnaire that included 22 essential questions: numerical data on the authority, the department and the quality manual, including frequency of use and update. In addition, a conclusion committee was held, for feedback on the quality guide proposed by the researcher. See figure 4. Which summarizes the methodology of the study and data collection [19].

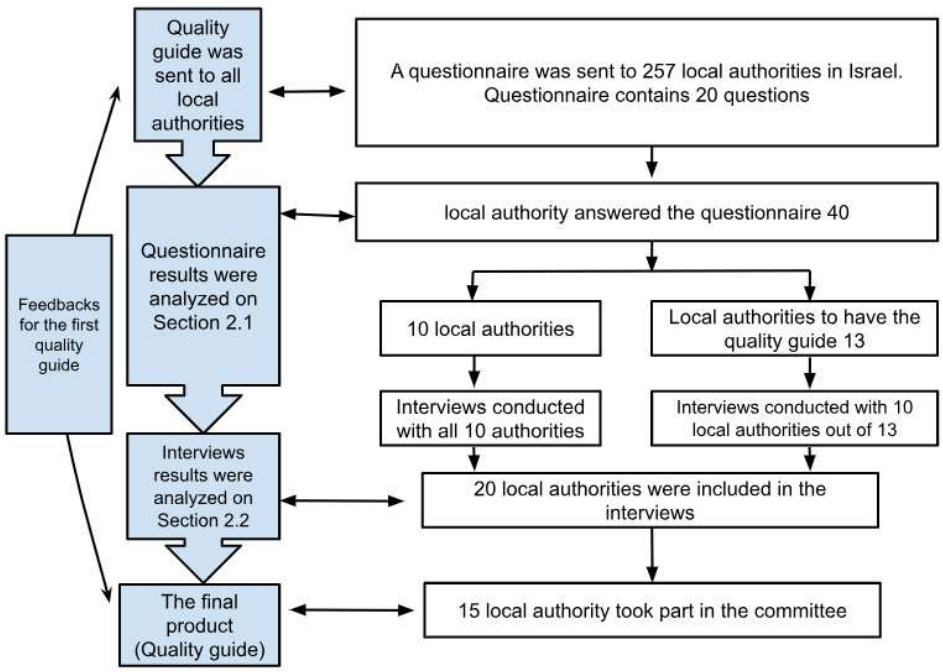

Figure 4. Research Methodology

Source: Author's research specialized for the thesis

In sub-chapter 2.2 and based on the main findings of the interviews and questionnaires, and based on the feedback of the quality manual proposed by the researcher, the main conclusions of the study were formulated, the most central of which was identifying the main factors for success in implementing the ISO-9001:2015 standard in local authorities. Moreover, a quality guide was formulated (in light of the cumulative experience of the researcher [10, p. 469], as well as the feedback received from the committee, and the e-mail responses of the local authorities' engineers, in which they asked to change and improve the quality manual sent to them). A proposed model was formulated at the end of the study which is suitable to some extent to the ISO-9000:2015 Israeli standard. This guide is meant to assist local authorities interested in entering the circle of quality and implementing ISO-9000:2015 in the most efficient and beneficial manner.

Certification of Local Authorities and Organizations: Every year there are requests for accreditation for ISO-9000:2015. Although ISO-9000 series has been around for over 20 years, only 10 local authorities in Israel are ISO-9001:2015 certified [20]. It is noteworthy that the efforts of organizations to join the list of authorities accredited for this standard are complicated and accompanied with financial and organizational difficulties, in addition to a lack of knowledge of the importance of the matter. The Standards Institution of Israel is the main accreditation body for organizations in Israel for ISO-9001:2015. Other bodies have recently emerged which offer accreditation for ISO-9001:2015. Many organizations are interested in joining the accreditation for various reasons, the primary among which is "reputation". The author studies the sub-department of construction [21, p. 27]. Below is a schematic diagram illustrating a standard organizational chart of local authorities in the country [22, p. 3-15].

