

The Possibility of Applying Quality Management In Projects According to The Requirements of The Specification (ISO10006:2017): A Case Study in Baghdad Governorate (Al-Mahmoudiya Residential Complex Project)

امكانية تطبيق إدارة الجودة في المشاريع وفق متطلبات المواصفة (ISO10006:2017): دراسة حالة في محافظة بغداد (مشروع مجمع المحمودية السكني انموذجاً)

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المستخلص

يهدف البحث الى التعرف على مدى تطبيق ادارة الجودة في المشاريع وفق المواصفة القياسية (ISO 10006:2017) وقياس حجم الفجوة بين الواقع الفعلي وبين متطلبات المواصفة ISO 10006:2017، وقع الاختيار على مشروع مجمع المحمودية السكني التابع لمحافظة بغداد ميداناً للدراسة، اعتمد منهج (دراسة الحالة) واستخدمت قائمة الفحص والتي تم الاعتماد فيها على مجموعة من الادوات الاحصائية وهي (الوسط الحسابي المرجح، قياس مدى المطابقة، حجم الفجوة). توصل البحث الى عدد من النتائج، ابرزها وجود فجوة بين الواقع الفعلي للمشروع وبين ادارة الجودة وفق المواصفة ISO10006:2017 بمقدار 57% وضعف الوعي والمعرفة بماهية المواصفة، إذ إن الأشخاص الذين يعملون لدى الشركة ليس لديهم أية دراية بالفوائد المترتبة عن تطبيق هذا النظام. ويوصى البحث بالاستعانة بمكاتب استشارية وخبراء خارجيين بالمواصفة ISO10006:2017 لاجراء التدريب لمديري وموظفي المحافظة ونشر ثقافة إدارة جودة المشروع على وفق المواصفة ISO10006:2017.

الكلمات الرئيسية: معيار ISO 10006:2017، إدارة جودة المشروع، مشروع مجمع المحمودية السكني.

Abstract

The research aims to identify the extent of quality management implementation in projects according to the standard specification (ISO 10006:2017) and to measure the gap between the actual situation and the requirements of ISO 10006:2017. The Al-Mahmudiya Residential Complex Project, affiliated with the Baghdad Governorate, was selected as the case study for conducting the research. The study adopted a (Case study) methodology, by using checklist, relying on a set of statistical tools, including the weighted arithmetic mean, conformity measurement, and gap size assessment.

The research reached several conclusions, the most important is the existence of a gap of 57% between the actual state of the project and quality management in accordance with ISO 10006:2017. It also highlighted a lack of awareness and understanding of the nature of the standard, as the personnel working in the company had no knowledge of the benefits of applying this system. The research recommends seeking the assistance of consulting offices and external experts on ISO 10006:2017 to conduct training for the managers and employees of the governorate and to promote a culture of project quality management in accordance with ISO 10006:2017.

Keywords: ISO 10006:2017 Standard, Project Quality Management, Al-Mahmudiya Residential Complex Project.

1. Introduction

Quality management is considered one of the fundamental pillars for the success of projects, especially in complex work environments that require precise coordination between time, cost, resources, and technical requirements. In this context, the international standard ISO 10006:2017 serves as an important reference, providing comprehensive guidelines on how to apply quality management principles within the context of project management. This standard aims to ensure that project objectives are achieved while considering the expectations of all stakeholders, by enhancing process efficiency and applying systematic practices in planning, implementation, monitoring, and evaluation.

ISO 10006:2017 is distinguished by not replacing the parent standard ISO 9001 for quality management systems, but rather complementing it. It focuses on the specific aspects of projects, including risk management, defining stakeholder responsibilities, and ensuring the quality of outcomes at each phase of the project.

The research problem lies in the weak adoption of quality systems by the Al-Mahmudiya Residential Complex Project in Baghdad Governorate and its failure to implement the international standard ISO 10006:2017 for project management. The study is of great importance as it addresses the ISO 10006:2017 standard, which serves as a managerial framework for project quality management, helping to improve quality control and reduce potential risks.

The research led to several key findings, most notably a lack of awareness and understanding of the ISO 10006:2017 standard. Employees under the company's control are largely unaware of the importance and benefits of applying this system. Moreover, there is insufficient training on the quality management system, and team members may not fully understand how to properly implement the standards. The study recommends seeking the assistance of consulting firms and external experts in the ISO 10006:2017 standard to provide training for the managers and employees of the governorate and to promote a culture of project quality management in line with the standard.

2. Research Methodology

2.1. Research Problem

Project quality management involves identifying the key quality criteria required to implement the project according to predetermined financial and time constraints, conducting the necessary analyses to raise productivity levels, introducing modern technology, minimizing waste, and reducing defective output to zero—ensuring optimal use of project resources. Therefore, the project must meet the necessary requirements while reviewing quality criteria at each project stage and verifying precise implementation of those standards.

Many reports from government oversight and parliamentary integrity bodies indicate the failure of several Iraqi organizations in project management, which has led to the waste of public funds and loss of studied efforts and resources. Due to the weak adoption of quality systems and non-compliance with ISO 10006:2017 in the Al-Mahmudiya Residential Complex Project, The research problem is defined by the following questions:

1. To what extent is the ISO 10006:2017 standard implemented in the project under study?
2. What is the gap between actual performance and the clauses of ISO 10006:2017 in the project?

2.2. Research Importance

This study is significant importance as it discusses the ISO 10006:2017 standard, a managerial framework for quality management in projects. It helps improve quality control and reduce potential risks. It contributes as a tool to diagnose the reality of applying quality management in projects according to ISO 10006:2017 in a project that needs to adopt this standard. Moreover, it aims to reach conclusions and proposals that could help form a clearer picture of how ISO 10006:2017 contributes to identifying and evaluating project risks, thereby supporting project decision-makers.

2.3. Research Objectives

The objectives of the research are formulated based on the research problems and are as follows:

1. To identify the extent of implementation of the ISO 10006:2017 standard by the project.
2. To study the gap between actual practice and quality management in the project according to ISO 10006:2017.

2.4. Research Method

The study relies on the case study methodology, through completing checklists related to the requirements of ISO 10006:2017 and field observation within the project affiliated with Baghdad Governorate, in addition to direct interviews with managers and heads of departments and divisions to obtain results.

2.5. Hypothetical Framework

The adopted hypothetical framework for this study illustrates how the requirements of project quality management systems integrate. This is represented in Figure (1).

