

Project Management Guide

Project Monitoring Office

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1. Introduction

The Project Management Manual (PMM) describes the general framework intended to serve as a guide for project management by government bodies in the Sultanate of Oman throughout the project life cycle (the project documentation cycle). The Project Management Manual includes the processes, procedures and tools necessary for all government projects, and provides guidance and guidelines on project management.

The guide is based on a process structured around phase gateways, which allow for appropriate preparation and planning before moving on to the next stage, and for timely risk management; the process also provides a clear governance structure for the project with defined roles and responsibilities.

The documentation cycle for government projects is divided into seven stages, as illustrated below in Figure 1.

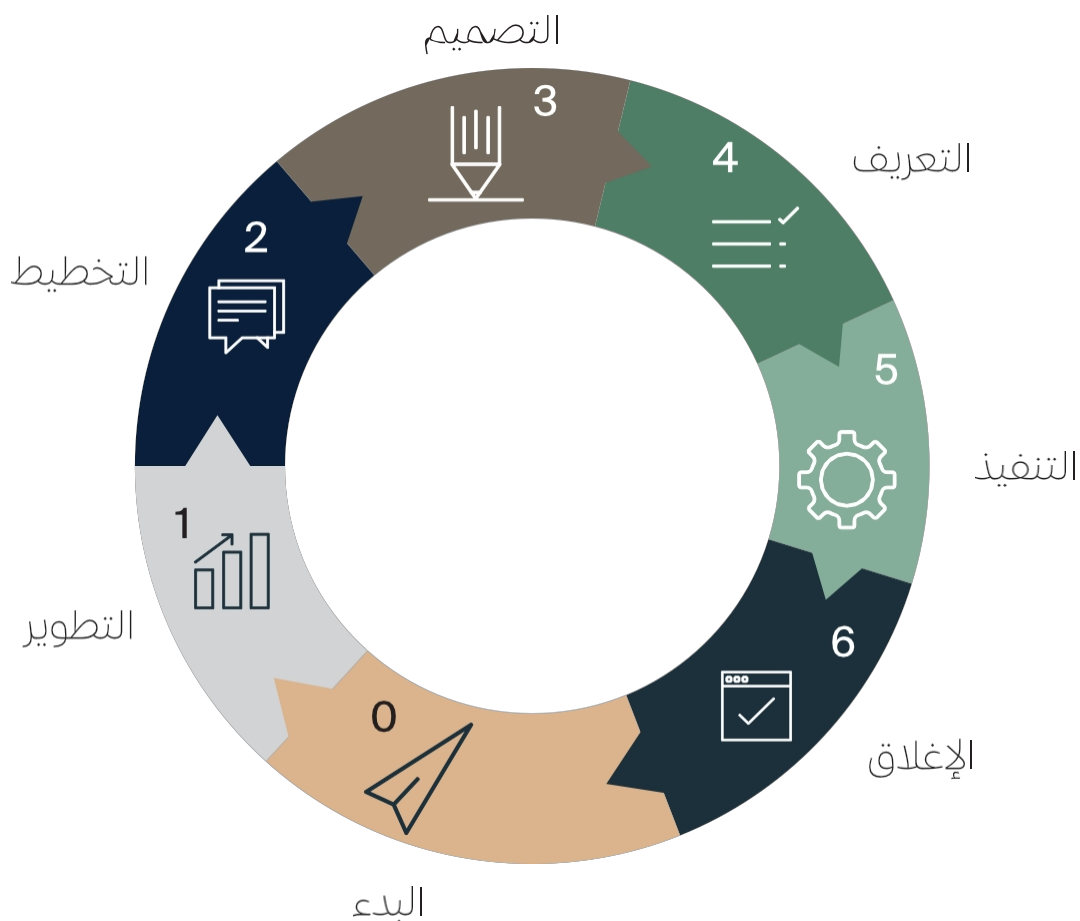


Figure 1: The project lifecycle for government projects.

2. Purpose



The purpose of this guide is to:

- To provide standardised guidelines and rules for the management of government projects throughout the project lifecycle.
- To strengthen and improve the performance of government project delivery.
- To raise awareness of the importance of establishing a project management office within government bodies.
- To enhance integration between relevant government bodies.
- To define the required deliverables at each project milestone.