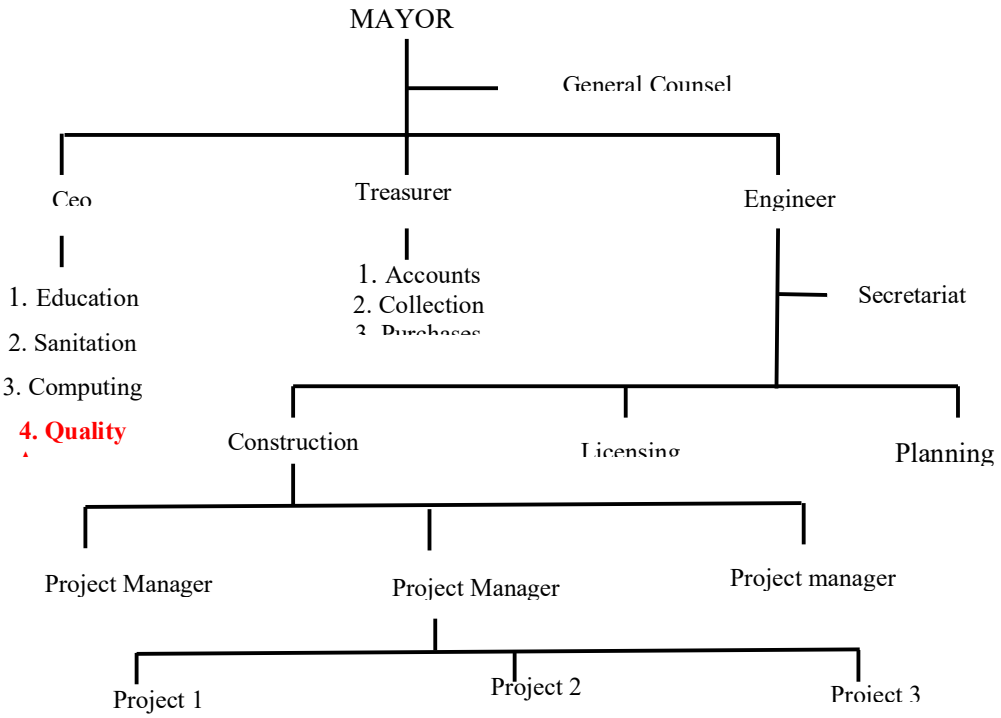

Figure 5. Standard Organizational Chart in Local Authorities in Israel

Source: Author's research specialized for the thesis

Engineering Project Management in Local Authorities

The engineering project management process in all local authorities is usually the same. Some of the authorities (small local authorities) are characterized with a process called "outsourcing", i.e. transferring the engineering project management process to an external body which manages (to some extent) the engineering projects instead of the Local Authority. According to Nolberto Munier "Project management is a very complex activity involving interacting and dealing with people with diverse skills, interests, and experience, different activities and lines of work, various trades and often working for the same project in different places at the same time" [24, p. 5], [25, p. 57].

Number of Workers in Engineering Departments in Local Authorities

Table 1. Below summarizes the responses of the senior officials in the local authorities who participated in the questionnaire, along with the number of workers in the engineering departments – question number 2: "The number of employees in the engineering department?".

Table 1. Characteristics of Local Authorities in the Study

Description	Number	Workers in Engineering Department
Large – more than 25,000 residents	15	1 Local Authority: 1 to 3 workers 3 local authorities: 4 to 10 workers 6 local authorities: more than 10 workers
Medium – between 10,000 and 25,000 residents	15	4 local authorities: 1 worker 7 local authorities: 2 to 3 workers 3 local authorities: 4 to 10 workers 1 Local Authority: more than 10 workers
Small – between 5,000 and 10,000 residents	9	2 local authorities: 1 worker 6 local authorities: 2 to 3 workers 1 Local Authority: 3 to 10 workers
Very small – less than 5,000 residents	1	1 Local Authority: 1 worker

Source: Author's research specialized for the thesis

The above table clearly shows that there is a correlation between the number of workers in the engineering departments and the number of residents in each Local Authority. The bigger the number of residents in a Local Authority, the more workers it employs. This phenomenon is determined by the Ministry of the Interior, which authorizes the necessary jobs in accordance with the size of the Local Authority. Human resources management has been defined as "the science and the practice that deals with the nature of the employment relationship and all of the decisions, actions and issues that relate to that relationship" [26, web set].

Benefits of the Correlation between Number of Residents and Authority Size

The workers will have experience managing engineering projects, and the ability to cope with any problem in the future. The worker gains experience and is able to contribute to the system. Further, the Head of the authority has the capacity to attract "loyal" workers down the road, which loyalty, from my personal experience, is able to move issues inside the authority during the tenure of the current head of the authority [10, p. 469].

Question number 3 in the questionnaire asked how many engineering projects the authority performed in a year. The results are presented in table 2.

Table 2. Projects in a year in Local Authority

Description	Engineering Projects in a Year	Description
Large – more than 25,000 residents	1 Local Authority: up to 10 projects 3 local authorities: 21 to 35 projects 11 local authorities: more than 35 projects	Large – more than 25,000 residents
Medium – between 10,000 and 25,000 residents	2 local authorities: up to 10 projects 6 local authorities: 11 to 20 projects 5 local authorities: 21 to 35 projects 1 Local Authority: more than 35 projects	Medium – between 10,000 and 25,000 residents
Small – between 5,000 and 10,000 residents	1 Local Authority: up to 10 projects 3 local authorities: 11 to 20 projects 3 local authorities: 21 to 35 projects 1 Local Authority: more than 35 projects	Small – between 5,000 and 10,000 residents
Very small – less than 5,000 residents	1 Local Authority: up to 10 projects	Very small – less than 5,000 residents

Source: Author's research specialized for the thesis

A quick examination of the above-noted table, it is possible to see that, here too, there is a correlation between the population size and the number of projects each authority carries out annually.

Expected Benefits From the Quality Guide: It can be summed-up that quality system management indeed brings about a general improvement in managing of engineering projects, particularly during the submission of projects to clients. The complaints are reduced significantly, in addition to limited improvement in schedules and in meeting budgets. The multiple problems accompanying the engineering project do not necessarily stem from managing the project, but rather from external subjects over which quality managers or project managers have no control.

The Costs Involved in Implementation of a Quality Guide are presented below:

a. Total initial cost by minimal estimate – 71,495€.

b. Total current cost in minimal monthly estimate – 4,706€.

Analysis of Primary Factors for Success in Implementation of ISO-9000:2015 Quality Standard

One of the stated purposes of the study was: proposing an effective model for implementation of quality management that supplies the greatest benefit.

All correlation levels between rest of the assumed factors and between the extent of success were examined, from a summary of this analysis can be seen that those factors with highest impact on the extent of success of quality management system in managing engineering projects are: involvement of top management, motives for implementation, involvement of employees, involvement of quality manager, deadline or timetable. Additionally, it turns out that there is no effect of work experience factors, on the extent of success of a quality management system in engineering projects management, in factors of experience with quality and instruction and multiple-participant meetings [10, p. 469].

In grouping of several factors of success, and examination of levels of correlation between the sum-total of all the factors and the extent of success, the way of performing this stage is starting with adding factors with a high level of correlation and then the gradual adding of factors with lower levels of correlation, until the finding of the highest collective level of correlation, and this was done in current study.