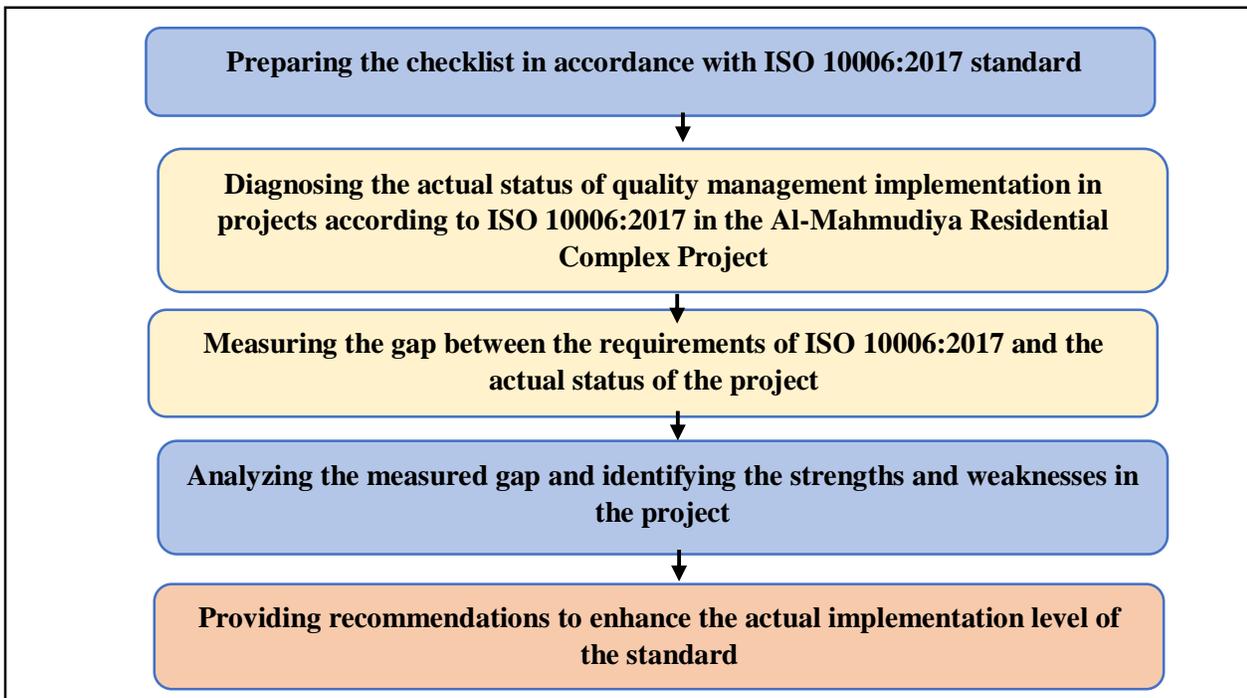


Figure (1) Procedural diagram of the research

Source: Prepared by the researcher

2.6. Research Community and Sample

The governorate has numerous projects, and the Mahmoudiya Residential Complex project was chosen as the research sample for the following reasons:

1. The presence of some project failures, which could lead to significant risks that would hinder project implementation and threaten people's lives.
2. The availability of project-specific data to meet research requirements.

2.7 Research Limits

The research limits were as follows:

1. Time Limits: The period from 2023 to 2024.
2. Spatial Limits: Baghdad Governorate (Mahmoudiya Residential Complex Project).
3. Scientific Limits: The research relied on project quality systems according to the ISO 10006:2017 standard. The clauses of this standard include: project context and characteristics, project management responsibilities, project resource management, project product/service achievement, measurement, analysis, and improvement.

2.8. Statistical tools used to collect data: A seven-point scale, with weights ranging from total implementation and documentation (with a weight of six points) to non-implementation and documentation (with a weight of zero), was used to determine the indicators, as shown in Table (1).

Table (1) The seven-point scale for determining the degree of conformity with the standard specification

0	1	2	3	4	5	6
Not implemented	Partially implemented	Partially implemented	Partially implemented	Fully implemented	Fully implemented	Fully implemented
Not documented	Not documented	Partially documented	Fully documented	Not documented	Partially documented	Fully documented

Source: Hussein, Maryam Qahtan Abdul Amir, (2024), “The possibility of implementing a food safety management system in accordance with ISO 22000:2018 specifications using the Lean Six Sigma methodology, a case study in the Baghdad Soft Drinks Company,” Master’s thesis in Total Quality Management Techniques, Administrative Technical College/Baghdad, Middle Technical University, p.8.

In light of the results of the inspection lists, the degrees of conformity and degrees of non-conformity are determined. The percentage is extracted to determine the size of the gap based on the following equations (Hussen&Abdulkarim,2025:106), (Jumaal, Khaleel, 2022: 90)

- ❖ **Weighted arithmetic mean** = $\frac{\text{Total (weight * repetitions)}}{\text{Total repetitions}}$
- ❖ **Percentage of conformity** = $\frac{\text{Weighted arithmetic mean}}{6 \text{ (highest score on the scale)}}$
- ❖ **Gap size** = 1 – percentage of matching range

3. Theoretical Aspect

3.1 The Origin of Project Quality Management According to ISO 10006:2017

The International Organization for Standardization (ISO) was established in 1946. ISO 10006:2017 is an international document issued by the International Organization for Standardization (ISO), specifically by Technical Committee TC176/ISO. This standard provides guidelines for quality management in projects. It consists of experts from 25 countries and is an independent, non-governmental organization. It officially began operating in 1947 and is headquartered in Geneva, Switzerland. This organization has 163 members and its primary goal is to facilitate global trade in products and services (Hussain, 2024:6-7). The International Organization for Standardization (ISO) reviews its standards every five years. Since its committees are aware of the difficulty organizations face in adapting to new rules, these amendments address some easily implementable details (Al-Halfi, 2023:15). Then, in 2017, a document was issued on project quality management, issued by the International Organization for Standardization's Technical Committee (TC176/ISO), which is the third version. The first version was ISO 10006:1997, the second version was ISO 10006:2003, and then ISO 21500:2012. All three versions provide guidance on project quality management and are compatible with ISO 9000:2015. These specifications are based on the seven principles of quality management and are used for all projects (Leadership, people involvement, process approach, improvement, customer focus, relationship management, evidence-based decision making), regardless of their size and complexity (Al-Afandy, 2019:209) and (Dawood & Ahmed, 2022:521).

3.2 Objectives and Importance of Project Quality Management According to ISO 10006:2017

The ISO 10006 standard, in the field of project management in general, aims to: (Hamdi, 2018: 32)

1. Understanding and satisfying the latent and expressed needs of customers.
2. Understanding and assessing the needs of stakeholders.
3. Embodying the organization's quality policy in project management.

The most important aspects of the new standard are the following: (Montes & et al., 2021: 100)

- A. Focusing on expected results, outputs, or services; specifically, on how projects can generate improvements and benefits for the organization.
- B. Defining the organizational context and project environment.
- C. Focusing on the project life cycle, emphasizing that its composition must include multiple phases and decision points between phases.
- D. Developing a concrete approach to sharing roles, responsibilities, and competencies, whereby the Responsibilities.
- E. C. The competency approach is maintained at the technical level, i.e., project management; at the behavioral level, i.e., interpersonal relationships; and at the business, organizational, and other external levels.

3.3 Benefits of Project Quality Management According to ISO 10006:2017

Jumaa & Khaleel (2022:90) indicate that implementing ISO 10006 in the field of project management in general will achieve the following benefits:

1. Project execution as agreed upon through proper, advance planning and realistic timing estimation for each project phase.
2. Speed of delivery through the use of project quality management processes.
3. Reducing risks during project implementation.
4. Improving customer satisfaction by delivering the appropriate product or service on time.