3. Implementation of the Project Management Guide



The processes and guidelines set out in the Project Management Manual are mandatory requirements for all government projects with an approved budget of 3 million Omani rials or more, and must be used as a guide for projects with a budget of less than 3 million Omani rials. Requirements and activities must be adjusted to suit the scale and complexity of the project, in accordance with the guidelines of the Project Follow-up Office (PFO), with decisions taken in consultation with the relevant government bodies.

With regard to projects with budgets approved by the Council of Ministers (digital transformation projects, governorate development projects must follow Phases 0 and 1 in coordination with the relevant government body, whilst the other phases must follow the project management procedures set out in this guide.

4 Target Group



The target audience comprises all staff involved in the development and implementation of government capital projects. The primary users of the manual are:

- Project owner
- The project manager
- Milestone Review Committee
- The Decision Review Board
- Ministry of Economy
- Ministry of Finance
- Government bodies
- Tender Board
- Projects, Tenders and Local Content Authority o
 - General Directorate of Tenders
 - o Project Monitoring Office
 - o National Office for Local Content

5. Maximising the value of the project

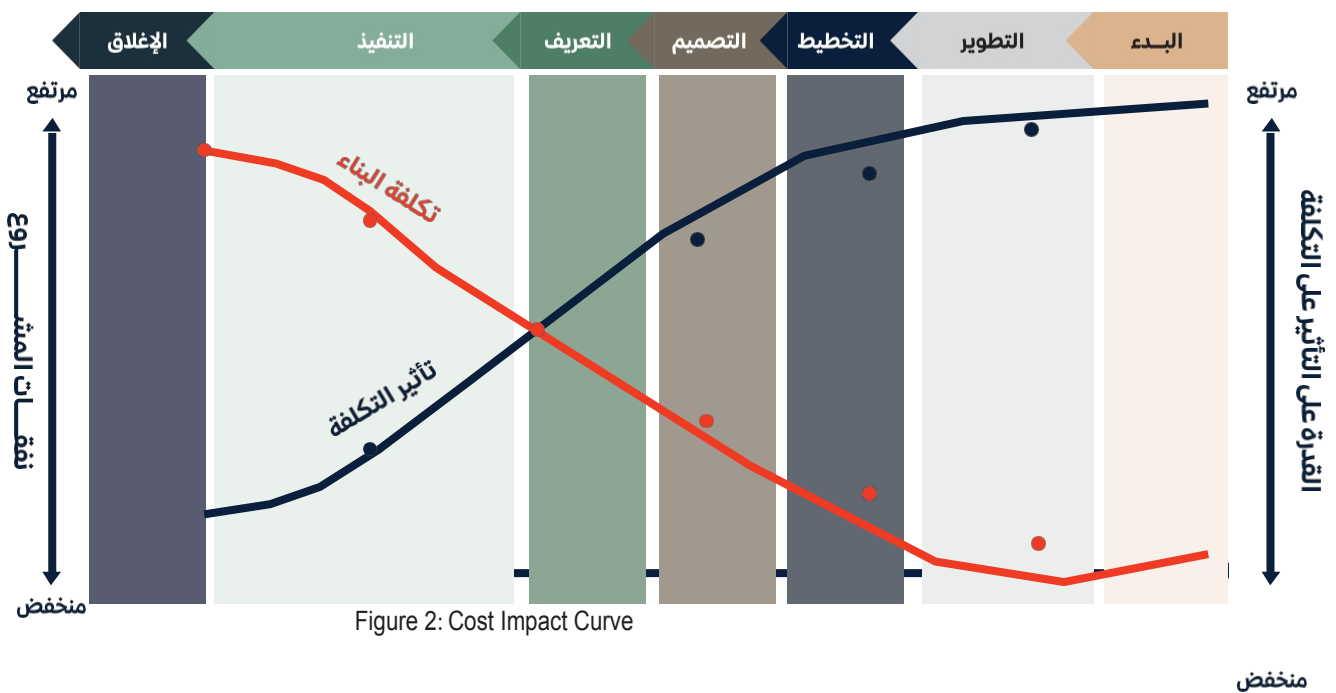
Key considerations for maximising project value must be addressed in the early stages of the project life cycle, prior to the implementation phase. A lack of attention to quality in the early stages of the project life cycle leads to the project failing to achieve its objectives.

It is more cost-effective to make adjustments to the project in its early stages and to capitalise on all the lessons learnt from previous projects, as making such adjustments becomes more difficult and costly in the later stages of the life cycle. An unclear definition of the project in its early stages leads to a serious or permanent erosion of the project's value in subsequent stages and during operation.