Table 3. Correlation Between Factors and ISO-9001:2015 Implementation Success

Number	The factor	R^2	r
1	Involvement and commitment of management	0.303	0.551
2	Experience with quality	0.001	0.038
3	Motives for implementations	0.536	0.732
4	Involvement of employees	0.693	0.833
5	Impact of the quality manager consultant consultants	0.356	0.597
6	Deadline or timetable	0.535	0.732
7	Instructions and multiple-participant meetings	0.0219	-0.114

Source: Author's research specialized for the thesis

Chapter 3 entitled "A new model of the quality management system for public construction enterprises" identifies employee involvement, internal motives and quality management consulting. The more professional and successful a project, the more Quality factors are utilized. Thus, the most effective factors in the success of the total quality management system were set: involvement of management, employee instruction, internal motives of employees, quality manager, deadline or planning of timetables, and for each factor, a weight is received in implementation of a quality system in Local Authority.

In detail, the study aims to propose an effective model for implementing quality management through ISO-9000:2015 by identifying success and failure elements. The author used four methods, as follows:

- Analysis of ISO-9001:2015 implementation in 40 local authorities via interviews.
- Questionnaires to quality managers, engineers, and project managers to rank the importance of various factors for successful implementation.
- Statistical analysis of data from interviews and questionnaires.
- Conference discussions on ISO-9001:2015 implementation and feedback on proposed procedures.

Quality managers and project managers, as study reveals, ranked the importance of different factors, including:

- Management involvement is critical, with 65% rating it as of critical importance.
- Employee involvement and training are also crucial but less explicitly defined.
- Clear instructions and perseverance are emphasized for ensuring all employees internalize the processes.
- Employee feedback helps tailor the standard to practical needs.
- Early communication with the qualifying body (Israeli Institute of Standards) and establishing a steering team are important procedural factors.

The next important subjects are subjects related to the nature of the procedure in a decreasing order of magnitude: early communication with the qualifying factor and establishment of a steering team. The qualifying factor of the Local Authorities participating in the study is the Israeli Institute of Standards. The Israeli Institute of Standards made a great and impressive effort to instill the ISO-9000:2015 standard in

the Israeli market and particularly to the construction branch in Local Authorities [10, p. 467]. Part of this effort was training and instruction of Local Authorities' employees and probably due to that many consider an early connection with the qualifying factor as an important thing. An additional reason might be understanding the demands of the qualifying factor.

Table 4. Importance of Different Factors for Success of ISO-9001:2015

Subject	Critical importance	Very important	Important	Slightly important	Not important
Management involvement	65%	30%	8%	0%	0%
Instructions	20%	53%	33%	0%	0%
Establishing steering teams for quality	12%	30%	43%	13%	4%
Involvement of employees	25%	40%	27%	0%	2%
Feedback from clients	0%	22%	35%	35%	6%
Feedback from employees	8%	45%	36%	7%	3%
Early communication with the qualifying factor	8%	40%	35%	8%	4%
Contacting other Local Authorities	0%	5%	33%	25%	40%

Source: Author's research

In the opinion of quality managers, successful installing of ISO-9001:2015 is dependent mainly on involvement of management of the Authority, involvement of employees and training for employees. Leadership and early communication with the qualifying factor are important as well, however less [10, p. 467].

All the interviewees and other position holders (especially quality managers) from Local Authorities were asked what, in their opinion, is the key to produce maximal benefit, for the long-term, from implementation of ISO-9001:2015 at their disposal. The key factors for maximizing benefits, as they stated are:

- Utilizing information on complaints for improvement is the most critical factor.
- Concise and simple procedures are crucial to reduce bureaucracy.
- Employee involvement in shaping procedures is viewed differently by quality managers and field interviewees.
- Joining a quality chain with other local authorities enhances success.
- Operating teams for quality improvement is seen positively despite a lack of familiarity with quality circles or TQM.

The author considers that successful ISO-9001:2015 implementation relies on management involvement, employee training, clear instructions, and early communication with qualifying bodies. Effective use of feedback and simple procedures are essential for long-term benefits.

Examination of Correlation Between Estimated Factors of Success and Success

The study examines the correlation between various factors and the success rate of local authorities in managing construction projects. The factors include management involvement, experience, motives for implementation, employee involvement, impact of the quality manager, deadlines, and multiple-participant meetings. As pointed example could be the extent of involvement of management of

various Local Authorities appears in the following figure 6. When the factor of quality manager is added to the two factors of involvement of employees and motives, the following figure is presented:

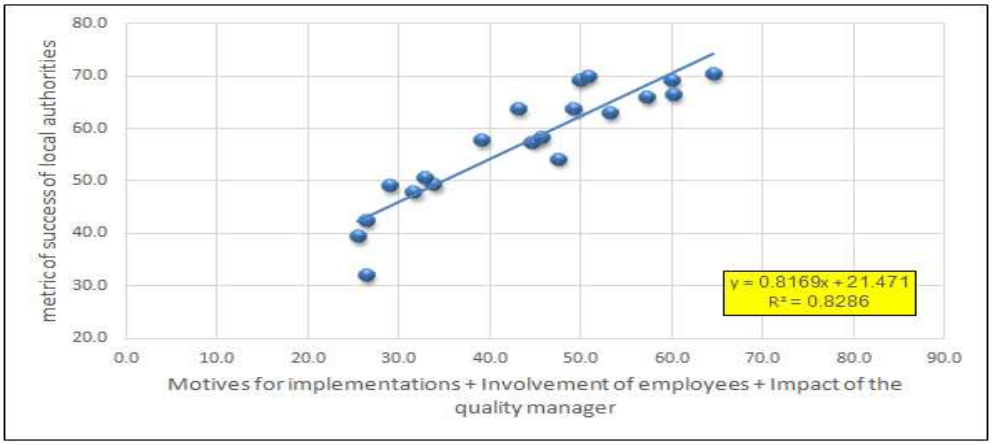

Figure 6. Adding of factor of Quality Manager Consultants to the two factors of Involvement of Employees and Motives

Source: Author's research specialized for the thesis

The involvement of employees and adding the factor of motives are both personal objectives for the employee. Now, once the author adds an outside person such as the quality manager, and he is given a higher rate of success. This shows us that the quality manager appears as the figure of trust for the employees. The quality manager is a professional individual who appears as a temporary figure; therefore the employees want to benefit from the upper management's advice and system. For the employees, the quality manager is a motivational figure. The employee understands that the quality manager's time with them is not long lasting, therefore the employee wants to benefit as much as possible in correlation with the involvement of employees and their motives.