Pino et al. (2021:2-3) indicate that implementing ISO 10006 achieves the following benefits:

- a. Facilitating tasks and activities and reducing work inefficiencies.
- b. Visualizing a competitive vision For the future.
- B. C- Focus on quality when implementing any project.
- C. D- Standardize procedures.
- D. C- Provide common processes for investors and project managers.
- E. H- Feedback allows for future improvements. (Moreno & Ramirez, 2019: 6)
- F. G- Provide a range of benefits to both the project and the organization's managers if the organization achieves certification. (Čabarkapa, 2019: 271)

3.4 Characteristics of Project Quality Management According to ISO 10006:2017

Project quality is a unique, temporary endeavor undertaken to create products/services/results with specific start and end dates. The unique elements of project quality management are: (Gvozdenovic, 2021: 148), (Nyanama, 2022: 2), (Peyyala & Nyanama, 2024: 2)

1. Focus on product and service quality and process quality Especially the project process.
2. Focus on the quality and compliance requirements and standards for which the project is responsible through its stakeholders.
3. Focus on additional values and requirements that differ from the primary requirements and have a significant impact on the final level of customer satisfaction.
4. Verification by meeting all requirements to satisfy customers and all relevant stakeholders.

4. Practical Aspect (Results Analysis)

This section presents the results of analyzing a quality management checklist for projects according to the requirements of the international standard ISO 10006:2017. The gaps identified between the items measuring this variable and the actual implementation in the project under study will be presented after using a seven-point Likert scale to determine the indicators.

4.1 Reality of Implementation of Item Four (Project Quality Management Systems)

The checklist in Table (2) shows the level of actual implementation and documentation of the requirements of Item Four, namely (Project Quality Management Systems), with regard to the implementation and documentation of quality management in projects according to the requirements of the international standard ISO 10006:2017 in the project. The company achieved a weighted arithmetic mean of 0. (2.263) out of (6) points, with a matching rate of (37.71%), which indicates the existence of a gap of ((62.29%).

Table (2) Checklist for Item (4) Project Quality Management Systems

Paragraph	Completely applied	Partially applied	
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No		Totally notarized	Partial notary	Undocume nted	Totally notarize d	Partial notary	Undocumen ted	Not implemented and not documented
		6	5	4	3	2	1	0
4.1 Project context and characteristics								
4-1-1 General								
1	The company identifies internal and external issues related to the company's purpose that affect its ability to achieve intended results.					✓		
Considering the internal and external issues that affect the project quality management system enables both the project and the organization to:								
A	Identify the needs and expectations of interested parties.					✓		
B	Adopt the project quality management processes necessary to achieve the intended project outcomes.					✓		
C	Identify risks and opportunities related to project processes and planned deliverables.						✓	
4-1-2 Established companies								
2	The company specifies:							
A	The parent organization handles multiple projects, each assigned to a different project organization.	✓						
B	There is a clear division of responsibility and authority between the project organization and other relevant stakeholders (including the parent organization) regarding project operations.	✓						
C	This information is maintained as documented information.	✓						
4-1-3 Stages and processes in projects								
3	The organization defines processes into phases as a means of planning, monitoring the					✓		

	achievement of objectives, and assessing associated risks.							
4	Project phases divide the project life cycle into manageable groups of activities, such as conception, development, implementation, and closure.					✓		
5	The organization defines project processes into two categories: project management processes and processes related to the project product or service (those primarily related to the project product or service, such as design, production, etc.).			✓				
6	The organization groups processes according to their proximity to each other; for example, all time-related processes are included in one group.					✓		
4-1-4 Project Management Processes								
7	Project management plans, organizes, monitors, controls, and reports all project operations, including taking corrective and improvement actions necessary to achieve project objectives, on an ongoing basis.		✓					
4-2 Principles of Quality Management								
8	The organization's management integrates the general principles underlying the quality management systems of both the parent and project organizations.							✓
4-3 Project Quality Management Processes								
9	Defining the requirements for a quality management system to ensure project							✓

	processes can interact effectively.							
10	Determining the documented information required and produced by the project organization to ensure effective project planning, execution, and control.					✓		
4-4 Project Quality Plan								
11	Document and maintain the project's quality management system and include or reference it in the project's quality plan.							✓
12	The quality plan identifies the activities and resources required to achieve the project's quality objectives. The quality plan should be incorporated into or referenced in the project management plan.							✓
13	The customer defines requirements for the quality plan, and these requirements should not limit the scope of the quality plan used by the project organization.							✓
Repetition		3	1	1	0	7	2	5
The result		18	5	4	0	14	2	0
Weighted arithmetic mean		2.263						
Percentage of conformity		37.71%						
Gap size		62.29%						

Source: Prepared by the researcher.

4.2 The Reality of Implementing Item Five (Administrative Responsibility in Projects)

The checklist in Table (3) shows the level of actual implementation and documentation of the requirements of Item Four (Administrative Responsibility in Projects) by implementing and documenting quality management in projects in accordance with the requirements of the international standard ISO10006:2017 in the project. The company achieved a weighted arithmetic mean score of (2.611) out of (6) points for this axis, with a conformity rate of (43.5%), indicating a gap of (56.5%).

Table (3) Checklist for Item (5) Administrative Responsibility in Projects

	Paragraph	Completely applied	Partially applied	
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No		Totally notarized	Partial notary	Undocume nted	Totally notarize d	Partial notary	Undocumen ted	Not implemented and not documented
		6	5	4	3	2	1	0
5-1 Senior Management Commitment								
14	The commitment and active participation of both senior management within the company and project management to develop and maintain an effective and efficient quality management system for the project.					✓		
15	Senior management of both the company and project management strives to instill a culture of quality for the project's success.			✓				
16	Senior management provides input into the strategic process.					✓		
17	Senior management emphasizes continuous improvement and ensures its application to current and future projects.			✓				
18	Senior management works to promote a culture where lessons learned lead to continuous improvement of current and future projects.			✓				
5-2 The strategic process								
5-2-1 Applying quality management principles through the strategic process								
19	Project management develops a strategic plan to build, implement, and execute a quality management system within the project.							✓
20	The planning process focuses on process quality to achieve project objectives.							✓
21	The planning process focuses on product quality							✓

	to achieve project objectives.							
5-2-2 Customer Focus								
22	The project organization understands current and future customer needs to meet and exceed their expectations.					✓		
23	The project objectives for the product/service include the needs and expectations of the customer and other stakeholders.					✓		
24	The project objectives are documented in a project management plan that outlines what must be accomplished (expressed in terms of time, cost, and product/service quality) and what must be measured.					✓		
25	Customer requirements are taken into account when determining the balance between time, cost, and product quality.					✓		
26	Communication with stakeholders is established to exchange information as appropriate throughout the project implementation phases and to resolve any disputes between the parties regarding the terms of the contract.					✓		
27	When a dispute arises between the parties, the customer's requirements typically take precedence, unless legal or regulatory requirements may affect them.					✓		
28	Document and maintain relevant party agreements as a record. Pay attention to changes in the requirements of relevant parties					✓		

	throughout the project implementation, including additional requirements from new interested parties who join the project after it has begun.							
5-2-3 Leadership								
29	The Company shall appoint a Project Manager who shall have the responsibility and authority to manage the Project and ensure the establishment, implementation and maintenance of the Project Quality Management System. The delegated authority shall be commensurate with the responsibility entrusted to him.							✓
Commitment of senior management of both the company and project management to creating a culture of quality through the following:								
A	Establish a quality policy and define objectives (including quality targets) for the project.					✓		
B	Provide the necessary infrastructure and resources to ensure the achievement of project objectives.					✓		
C	Promote the use of a process approach and risk-based thinking.							✓
D	Support an appropriate organizational structure to achieve project objectives.					✓		
E	Making decisions based on realistic data and information.							
F	Empower and motivate all project staff to improve project processes and products/services, and to recognize their contribution to the effectiveness of operations.					✓		