The main reasons for this are usually a lack of clarity regarding the project's objectives and the details of its scope, a failure to utilise the appropriate expertise during the start-up phase, and an insufficient understanding of the risks and opportunities associated with the project.

Furthermore, there must be a balance throughout the stages of the project life cycle, and there should be no justification for excessive study work or project re-engineering in the early stages. It is a matter of securing the right expertise and applying the right tools at the right time. As the project progresses through the phases, it is essential to maintain a focus on value and ways to enhance it.

To this end, a number of tools are available, such as opportunity mapping, detailed scope development, value engineering, comparison with other projects, peer review, and lessons learnt from other projects. The earlier these tools are applied, the better the final outcome will be; as the project progresses, these tools can be reapplied at specific intervals as required.



6. Project Governance

Project governance is defined as the laws, regulations, processes, customs, interactions, policies, procedures and practices used by staff and stakeholders in the way in which the organisation manages it.

The Project Management Manual (PMM) is based on the following principles:

- A project must be based on clear and verifiable business value, which is appropriately defined, taking into account all relevant technical and non-technical risk factors, and properly documented.
- Projects must be managed by teams supported by appropriate resources and high-calibre expertise, with clearly defined roles and responsibilities, and guided within a governance framework appropriate to the purpose.
- The appropriate stakeholders must be involved at a sufficiently early stage to enable an early definition of the optimal project scope that meets the necessary functional requirements at a competitive cost.
- An appropriate change management mechanism must be implemented to ensure that no changes are made during the implementation phase without proper control and in accordance with the guidelines and procedures for change management.
- Continuous improvement must be ensured by regularly identifying, recording and reviewing lessons learnt from all projects.
- A culture of compliance with procedures and disciplined execution must be maintained across all projects.

To ensure high-quality decision-making as projects progress through their life cycle, project governance must be applied in three ways:

1. The project's progression through decision-making gates and compliance with the project's documentation cycle.
2. Assigning responsibility and accountability to all stakeholders to ensure that the decision-making process is governed throughout the project phases by developing a RACI matrix.
3. Conducting audits and quality assurance reviews.

7. Project assurance

Project assurance is an integral part of project governance. The primary objective is to ensure that project development and implementation activities are carried out in a controlled and assured manner, that risks are managed to an acceptable level, and that quality is consistent with the achievement of the project's objectives and expected value.

Assurance supports decision-making, provides confidence to stakeholders, and ensures alignment amongst all parties. The assurance process involves meeting the specific needs of the project in terms of audits and reviews, such as Stage Gate Reviews (SGRs), Health, Safety, Security and Environment (HSSE) reviews, and other relevant quality assurance audits. Quality assurance audits are carried out to verify the achievement of technical objectives, health and safety objectives, the schedule, cost, quality and other specified objectives to ensure the delivery of the intended value.

8. Performance Measurement



Project performance is measured against the following baselines:

- Project scope
- Project schedule
- Project cost

The scope baseline is defined by combining the scope statement and the project's Work Breakdown Structure (WBS).

The schedule baseline defines the project's activity schedule based on estimates of the duration of the activities.

The cost baseline, on the other hand, consists of the approved budget allocated to the project's activities. For the purposes of performance measurement, these baselines must be adopted in accordance with project governance.

Please refer to Annex (J) – Key Performance Indicators (KPI) Procedures for Government Projects.

9. Review of Decision Gateways (SGR)



Stage Gate Reviews (SGR) are a key quality assurance tool through which a formal review of the project's current status is conducted. They aim to:

1. Verify the outputs of each project phase .
2. Ensuring that the conditions and requirements for progression to the next phase of the project are met.
3. To support project managers in the effective and successful planning, management and implementation of projects.
4. To support decision-makers responsible for advancing the project from one phase to the next by providing recommendations on the project's readiness to move to the next phase.

Milestone gate reviews focus on the technical, economic, social, health, safety and environmental (HSSE), regulatory and political aspects of the project.

A stage gate review committee is formed independently of the project team and must include relevant members in accordance with the scope of the project. Requirements and scope of phase gate reviews in further detail. A project may only proceed to the next phase after successfully passing the relevant phase gate review.