Following this method, the study researched the factors below and revealed the following results:

1. Management Involvement: The correlation ($R^2 = 0.303$) indicates a mediocre impact of management's commitment and involvement on the success rate.
2. Experience: The correlation ($R^2 = 0.001$) shows no significant relationship between years of experience and the success rate.
3. Motives for Implementation: The correlation ($R^2 = 0.536$) suggests a moderate impact of the motives behind project implementation on success.
4. Employee Involvement: The correlation ($R^2 = 0.693$) indicates a strong impact of employee involvement on the success rate, highlighting its importance.
5. Impact of Quality Manager: The correlation ($R^2 = 0.356$) reveals a moderate effect of the quality manager's involvement on success.
6. Deadlines: The correlation ($R^2 = 0.535$) shows a moderate impact of adherence to deadlines on the success rate.
7. Multiple-participant Meetings and Instructions: The study finds a negative correlation between these meetings and success, suggesting that they do not contribute positively to managing engineering projects, and employees might perform better without them.

As a result, the author determined that the employee involvement shows the strongest positive correlation with success, while experience and multiple-participant meetings exhibit the least or even negative correlation. Other factors like management involvement, motives, quality manager involvement, and deadlines have moderate impacts on the success rate.

The Model of Public Organizations of Constructions (E.M.C.) was created and studied upon by several local authorities. Previous to my research, there were a lot of costs wasted on wrong planning, poor supervision and management. Time and money were wasted ineffectively. Projects were not finished on time and they were lacking quality in terms of material and labor. The novelty in the author`s findings within the local authorities will save spendings, time and give us the quality in the management of construction and engineering.

The correlation between factors and the Guide Quality Management implementation success yielded from three factors. Firstly, involvement of employees, secondly, motives for implementations, thirdly, impact of the deadlines or time tables, and last but not least, the Impact of the quality manager consultant. The involvement of employees was a direct factor to the rate of success in local authorities. The other three factors had very little effect or even no effect on the Local Authority due to the fact that the scores were extremely low.

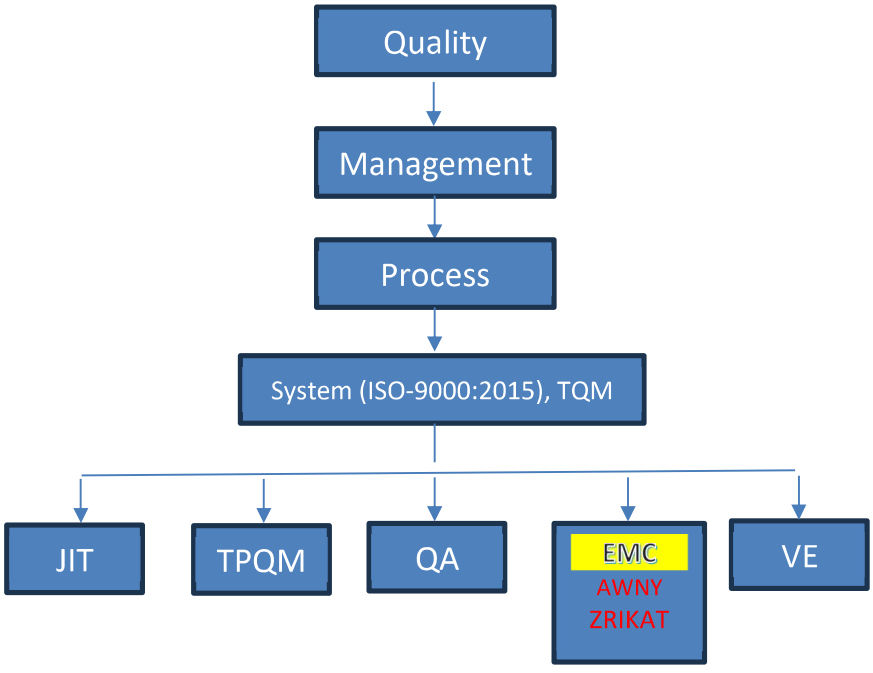

Figure 7. The development from quality to chart includes the author model's location
Source: Author's research specialized for the thesis.

All levels of correlation between the rest of assumed factors and between the rate of success were examined. The summary of this analysis is presented in table 3. From this analysis, it is revealed that the factors most affecting the rate of success are: involvement of top management, motive for implementation, involvement of employees, involvement of quality manager, deadline or timetable. In addition, there is almost no effect of an attempt to work with a quality system and multiple-

participant meetings and instructions upon the rate of success of a quality system. Surprisingly, it turns out that experience with a quality system does not affect the rate of success [10, p. 469], maybe due to the fact that the index of success relates mainly to change and improvement, and apparently, this takes place mainly in the immediate period after implementation. Additionally, the effect of multiple-participant meetings and instructions is not significant. The existence or absence of time tables and time targets has no decisive effect upon the success of implementation.