G	Actions are planned preventively.							✓
5-2-4 Employee Participation								
30	Project owners have a responsibility to know the purpose of their participation in the project.		✓					
31	Employees in the project organization have well-defined roles, responsibilities, and authorities regarding their participation in the project, with the delegated authority of project participants consistent with their assigned responsibility.	✓						
32	The project organization appoints qualified staff to improve the organization's performance.					✓		
33	The project organization provides staff with appropriate tools, mechanisms, and methods to enable them to monitor and control the process.					✓		
34	Applying and addressing cross-cultural management in international, joint, and multinational projects.							✓
5-2-5 Process Approach								
35	Documenting and defining project processes and their interrelationships.					✓		
36	The project management informs the company's management of the experience it has gained in developing and using its own processes, or from other projects, so that the company's management can take this experience into account when establishing project processes.	✓						

37	The evaluation process is conducted using clear quantitative measures.					✓		
38	Project management benefits from the experiences and information of previous projects and integrates them into individual project processes through:							
A	Identify appropriate processes for the project.					✓		
B	Define the inputs, outputs, and objectives for each project process.					✓		
C	Identify process owners, defining their responsibilities and authorities.	✓						
D	Design project processes throughout the project lifecycle.							✓
E	Define relationships and actions within project processes.							✓
F	Address risks and threats and address opportunities that support project processes.					✓		
G	Evaluate process effectiveness and efficiency through internal and external audits.							✓
5.2.6 Improvement								
39	Continuous improvement of organizational performance is an ongoing goal for the organization.					✓		
40	Both the company and the project are committed to improving the efficiency and effectiveness of the project processes within their respective responsibilities.					✓		
41	Develop a system for recording and analyzing information obtained during the project for use in continuous improvement processes.						✓	
42	Conduct internal and external audits, as well as							✓

	self-assessments, to identify opportunities for continuous improvement, taking into account the time and resources required.								
43	Analyze lessons learned and information from previous projects and use them to support the improvement of current or future projects.								✓
5.2.7 Making fact-based decisions									
44	Recording and evaluating information related to project progress and performance to assess the project's status.	✓							
45	The project organization analyzes information from the project progress and performance evaluation to make effective project decisions and refine the project management plan.	✓							
46	Analyzing information from previous project reports to use it to improve current and future projects.								✓
47	Relying on actual project data and information to make decisions.	✓							
5.2.8 Relationship Management									
48	The project organization defines its supply chain strategies, especially for long delivery periods.	✓							
49	The project organization determines the supplier's ability to meet process and product requirements.	✓							
50	The organization develops process suppliers and product or service specification requirements through the project organization and suppliers.	✓							
5-3 Management Reviews and Progress Assessments									
5-3-1 Management Reviews									

51	The project management reviews the project quality management system at planned intervals to ensure its continued suitability, adequacy, effectiveness, and efficiency.							✓
5-3-2 Progress Assessments								
52	Progress assessments cover all project processes to assess the extent to which project objectives are being met.	✓						
53	Progress assessments cover all project Progress assessment outputs provide important information about project performance as input for future management reviews.	✓						
A	Use of progress assessments:							
*	Assess the project management plan's suitability for the project objectives and the extent to which the work completed is aligned with them.					✓		
*	Assess the synchronization and interconnectedness of project processes.					✓		
*	Identify and evaluate activities and outcomes that may positively or negatively impact the achievement of project objectives.					✓		
*	Get input for the remaining work on the project.					✓		
*	Facilitate communication.					✓		
*	Lead to improve project processes by identifying deviations and changes in risks and opportunities.					✓		
B	Planning to evaluate progress includes:							
*	Prepare a comprehensive progress evaluation schedule (to be included in		✓					

	the project management plan).							
*	Define responsibility for managing individual progress evaluations.		✓					
*	Define the purpose, evaluation requirements, processes, and deliverables for each progress evaluation.		✓					
*	Assign staff to participate in the evaluation (e.g., project operations personnel and other interested parties).		✓					
*	Ensure that appropriate staff from project operations are evaluated.		✓					
*	Ensure that relevant information is prepared and available for the evaluation (e.g., the project management plan).		✓					
C	People conducting assessments should:							
*	Understand the purpose of the processes being evaluated and their impact on the project's quality management system.							✓
*	Examine relevant process inputs and outputs.					✓		
*	Review the monitoring and measurement criteria applied to the processes.						✓	
*	Determine whether the processes are effective.						✓	
*	Investigate potential improvements in process efficiency.						✓	
*	Prepare reports or other relevant outputs with progress assessment results.					✓		
D	Once the progress assessment is done:							
*	Evaluate evaluation outcomes against project objectives to determine whether the project's			✓				

	performance against planned targets is acceptable.							
*	Assign responsibility for actions resulting from the progress evaluation.					✓		
54	Use progress evaluation outcomes to provide information to the company to improve the efficiency and effectiveness of project management processes.			✓				
Repetition		11	8	5	2	27	4	15
The result		66	40	20	6	54	4	0
Weighted arithmetic mean		2.611						
Percentage of conformity		43.5%						
Gap size		56.5%						

Source: Prepared by the researcher.

4.3 Reality of Implementation of Item 6 (Project Resource Management)

The checklist in Table (4) shows the level of actual implementation and documentation of the requirements of Item 6 (Project Resource Management) by implementing and documenting project quality management in accordance with the requirements of the international standard ISO10006:2017 in the project. The company achieved a weighted arithmetic mean score of (2.33) out of (6) points for this axis, with a conformity rate of (38.83%), indicating a gap of (61.17%).