The model E.M.C., creates a coordination among all the moving factors, inside and outside of the physical workplace and the companies involved in the engineering field; this gives the outcome that the project management field is within the local authorities when we implicate the E.M.C. within the local authorities. *Firstly*, the model cares foremost about the employees and gives the employees an ease and comfort when they are given responsibility in order to have a positive outcome because they took part in writing the guides. Due to the fact that they were part of creating a solution for the outcome, it gives all of the employees a motivation in order to give all of their efforts in order to work. *Secondly*, it is very important in order for us to work towards having a high motivation rate for our employees. This includes giving employees their rights, paying their salaries and giving them bonuses when they do substantial work in a consistent manner. Employees are human and want to feel that they are successful and cared for by being shown appreciation. These factors combined help give employees a huge reason to be motivated. If the employees are not shown care or bonuses from upper management or those who reside over them, then their motivation levels will be deflated and thus, result in negative outcomes within and outside of the workplace. The *third* factor is the quality manager consultants who have a substantial role in writing and delegating the guide in the local authorities. If the quality manager consultant, the benefits will be decreased as opposed to a very experienced and professional consultant.

E.M.C. was created in order to create solutions for public organizations. Most of the other models studied were created with most private sectors in mind, with certain materials in mind. The E.M.C. oversees the general project with management consultants with employees in mind which create a positive overall environment where projects get done efficiently, cost and time effectively.

Management consultant. According to this research it highlighted that EMC needs an experienced management consultant who is able to prepare and forms models and laws to be used by employees, plus using the programmed part that helps who related to construction projects and having access to the program ,and it ought to be with screen program and organized rules to manufacture the laws ,so it needs an experience and firms yet sharing and socialized management consultant that can guide the facility not only on the talk part yet on the do part.

Employees. The sharing consultant according ought to my research is the most success relation with the employees and the facilities and it has to be continuous relation, added new subjects and ideas, increase the value of the employees, and the success of this factor is the vitality and vitality of the ideas and fresh minds not just being oldest in the field which that could encourage the fresh bloods and considered as value notes.

Motives. Is essential for construction management, it has to be an internal motive that comes with trust in the leads throughout the projects and that would make it more successful with the public organizations. Motives come in several forms, first of all, after every project reward the employees with upgrading the status of which, reward that employe materialistic part such as in money part or/and the emotional part such as congratulate them in front of all employees and stand ovation.

In the future, each local authority should improve their guide quality manager and this person should be reviewed and checked if they are living up to expectations or be replaced. The employees should be given bonuses and appreciated if they work consistently and properly. The bonuses should be monthly in order to keep motivation. From within the local authority, we need to be active in writing the guide and constantly keep modifying it for the better.

The E.M.C. model – contains 110 forms and sample instructions that are ready to apply; which indicates the management of engineering projects from planning to its application to completed projects:

1. The first part is about making sure that the higher ups approve the projects and models are following the global standards, therefore that model is made by the employees and the consultant of the quantity formed the laws and rules in EMC guides while all employees are excited and how the project is challenging them thus, include them.
2. The second part is the building's design that includes the tenders and contracts of the projects such as schools, playgrounds, clubs and so on.
3. The third part is taken to supervise the engineering projects.
4. The fourth part is about infrastructure such as water pipelines, streets and rainwater sewers.
5. The fifth part is about the project manager and the procedure of the file's project details and so on.
6. The sixth part is about the structural planning that includes the files, tenders and contracts.
7. The seventh part is about general contracts that take the planning and samples of meetings and samples of the way to choose the project manager.
8. The part eight is about contracts with the main contractor.
9. Ninth part is about the general samples.

In addition to all model's forms there are instructions to guide to the steps and how to apply it throughout the process.

Table 5. Comparison between ISO 9000 series **and E.M.C.**

	ISO 9000 series	**EMC**
date \year	1985-2015	2022
Purpose	General service jobs	Public construction municipalities
The models purpose	General manage in institutions to gain the required value	Construction projects management in local authorities
Consultant	General consultant that obeys general laws	A specialized consultant
Referenced	Every country has its own laws and has to obey them.	Israel laws
Benefits	Its own purpose is finding the required quality no matter the time nor the cost.	reduce time and cost and increase of the value and the quality of the projects

Source: Author's research specialized for the thesis

The added benefits and effectiveness

In regards to the national economy, the investment for this development needs work, time and money; however, in the long run, this will save a lot of public money in the local municipality. Not only does this save money, it will also save a lot of time, energy and errors. The overall benefit will be great and exponential, especially for the local authorities. Due to the fact that the workforce is ever changing; every new employee needs to be taught and trained. With a standard guideline, the new employee will become educated by instruction on how to work. With a strong basic foundation, the growth for improvement will be imminent and solid.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

1. The research conducted regarding the *management of construction and engineering of the local authorities in Israel* has positive results which are presented as suggestions for future research. Their impact on science development in the results showed that the research generally improved. Based on the *guidelines of quality*, the author has found that this can improve the quality of the work management.

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The overall benefit will be great and exponential, especially for the *local authorities*. Due to the fact that the workforce is ever changing; every new employee needs to be taught and trained. With a standard guideline, the new employee will become educated by instruction on how to work. With a strong basic foundation, the growth for improvement will be imminent and solid.

2. Based on the present research, when implementing the "*Quality Guide In Local Municipalities in Israel"* it is important to focus on and take in consideration three main factors as following:

- Employee involvement.
- Employee Motive.
- Quality management consultant.

3. *Engineering Project Management in Local Authorities*. In regards to the original contributions of the research, *the engineering project management process in all local authorities* is usually the same. Some of the authorities (small local authorities) are characterized with a process called "outsourcing", i.e. transferring the engineering project management process to an external body which manages (to some extent) the engineering projects instead of the Local Authority.