Table (4) Checklist for Item (6) Resource Management in Projects

No	Paragraph	Completely applied			Partially applied			Not implemented and not documented
		Totally notarized	Partial notary	Undocumen ted	Totally notarize d	Partial notary	Undocumen ted	
		6	5	4	3	2	1	
6-1 Resource-related processes								
6-1-2 Resource planning								
55	Document resource plans, including locations, constraints, costs, and assumptions, and include them in the project management plan.	✓						
56	The organization identifies the resources required for the project according to the schedule.	✓						
57	The organization verifies the legitimacy of resource planning inputs.		✓					
58	Resource constraints such as safety, cultural		✓					

	considerations, international and labor agreements, government regulations, funding, and the project's impact on the environment are considered.							
59	Resource plans define and indicate how and where resources will be acquired and allocated. They must also include how excess resources will be disposed of during project implementation.		✓					
6-1-3 Control of Resources								
60	The organization reviews its records to ensure sufficient resources are available to achieve project objectives.					✓		
61	The organization documents the timing of reviews, the frequency of data collection, and resource requirements in the project management plan.					✓		
62	The organization identifies, analyzes, acts upon, and records deviations from resource plans.					✓		
63	The organization identifies the root causes of resource shortages or excesses, records them, and uses them as input for continuous improvement.						✓	
64	Changes that impact project objectives are agreed upon by the client and other stakeholders prior to implementation, with appropriate authorization for changes to the project plan.					✓		
65	Resource requirements are coordinated with other					✓		

	project processes when developing a plan for the remaining work of the project.							
6-2 Employee-related operations								
6-2-1 General								
66	Pay special attention to activities in employee-related processes.					✓		
67	These processes aim to create an environment that enables employees to contribute effectively and efficiently to the project.					✓		
6-2-2 Establishing the organizational structure of the project								
68	Establish the project organizational structure in accordance with company requirements, policies, and project-specific circumstances.	✓						
69	Design the project organizational structure to encourage effective and efficient communication and collaboration among all project participants.					✓		
70	The project manager ensures that the organizational structure is appropriate for the project type, project team size, local conditions, and processes used.					✓		
71	Document job descriptions that include assignments of responsibility and authority.	✓						
72	Conduct periodic reviews of the project organizational structure to determine its continuity and appropriate efficiency.					✓		
6-2-3 Staff Allocation								
73	Determine the appropriate competency in terms of education, training, skills,					✓		

	and experience for project personnel.							
74	Select individuals based on job description or role.					✓		
75	Take sufficient time when selecting competent employees.					✓		
76	Document the responsibilities and authority of project personnel.					✓		
77	Participate in the project manager's selection of personnel for project positions.					✓		
78	Monitor the overall performance of individuals, including their effectiveness in their jobs, to ensure the availability of appropriate specializations.					✓		
79	The project manager appoints an administrative representative responsible for establishing, implementing, and maintaining the project's quality management system.					✓		
80	When appointing project team members, consider their personal relationships, strengths, and weaknesses.					✓		
81	Inform clients and other relevant stakeholders of personnel changes within the project organization prior to implementation.					✓		
82	Clarify and apply selection criteria to all levels of project personnel.					✓		
83	Understand and accept the job description by the employee, specifying authority and responsibility, and submitting reports to Saad					✓		

	Company in a documented manner.							
84	Assignment of individuals to specific jobs or roles is confirmed and communicated to all relevant parties.					✓		
6.2.4 Team Development								
85	Team members are individually qualified, motivated, and willing to collaborate with each other.						✓	
86	Participate in team development activities for the project team and team members.						✓	
87	Recognize and reward effective teamwork when appropriate.							✓
88	Ensure a work environment that encourages excellence and effective working relationships based on trust and respect within the team.						✓	
89	Encourage and develop consensus-based decision-making, structured conflict resolution, clear, open, and effective communication, and a mutual commitment to customer satisfaction.							✓
90	Involve employees affected by changes to the project or project organization in planning and implementing the change.							✓
Repetition		4	2	0	0	23	4	3
The result		24	10	0	0	46	4	0
Weighted arithmetic mean		2.33						
Percentage of conformity		38.83%						
Gap size		61.17%						

Source: Prepared by the researcher.

4.4 The Reality of Implementing Item Seven (Product/Service Realization in Projects)

The checklist in Table (5) shows the level of actual implementation and documentation of the requirements of Item Seven (Product/Service Realization in Projects) by implementing and documenting quality management in projects in accordance with the requirements of the international standard ISO10006:2017

in the project. The company achieved a weighted arithmetic mean score of (2.760) out of (6) points for this axis, with a conformity rate of (46%), indicating a gap of (54%).

Table (5) Checklist for Item (7) Product/Service Achievement in Projects

No.	Paragraph	Completely applied			Partially applied			Not implemented and not documented
		Totally notarized	Partial notary	Undocumen ted	Totally notarize d	Partial notary	Undocumen ted	
		6	5	4	3	2	1	
7-2 Interconnected Processes								
7-2-1 General								
91	Project management provides effective communication between the various project workers.	✓						
7-2-2 Project Initiation and Development of Project Management Plan								
92	Create a project management plan that reflects the project quality plan, with the ability to update or modify it, including factors such as project scope, size, and complexity.					✓		
93	Identify significant details and information from previous projects by the parent organization.					✓		
94	When the project implementation is to fulfill contract requirements, contract requirements reviews should be conducted during the project management plan to ensure that the contract requirements can be met.					✓		
95	When the project implementation is not to fulfill specific contract requirements, an initial review of the project implementation requirements is conducted to ensure they are appropriate and achievable.					✓		
96	The project management plan should:							

A	It refers to the documented requirements of the customer and stakeholders, the project objectives, and the source of income for each requirement for easy tracking.					✓		
B	It defines and documents the project processes and objectives.					✓		
C	It identifies organizational overlaps, paying special attention to the project organization's communication and reporting lines with other functional departments of the company.					✓		
D	It integrates the plans resulting from project process planning, including quality plans, work breakdown structures, schedules, communications, budgets, purchasing, and risk management.					✓		
E	It defines or indicates product characteristics and how they are measured and evaluated.					✓		
F	Provides the basis for measuring and controlling project progress, as well as providing timelines for reviews and progress assessments.					✓		
G	Defines performance indicators and how they are measured, as well as regular assessments to monitor progress. These assessments should facilitate corrective and preventive actions.					✓		
H	Ensure that project objectives are valid in a changing environment.							✓

I	Provides reviews of project requirements as required by the contract to ensure that contract requirements are met.		✓					
J	Reviews are scheduled regularly and when changes occur in the project.		✓					
K	Document the project quality plan and reference the quality management system, linking the project quality plan to applicable parts of the company's management system and adapting to this system.							✓
L	Establishes quality system applications such as verification, tracking, documentation, reviews, and audits throughout the project.							✓
7.2.3 Interaction Management								
97	Facilitating planned interconnections between processes and managing unplanned interactions in the project, including:							
A	The organization establishes procedures for managing interactions.					✓		
B	Conduct meetings between project functions.					✓		
C	Provide methods for resolving conflicting responsibilities or changes in risk exposure.					✓		
D	Measure project performance using various techniques such as earned value analysis (a technique for monitoring overall project performance against the budget baseline).					✓		
E	Conduct progress reviews to assess project status and plan for remaining work.					✓		
7.2.4 Change Management								
98	Change management covers the processes of							✓

	identifying, assessing, documenting, authorizing, implementing, controlling, and analyzing the impact of change before authorization is allowed to take effect.							
99	Change management takes into account the following:							
A	Change management for the project scope, project objectives, and project management plan.							✓
B	Coordinate changes across project-related processes and resolve any conflicts.							✓
C	Documentation of change processes.							✓
D	Improvement.							✓
D	Aspects of change that impact employees.							✓
100	Analyze the root causes of negative impacts and use the results to develop prevention-based solutions and implement improvements to project processes.							✓
101	Before implementing any change, submit a change request in accordance with the project processes outlined in the project management plan. The relevant documented information submitted with the request must include a justification for the change.							✓
102	Management is in place to ensure the delivery of deliverables, such as project products, and non-deliverables, such as testing equipment.							✓
7.2.5 Closing the process and project								
103	Define project closure during the initial phase of the project and include it in	✓						