4. *Costs Involved in Implementation of a Quality Guide. Quality costs in Local Authorities* is a complex subject that deserves a separate study. In the current study, various data were collected that can explain what are the different components of maintaining a quality system based on ISO-9001:2015. It would be difficult to quantify exactly the total costs of maintenance of a quality system as it changes from one Authorities to another, as well as due to lack of data; however, orders of magnitude can be assigned as well as estimations regarding this part. The disadvantages for the short-

term include a lot of money upfront. However, the long-term process is where the advantages occur, when the Local Authority is saving money and seeing positive results.

1. Initial costs for implementation of ISO-9001:2015 (minimal estimation) – 72,420€.

2. Monthly costs for implementation of ISO-9001:2015 (minimal estimation) – 4,706€.

5. *Multiple-participant Meetings and Instructions* and the extent of which initial objectives have been met, as can be seen, the correlation between rate of success in managing of engineering projects and between index of "Multiple-participant Meetings and Instruction" is negative. Meaning, that multiple-participant meetings and instructions have no correlation with success of engineering projects in Local Authorities, and if there is any relation at all, it is negative.

In profound clarification of the phenomenon, it appears that employees can learn how to work according to quality guides, with no instructions and no multiple-participant meetings. On the other hand, R square is very low which shows that there is a difference between the line of a linear regression and between results of questionnaires. The results of the examination indicate a high rate of correlation of employee involvement and of motives and a low level of correlation of experience and instructions and meetings.

6. In section 3, the direction in which research has to be pursued, a statistical analysis was made, in which a number of *factors of success* were gathered for getting the most effective cumulative level of correlation.

After completion of this process it appears that the adding of *factors of employee involvement, internal motives of employees and quality manager*, supply the highest level of correlation R=0.828.

The respective Conclusions represent answers to the formulated objectives that were achieved as a result of the research.

Regarding the research hypothesis: The research hypothesis was largely confirmed, especially the factors: employee involvement, internal motivation, the guidance of a quality management consultant has the greatest weight in achieving the results of construction projects within local authorities. While, the factors: experience with quality, deadline or calendar, management involvement and commitment - have a less significant impact on success. At the same time, the factors - instructions and meetings with several participants have a negative effect.

Recommendations and Scientific Novelty:

1. In the current study, the various factors that bring about success to engineering projects were examined and analyzed, by operating a quality instructor in an engineering department. And thus, it is the opinion of the researcher that it is warranted to examine the rate of success of engineering projects when a quality instructor is operated in the entire Local Authority, and what then would be the outcome.

2. Adoption and implementation of a quality guide proposed by the researcher would get all Local Authorities to a common ground. It would enhance cooperation. Thus, the researcher appeals to the Ministry of Interior and the Local Government Center, in implementing a quality guide and obligating Local Authorities to act according to it.

The Author suggests and recommends the Ministry of Interior and Local Government Center to form a kind of reward to the local authorities that applied for such outstanding models and forms of EMC.

3. In present study, the option of preparing a computer software that would manage and operate engineering projects according to the quality guide has not been examined, as operating such a system would necessarily bring about benefit, even if small, to further success in engineering projects in Local Authorities under and according to a quality management system.

4. The remaining unsolved problems which are still present are the Local Authority leaders who are not open to change and trying to implement these scientific changes. Ultimately, these tend to be figures who have been in their position for many years and have no desire to improve and try to find various ways to do business. These figures also prevent and restrict young employees to work according to the Guide. They also convince their employees to stick with the ways in which they have been working without being open to change. Thus, the bigger underlying issue is that these figures can not be fired from their positions. Thus, it is recommended to conduct workshops where local authority leaders and employees are presented with the benefits of quality management.

5. The important scientific problem solved pertains to the E.M.C. which is the employee involvement, internal motives and the quality management consultants working together to create a better working environment to earn good results for all parties involved. When the Local Authority works according to these three parts, a positive outcome is concluded,on hand ,EMC thesis saved financial resources of the country which is important to spend it on the right places for the citizen and on the other hand, EMC thesis save time on the engineering projects that would makes it superficial on the time record and would makes us ahead of time,to the extend there is some projects that needs to be done on narrow period of time for example the schools that have to be done and ready to be function on the 1st of september, so the EMC can be overall benefit,and in addition EMC can improve the quality work and the quality of material that have been used in the engineering projects.

6. Adoption and implementation of a quality guide proposed by the researcher in various fields and institutions including hospitals, schools, public institutions, corporations, and associations. Therefore, we ought to associate the employers with build the formulas and laws of making, and on this scale the employers would be the the rule maker and the main reason to respect and apply by it in the first place and makes the opposition be out of the way completely with that alone the thesis can build and form best environmental workplace.

7. It is recommended to form an independent committee that checks whether employees apply the quality management model appropriately and offers its own independent recommendations and notes, therefore, each facility form a place for the consultante to inherit the look like HR with the same study field of the research like ISO 9001:2015 of the employees and modernize and develop the details of the rules within the unity based on the EMC thesis model with the emphasis on the Consultant part.

8. It is recommended that other units and departments within the local authorities conduct a similar study and apply a similar model within their own sections,for example the social department sections ,educational ,financial department and healthcare facilities in the local authorities,research develops its own models and forms suits the facility with each instruction,to avoid the chaos and prevent the fault with the newcomers and work with "build on" formula , for the most important part thing is the laws and the rules that been made is being applied based on the country and universal scales and instructions.

9. It is recommended to always subject the present study results and further results obtained by similar applied models to continuous revision, analysis and development, and it make sure to apply the 3 main factors and make sure to use and analyze another and additional factors that affect the research, for example as new a factor, using the age of employs on the applications of the laws rate, complex engineering projects, foreign and freelancers employees, the places of each disk separate from we each other and co working spaces those models are would be used by several governments facilities and local authorities in the country, and by developing it by each five years regularly by checking the resent data.

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ANNOTATION

to the Doctoral Thesis in Economics with the Theme: THE MODEL OF QUALITY MANAGEMENT SYSTEM IN PUBLIC ORGANIZATIONS OF CONSTRUCTIONS

Awny Zrikat, Chisinau, 2024

Specialty: 521.03. Economics and Management in the field of activity (In Quality Management)

Structure of the thesis: the introduction, three chapters, general conclusions and recommendations, the bibliography (173 sources), 7 appendixes and is presented on 141 pages of main text, including 40 figures and 32 tables. The obtained results were published in 11 scientific works.

Keywords: quality, quality management, total quality management, local council, management, ISO-9000:2015, ISO-9001:2015, cost of the quality, Involvement of management, Index of experience, Index of motives.

Field of study: Quality management in public organizations and identification of success factors.

The aim of the research is to identify and develop the process of management of "the project of construction at the public organizations", to save money, time and to do them in the best quality. The research found promotes the effectiveness of the tools given as well as the level of impact made using the Quality Guide in Public Organization.

The objectives of the paper are: identification and description of the main concepts in the field of quality management and analysis of the specifics of the application of the quality management system in public construction organizations; improving the quality management system in the public construction norms based on the improvement of the Quality Guide in Public Organizations; improving the process of implementing engineering projects based on the correlation between metric factors and success factors; new EMC model proposal based on Quality Guide for construction projects for public construction organizations.

The scientific novelty and originality: consists in improving the engineering project management process for local public authorities. The issue of quality in local authorities in Israel is studied. The author wishes to identify the success factors highlighted by Local Authority engineers in order to manage engineering projects as effectively as possible.

The theoretical significance of the thesis: The essence of the concept of "quality" as a process was analyzed, expanded and specified; the author considered a number of quality guidelines and clearly marked the difference between the two concepts: the quality guidelines and the ISO-9000 series.

The applicative value of the thesis. The obtained results of the research develop methodology for approaches to quality guidelines. They can serve as conceptual and methodological elements for further research in this area. Based on the research, the author has developed a quality manual that serves as a standard for all local authorities. He also proposed quality guidelines to local councils.

The results obtained from the scientific research: For quality management, the developed comprehensive personnel evaluation system, as well as the conclusions and recommendations can be directly used by local council enterprises, regardless of their size and sectors. The proposed personnel evaluation system will allow the implementation of more objective motivation policies at the level of local councils. Employee engagement factors, internal motives and quality manager are indeed the most significant factors for the success of engineering project management in Local Authorities. The results of the author's research led to the scientific substantiation of the need for cooperation and the establishment of relations with employees; to always be in contact with the various hierarchies in the field; to have internal reasons for employees to activate effectively.

Implementation of scientific results: The results, conclusions and practical recommendations of the thesis, including the implementation of a quality guide, can be used directly by local councils, the scientific results obtained from the research thus contributing to the development of the theory and practice of quality management in public organizations.

ADNOTARE
la teza de doctor în ştiinţe economice cu tema: MODELUL SISTEMULUI DE MANAGEMENT AL CALITĂŢII ÎN ORGANIZAŢIILE PUBLICE DE CONSTRUCŢIE,
Awny Zrikat, Chișinău, 2024
Specialitatea: 521.03 – Economie și management în domeniul de activitate (în managementul calității)

Structura tezei: introducere, trei capitole, concluzii generale și recomandări, bibliografie (173 surse), 8 anexe, prezentată pe 141 de pagini de text de bază, inclusiv 40 de figuri și 32 de tabele. Rezultatele obţinute au fost publicate în 11 lucrări ştiinţifice.

Cuvinte-cheie: calitate, management al calității, management total al calității, consiliu local, management, ISO-9000:2015, ISO-9001:2015, costul calității, implicarea managementului, indicele de experiență, indicele de motivare.

Domeniul de studiu: managementul calității în organizațiile publice și identificarea factorilor de succes.

Scopul tezei constă în identificarea și dezvoltarea procesului de management al „proiectului de construcție în cadrul organizațiilor publice", pentru a economisi bani, timp și pentru a le realiza la cea mai bună calitate. Cercetarea întreprinsă promovează eficacitatea instrumentelor oferite, precum și nivelul de impact realizat cu ajutorul Ghidului Calității în Organizația Publică.

Obiectivele lucrării: identificarea și descrierea principalelor concepte din domeniul managementului calităţiii și analiza specificului aplicării sistemului de management al calității în organizațiile publice de construcție; îmbunătăţirea sistemului de management al calităţii în normele publice de construcţie pe baza perfecţionării Ghidului calităţii în organizaţiile publice; îmbunătățirea procesului de implementare a proiectelor de inginerie pe baza corelației dintre factorii metrici și factorii de succes; elaborarea unui nou model EMC, bazat pe Ghidul de calitate pentru proiectele de construcții pentru organizațiile publice de construcție.

Noutatea și originalitatea științifică constă în îmbunătățirea procesului de management al proiectelor inginerești pentru autoritățile publice locale. Este studiată problematica calității în autoritățile locale din Israel. Autorul dorește să identifice factorii de succes evidențiați de către inginerii Autorităților Locale pentru a reuși să gestioneze proiectele de inginerie cât mai eficient.

Semnificația teoretică a tezei: a fost analizată, extinsă și precizată esența conceptului de „calitate" ca proces; autorul a luat în considerare o serie de ghiduri de calitate și a marcat clar diferența dintre cele două concepte: ghidurile de calitate și seria de standarde de calitate ISO-9000.