	the project management plan.							
104	Feedback from the customer and other stakeholders should be measurable.	✓						
105	The project is formally handed over to the customer upon project closure. The project is not closed until the customer officially accepts the project product.	✓						
106	Project records are maintained upon completion.	✓						
107	A full review of the project is conducted upon completion.	✓						
7.3 Domain-related operations								
7.3.1 General								
108	The project scope includes a description of the project product/service, its characteristics, and how it will be measured or evaluated. The processes associated with it include:							
A	Translate the needs and expectations of customers and other stakeholders into activities implemented to achieve project objectives.						✓	
B	Ensure that employees are working within the scope of work while implementing these activities.					✓		
C	Ensure that the activities implemented within the project meet the requirements defined in the scope.							✓
7.3.2 Concept development								
109	Identify other stakeholders, define their needs, and translate these needs into documented requirements.							✓
7.3.3 Domain development and control								
110	Define and document the project product characteristics using measurable tools.	✓						

111	Procedures related to product and process characteristics are available for verification by the customer and other stakeholders.	✓						
112	Use the documented product characteristics as the basis for product implementation processes and clarify how they are measured or how the conformity of the product characteristics to the documented requirements is evaluated by both customers and other stakeholders.	✓						
7.3.4 Define activities								
113	Organizing and structuring the project into manageable activities to meet customer product and process requirements.					✓		
114	Involving project personnel in defining project activities to leverage their expertise and skills.					✓		
115	Defining and defining activities in a way that enables measurable outcomes.					✓		
116	Defining activities incorporates quality management practices in monitoring the project management plan.					✓		
117	Identifying and documenting overlaps between project activities that could cause problems between the project organization and other stakeholders.					✓		
7.3.5 Monitoring activities								
118	Monitor activities throughout the project	✓						

	according to the project management plan.							
119	Review and evaluate activities to identify significant deficiencies and opportunities for improvement, with the timing of reviews tailored to the project's difficulty and complexity.	✓						
120	Use the results of activity reviews to assess project performance progress and process outcomes, while documenting the remaining work plan for the project.	✓						
7.4 Time-related operations								
7.4.1 General								
121	Time-related processes include:							
A	Planning activity dependencies.	✓						
B	Duration estimation.	✓						
C	Schedule development.	✓						
D	Schedule control.	✓						
7.4.2 Activity Dependency Planning								
122	Identify overlaps in activities and review their alignment.		✓					
123	Use project network diagrams when preparing the project plan, draw on experience from previous projects, and ensure project suitability.	✓						
7.4.3 Estimating the time period								
124	Specialized personnel estimate activity times based on their previous experience.	✓						
125	These activity time estimates are based on previous experience to ensure accuracy and applicability to current project conditions.	✓						
126	Continuously assess and address risks to mitigate them.						✓	

127	Involve the client or other stakeholders in estimating activity time.						✓	
7.4.4 Developing the schedule								
128	Identify and review the data used in preparing the schedule to ensure it aligns with the specific project conditions.					✓		
129	Keep the client and other stakeholders informed during the schedule preparation and involve them in the schedule development if necessary.							✓
130	Provide the client and other stakeholders with appropriate schedules for approval, if necessary.	✓						
131	Identify key events that require specific inputs or decisions, or those for which major outputs are planned.					✓		
132	Consider activities with long durations when determining the project's critical path.	✓						
133	Note dependencies between activities when determining time periods to ensure consistency between them, and resolve any issues between activities before issuing the schedule.					✓		
7.4.5 Setting the schedule								
134	The project organization regularly reviews the project schedule as part of the project management plan.	✓						
135	Establishes processes, information, and schedule review and data collection to ensure adequate control of project activities.	✓						
136	Identifies and analyzes schedule deviations.						✓	

137	Identifies the root causes of schedule variances.						✓	
138	Identifies the potential impact of schedule changes on the project budget and resources.						✓	
139	Agrees on changes that impact project objectives with the client and other stakeholders prior to implementation.							✓
140	Analyzes project progress to identify trends and inaccuracies in the remaining project work.							✓
141	Defines staff and their roles when making changes to the project schedule, as well as coordinating with other project processes when preparing the remaining project work plan.					✓		
142	Informs the client and other stakeholders of proposed changes to the project schedule and involves them in making decisions that affect them.	✓						
7.5 Cost-related operations								
7.5.1 General								
143	Forecasting, managing, and completing project costs within budget constraints, and providing cost information to the parent company.	✓						
2.5.7 Cost estimation								
144	Identify and document all project costs.	✓						
145	Estimate costs based on relevant information sources and link them to project breakdown structures.	✓						
146	Verify cost estimates based on previous experience to ensure their accuracy and	✓						

	applicability to current project conditions.							
147	Determine sufficient capital to establish, implement, and maintain the project quality management system.	✓						
148	Base cost estimates on current and projected trends in the economic environment.	✓						
149	Determine the project budget based on the project cost estimation process in accordance with approved accounting procedures.	✓						
150	Identify and document cost uncertainties.	✓						
151	Cost estimates are made in a way that allows the budget to be created and developed according to accounting procedures approved for the needs of the project organization.	✓						
7.5.3 Budget								
152	The project budget is created based on cost estimates and timelines, with a defined acceptance process.	✓						
153	The budget must be aligned with the project objectives.	✓						
154	The budget includes all authorized costs and is in a format appropriate for controlling project costs.	✓						
7.5.4 Cost control								
155	Establish and document a cost control system and associated procedures.	✓						
156	Identify variances from capital.	✓						
157	Analyze project cost trends using appropriate techniques.	✓						
158	Establish the timing of reviews and frequency of	✓						

	data collection and forecasting.							
159	Identify the root causes of variances from capital.	✓						
160	The project organization conducts regular reviews of project costs, taking into account any other financial reviews.	✓						
161	The project organization ensures that the remaining budget is sufficient to complete the remaining work.	✓						
162	Get appropriate approval for changes to the project and authorize expenditures. Coordinate budget forecast reviews with other project processes when updating the remaining work plan.	✓						
163	Provide the necessary information to ensure appropriate capital expenditures and use it as input for resource control.	✓						
7.6 Communications-related operations								
7.6.1 General								
164	Ensure the timely and appropriate creation, collection, dissemination, storage, and final disposal of project information.		✓					
165	Establish appropriate communication and information exchange processes within project operations, as well as between the project and other related projects, the client, other interested parties, and the parent company.		✓					
7.6.2 Communications Planning								
166	Both the parent organization and the project organization ensure that appropriate communication							✓

	processes are established for the project and that communication occurs regarding the current status of the quality management system.							
167	Corporate management considers the communication planning process and the needs of the organization, customers, and other stakeholders.						✓	
168	The project plan specifies the information to be formally communicated, the means used to communicate it, and the frequency of communication.					✓		
169	Meeting requirements are defined in the communications plan, which includes the purpose, frequency, records, and timing of these meetings.						✓	
170	Progress evaluation reports are designed and coordinated to highlight deviations from the project management plan.							✓
7.6.3 Information Management								
171	The project organization identifies its information needs and establishes a documented system for managing them.					✓		
172	The project organization identifies internal and external sources of information.					✓		
173	Establishes procedures to define the necessary controls for preparing, collecting, distributing, preserving, storing, protecting, retrieving, destroying, and disposing of information.					✓		

174	The project organization ensures appropriate information security while maintaining confidentiality and integrity.					✓		
175	Present and distribute information clearly and in strict adherence to timelines.	✓						
176	Document all formal and informal agreements that impact project performance.							✓
177	The project organization uses data, information, and knowledge to set and achieve its objectives.					✓		
178	Establish rules and guidelines for meetings, ensuring they are appropriate to the type of meeting.							✓
179	Distribute meeting agendas in advance and specify which staff members are required to attend each item.							✓
180	Meeting minutes should include details of decisions made, topics discussed, and actions agreed upon, and should be distributed to relevant stakeholders within an agreed-upon time.							✓
7.6.4 Communications Control								
181	Plan, implement, control, monitor, and review the communications system to ensure it continues to meet project needs.						✓	
182	Focuses on interoperability between the project organization and corporate functions to ensure communication and reduce misunderstandings.						✓	
7.7 Risk-related processes								

7.7.2 Risk identification								
183	Identify risks at the project initiation stage, during progress assessments, and at other times when important decisions are made.							✓
184	Document risks, and assign a staff member with the responsibilities and authority to manage risks.							✓
185	Identify and record potential risks arising from product, process, and activity interactions.							✓
186	Identify risks related not only to cost, time, and product, but also to product quality, reliability, professional liability, information technology, security, health, and the environment.							✓
187	Identify risks arising from technology and developments:							
A	Interactions between various risks.							✓
B	Risks arising from new technologies and developments.							✓
188	Risk identification takes into account applicable regulatory and legal requirements and any other regulatory requirements.	✓						
7.7.3 Risk Assessment								
189	Identify and assess all risks, taking into account experience and historical data from previous projects.							✓
190	Define acceptable risk levels for the project and record the results of the analysis.							✓
191	Identify the techniques used in the project to prioritize, manage, and record the identified risks.							✓

192	Record the results of all analyses and assessments and communicate them to the relevant staff.							✓
7.7.4 Risk Management								
193	Solutions to eliminate, mitigate, transfer, share, or accept risks, and plans to capitalize on opportunities, are based on known technologies or data derived from past experience.							✓
194	Define acceptable risks and record the reasons for accepting them.					✓		
195	Give special attention to developing solutions for potential risks resulting from product, process, and activity interactions.					✓		
196	Ensure that no undesirable effects or new risks result from implementation, and that any resulting residual risks are addressed.							✓
197	Establish contingency plans for risk management within the timeline or budget, and define and maintain them separately.							✓
198	Develop solutions for identified risks, ensuring that these solutions do not generate new risks or undesirable effects upon implementation, and that these identified risks are addressed.							✓
7.7.5 Risk Control								
199	Monitor and control risks throughout the project to identify, assess, and address risks.						✓	
200	Encourage staff to anticipate, identify, and communicate risks to the project organization.						✓	

201	Maintain risk management plans and keep them ready for use.						✓	
202	Consider project risk monitoring reports as part of progress assessments.						✓	
7.8 Purchasing Operations								
7.8.2 Purchasing Planning and Control								
203	Preparing a purchasing plan that identifies and schedules products or services.	✓						
204	The project organization conducts regular reviews of purchasing operations, compares them to the purchasing plan, and takes the necessary actions to ensure adequate purchasing control.	✓						
205	All project input products are directed to the same purchasing control levels.	✓						
206	Planning purchasing so that overlaps and interactions with suppliers can be managed by the project organization.	✓						
207	Allocating sufficient time to complete purchasing-related operational activities, and using supplier performance experience to plan for potential problems.	✓						
7.8.3 Documenting procurement requirements								
208	Define product procurement documents, product specifications, appropriate quality management system requirements, and associated documentation.							✓
209	Procurement documents include purchasing responsibilities, cost, product delivery dates, and audit requirements.	✓						

210	Procurement documents include customer-specific requirements.							✓
211	Organize documented bidding information (e.g., "request for quotes") to facilitate comparable and complete responses from potential external service providers.	✓						
212	Review procurement documents prior to distribution to ensure that all product-related requirements have been defined.	✓						
7.8.4 External Provider Management and Development								
213	The organization maintains a supplier register.	✓						
214	Project suppliers are evaluated, taking into account all aspects of the supplier that may impact the project, such as technical expertise, production capacity, delivery times, quality management system, and financial stability.	✓						
7.8.4 Contracting								
215	The project organization contracts with external suppliers and informs them of the project's quality management system requirements (quality policy, quality objectives, and contract quality plan requirements).							✓
216	The external supplier is required to submit a contract quality plan as part of the bid evaluation process.							✓
217	Identify any deviations from specifications in an external supplier's bid and							✓

	consider them in the evaluation.							
218	Bid cost evaluation is based not only on the price from the external suppliers, but also on other associated costs, such as operating and maintenance costs, licensing, transportation, insurance, customs duties, exchange rate changes, inspections, audits, and resolution of deviations.	✓						
219	Review the information documented in the contract to ensure it includes the results of any pre-contract negotiations with the external supplier.	✓						
220	Evaluate the external provider's quality management system. The project organization must consider the following:							
A	The reliability of other evidence demonstrating that the external provider is capable of meeting the requirements of the quality management system;							✓
B	Contract performance monitoring that will be required to ensure that project requirements, including quality requirements, are met.							✓
7.8.5 Contract Monitoring								
221	Implement a system to ensure contract terms are met, including due dates and required documented information.					✓		
222	Contract control ensures that appropriate contractual relationships are established and the outcomes of these relationships are integrated into overall project management.					✓		

223	Monitor the performance of external suppliers to ensure they meet contract terms, communicate monitoring results to external suppliers, and agree on any actions.					✓		
234	Ensure that all contract terms are met and obtain feedback on external supplier performance to update the approved external supplier register before contract closing.					✓		
Repetition		56	4	0	0	41	12	50
The result		336	20	0	0	82	12	0
Weighted arithmetic mean		2.760						
Percentage of conformity		46%						
Gap size		54%						

Source: Prepared by the researcher.

4.5 The reality of implementing the eighth item (measurement, analysis, and improvement in projects).

The checklist in Table (6) shows the level of actual implementation and documentation of the requirements of the eighth item (measurement, analysis, and improvement in projects) by implementing and documenting quality management in projects in accordance with the requirements of the international standard ISO10006:2017 in the project. The company achieved a weighted arithmetic mean score of (2.812) out of (6) points for this axis, with a conformity rate of (46.87%), indicating a gap of (53.13%).