Valoarea aplicativă a tezei. Rezultatele obţinute în urma cercetării a dat posibilitate de a dezvolta o metodologie de abordare a ghidurilor de calitate. Ele pot servi ca elemente conceptuale și metodologice pentru cercetări ulterioare în acest domeniu. În baza cercetării, autorul a elaborat un manual de calitate care servește drept standard pentru toate autoritățile locale. De asemenea, el a propus consiliilor locale linii directoare de calitate.

Rezultatele obținute în urma cercetării științifice: Pentru managementul calității, sistemul cuprinzător de evaluare a personalului elaborat, precum și concluziile și recomandările pot fi utilizate direct de întreprinderile consiliilor locale, indiferent de mărimea și sectoarele acestora. Sistemul propus de evaluare a personalului va permite implementarea unor politici de motivare mai obiective la nivelul consiliilor locale. Factorii de implicare a angajaților, motivele interne și managerul de calitate sunt într-adevăr cei mai semnificativi factori pentru succesul conducerii proiectelor de inginerie în Autoritățile Locale. Rezultatele cercetării autorului au condus la fundamentarea științifică a necesității cooperării și stabilirea relațiilor cu angajații; să fie mereu în contact cu diferitele ierarhii din domeniu; să existe motive interne pentru ca angajații să activeze eficient.

Implementarea rezultatelor științifice: Rezultatele, concluziile și recomandările practice ale tezei, inclusiv implementarea unui ghid de calitate, pot fi utilizate direct de către consiliile locale, rezultatele științifice obținute în urma cererceтării contribuind astfel la dezvoltarea teoriei și practicii managementului calității în organizațiile publice.

АННОТАЦИЯ

АУНИ Зрикат. „МОДЕЛЬ СИСТЕМЫ УПРАВЛЕНИЯ КАЧЕСТВОМ В ОБЩЕСТВЕННЫХ СТРОИТЕЛЬНЫХ ОРГАНИЗАЦИЯХ", диссертация на соискание ученой степени доктора экономических наук, специальность 521.03 – Экономика и управление в сфере деятельности (в управлении качеством), Кишинев, 2024

Диссертационная работа написана на английским языке и состоит из введения, трёх глав, общих выводов и рекомендаций и списка из 173 цитируемых публикаций и 8 приложений. Работа содержит 141 страниц основного текста, 40 рисунок, 32 таблиц. Полученные результаты опубликованы в 11 научных работах.

Ключевые слова: Качество, управления качеством, системное управление качеством, местный совет, ISO-9000:2015, ISO-9001:2015, цена качества, вовлечение управления, индекс опыта и индекс мотивов.

Область исследования: управление качеством в общественных организациях и выявление факторов успеха.

Цель диссертации: выявить и разработать процесс управления «строительным проектом в общественных организациях», сэкономить средства, время и достичь их с наилучшим качеством. Проведенное исследование способствует повышению эффективности предлагаемых инструментов, а также уровня воздействия, достигнутого с помощью Руководства по качеству в общественной организации.

Задачи работы: определить и описать основные концепции в области управления качеством и проанализировать специфику применения системы менеджмента качества в общественных строительных организациях; совершенствование системы менеджмента качества на основе совершенствования Руководства по качеству в общественных организациях; совершенствование процесса реализации инженерных проектов на основе соотношения метрических факторов и факторов успеха; разработка новой модели ЕМС на основе Руководства по качеству объектов строительства для государственных строительных организаций.

Научная новизна и оригинальность заключается в совершенствовании процесса управления инженерными проектами для органов местного самоуправления. Изучен вопрос качества в местных органах власти в Израиле. Автор выявил факторы успеха, отмеченные инженерами местных органов власти, чтобы максимально эффективно управлять инженерными проектами.

Теоретическая значимость диссертации: проанализирована, расширена и уточнена сущность понятия «качество» как процесса; автор рассмотрел ряд руководств по качеству и четко обозначил разницу между двумя понятиями: руководствами по качеству и стандарты качества серии ISO-9000.

Прикладное значение диссертации. Результаты, полученные в результате исследования, позволили разработать методологию подходов к рекомендациям по качеству. Они могут служить концептуальными и методологическими элементами для дальнейших исследований в этой области. На основе исследования автором разработано руководство по качеству, которое может служить эталоном для всех органов местного самоуправления. Он также предложил руководящие принципы качества для местных советов.

Результаты, полученные в результате научного исследования: Для управления качеством разработанная комплексная система оценки персонала, а также выводы и рекомендации могут быть непосредственно использованы предприятиями местных советов, независимо от их размера и отрасли. Предлагаемая система оценки персонала позволит реализовать более объективную политику мотивации на уровне местных советов. Факторы вовлеченности сотрудников, внутренние мотивы и менеджер по качеству являются наиболее важными факторами успеха управления инженерными проектами в местных органах власти. Результаты авторского исследования привели к научному обоснованию необходимости сотрудничества и налаживания отношений с работниками; всегда быть в контакте с различными организационными иерархиями; выявить внутренние мотивы для обеспечения эффективной работы сотрудников.

Внедрение научных результатов: результаты, выводы и практические рекомендации диссертации, включая внедрение руководства по качеству, могут быть использованы непосредственно местными советами; научные результаты, полученные в результате исследования, тем самым способствуют развитию теории и практики управление качеством в общественных организациях.

ZRIKAT AWNY

THE MODEL OF QUALITY MANAGEMENT SYSTEM IN PUBLIC ORGANIZATIONS OF CONSTRUCTIONS

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(IN QUALITY MANAGEMENT)

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