Table (6) Item (8) Checklist for Measurement, Analysis and Improvement in Projects

No.	Paragraph	Completely applied			Partially applied			Not implemented and not documented
		Totally notarized	Partial notary	Undocume nted	Totally notarize d	Partial notary	Undocumen ted	
		6	5	4	3	2	1	
8 Measurement, Analysis, and Improvement in Projects								
8.1 General								
225	Use measurement results and analyze data from project operations.					✓		
226	Implement corrective and preventive actions for the project.					✓		
227	Conduct a continuous improvement process for the project.					✓		
8.2 Measurement and Analysis								
228	Data collection, measurement, and							✓

	validation processes are effective and efficient, improving the performance of the issuing organization and enhancing customer and other stakeholder satisfaction.							
229	Project managers from the project organization ensure that documented information on nonconformities is analyzed and nonconformities eliminated in the project's products/services and processes to aid learning and provide the data needed for improvement.							✓
230	The organization, in collaboration with the customer, prepares a report that includes the nonconformity recorded and any corrective actions identified.							✓
8.3 Improvement								
8.3.1 Improvement by Baghdad Governorate								
231	The company is establishing a system to identify, collect, store, update, and retrieve information from previous projects.	✓						
232	The company ensures that its information management system has been evaluated to identify and collect relevant project information for the purpose of improving project management processes.	✓						
233	Maintain a list of all identified risks from its projects.	✓						
234	Extract project-related information necessary for					✓		

	project learning from project information.							
235	Conduct project performance reviews, highlighting the experience gained from the project that can be used by other projects.					✓		
236	Retain review results as documented information.							✓
237	Conduct interim reviews to gather information more effectively and allow for timely improvements.							✓
8.3.2 Improvement by the project organization								
238	The project organization designs the project information management system to implement the project's specific requirements.	✓						
239	The project organization ensures that the information it provides to the original organization is accurate and complete.	✓						
240	The project organization implements improvements using the information relevant to the project.		✓					
Repetition		5	1	0	0	5	0	5
The result		30	5	0	0	10	0	0
Weighted arithmetic mean		2.812						
Percentage of conformity		46.87%						
Gap size		53.13%						

Source: Prepared by the researcher.

From the above, it is clear that there is a gap between the actual reality and quality management in projects according to the requirements of ISO10006:2017, with total gap is 57.42 % , the results can be summarized and tabulated in Table.(7)

Table (7) Rate of items of the international specification ISO10006:2017

No.	clause	Rate out of 7	Compatibility Percentage	Gap
4	Project Quality Management Systems	2.263	37.71%	62.29%
5	Management Responsibility in Projects	2.611	43.5%	56.5%

6	Resource Management in Projects	2.33	38.83%	61.17%
7	Product/Service Realization in Projects	2.760	46%	54%
8	Measurement, Analysis, and Improvement in Projects	2.812	46.87%	53.13%
Total		12.776	212.91%	287.09%
Average		2.555	42.58%	57.42%

Source: Prepared by the researcher based on the results of the ISO 10006:2017 international standard checklists.

We can illustrate the results using a chart to show the total compliance rates and size of gaps for the quality management items in projects according to the requirements of ISO10006:2017, in Baghdad Governorate/Al-Mahmoudiya Residential Complex Project, as shown in Figure (2).

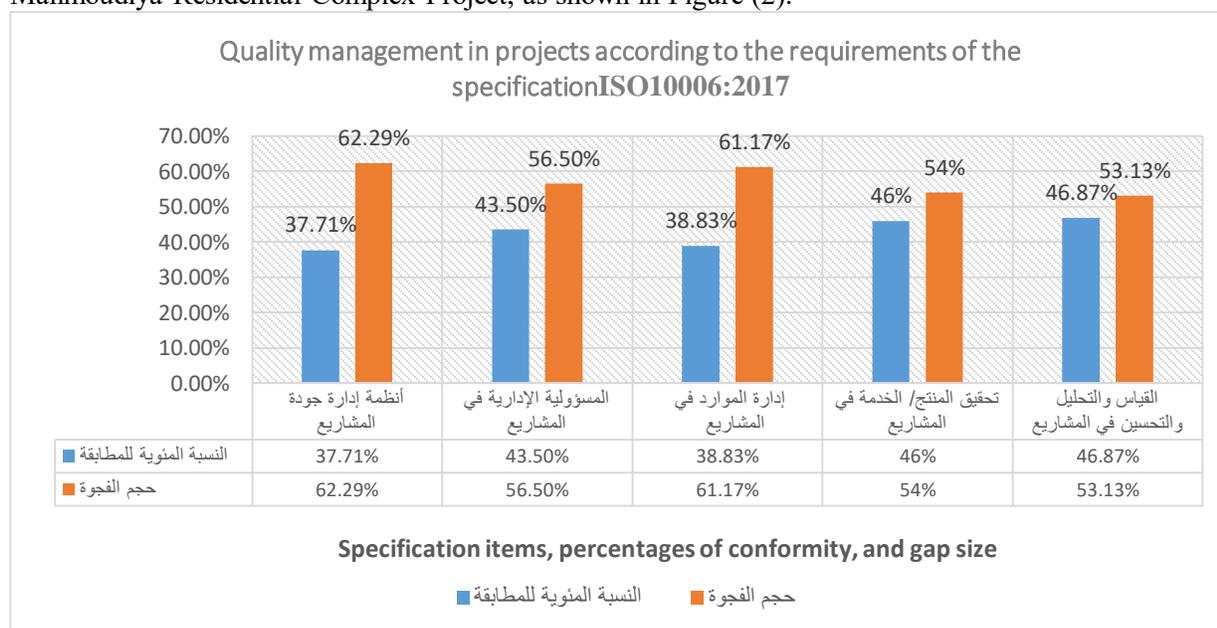


Figure (2) Total compliance rates and gap sizes for quality management in projects according to the requirements of ISO10006:2017, in Baghdad Governorate/Al-Mahmoudiya Residential Complex Project

5. Conclusions and Recommendations

The research results lead to a set of conclusions and recommendations, the most prominent of which will be mentioned.

5.1. Conclusions

1. It was found, there was partial implementation of specification due to Lack of awareness and knowledge of the ISO 10006:2017 standard. Individuals working under the company's control are unaware of the importance and benefits of implementing this system. Furthermore, due to the lack of adequate training on the quality management system, members may not understand how to properly apply the standards.
2. Lack of a quality plan for the activities and resources necessary to achieve the project's quality objectives. If there is poor coordination between the quality plan and the project management plan, this may lead to inconsistencies in objectives and resources, as well as the neglect of

some important quality-related activities due to their failure to be properly integrated into the project management plan.

3. Poor analysis by project managers in the project organization regarding documented information on non-conformities and the elimination of non-conformities in the project and its operations.
4. Failure to submit reports to the Baghdad Governorate (the parent organization) to prepare a report including the recording of non-conformities and any corrective actions detected.

5.2 Recommendations

1. Hire consulting firms and external experts in ISO 10006:2017 to conduct training for governorate managers and employees and disseminate a culture of project quality management in accordance with ISO 10006:2017.
2. Commit senior management to support the implementation of project quality management requirements in accordance with ISO 10006:2017.
3. Work on developing a quality plan and a project management plan, coordinating between them to achieve project objectives, implement activities, and integrate them properly into the plan.
4. Support senior management in documenting nonconformities in the research sample project and taking the necessary corrective actions.

6. Resources

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