The documentation cycle for government projects consists of seven stage gate reviews. Reviews 0 to 4 must be carried out before the award decision is made, with review number 4 being carried out before the award decision is made, whilst reviews five and six take place after the award decision has been made, for the implementation and closure of the project.

The main objectives of each of the Stage Review Gates (SGRs) are set out in Table 1 below:

Stage	Gate	Objectives
Start	Review of the portal Milestone No. 0	• Have the feasibility study and work plan been prepared? • Have a range of strategies been explored and implementation options? • Is this project a high priority compared with other initiatives? • Has the project evaluation matrix been completed?
Development	Review of Milestone 1	• Have the project's impact and the completion of related efforts been identified? (Project Evaluation Matrix) • Is the project in line with the Amman 2040 Vision and strategic programmes? • Is this project a high priority compared to projects from other organisations?
Planning	Review of Milestone No. 2	• Has the framework for opportunities been updated? • Has the project implementation plan been drawn up? • Has the scope of design been updated and the tender documents relating to it? • Has preliminary approval been obtained for the brief?
Design	Review of Milestone 3	• Have all requirements been converted into complete and detailed design specifications? • Are the tender documents for the main contract ready? • Have the evaluation criteria for the main tender been finalised?
Definition	Milestone 4 Review	• Has the assessment been completed? • Has the final project budget been approved? Has legal approval been obtained? • Is the project ready for delegation and mitigation of key risks?
Implementation	Milestone 5 Review	• Have all the project deliverables been achieved, and are they accepted by the client? • Is the project ready for operation?
Closure	Review of Milestone 6	• Have the project objectives been achieved? • Is the project ready for closure in all respects? Have the lessons learnt been documented?

10. Decision Gates

Decision gates are a key governance process to ensure that the requirements of each project phase have been met and that the project is ready to move on to the next phase. The decision-maker is the Decision Review Board (DRB), which is responsible for advancing the project from one phase to the next based on a recommendation from the Phase Gate Review Committee.

The documentation cycle for government projects consists of seven decision gates, as illustrated in Figure No.(3) Of these gates, the award decision is considered the most important during the project lifecycle, as it determines whether or not the project will proceed.

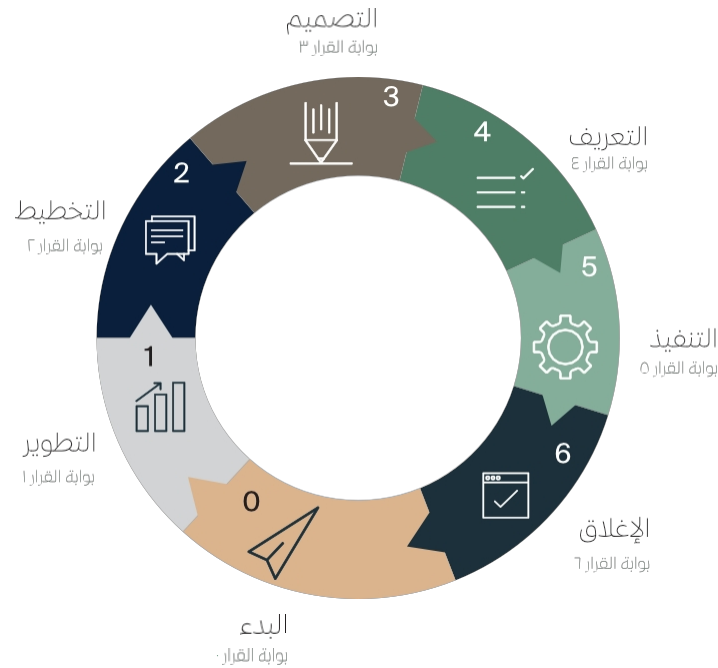


Figure No. (3): Milestones in the project's documentation cycle.

11. Framing opportunities

Opportunity scoping is a process aimed at defining the main boundaries of the project at the start of Phase (0). It is usually part of the project's feasibility study and is updated upon approval of the project. Opportunity mapping serves to achieve consensus between the project team and senior management on the following:

- The importance of the project
- The project's objectives, value drivers and critical success factors
- Assumed boundary conditions
- Contracting strategy
- Preliminary risk register
- Stakeholders
- Project roadmap with a clear definition of the decisions required at each stage

It may be necessary to reframe the project in the event of a significant change in the scope of the project, in order to update the elements mentioned above.

12. Project Charter



A project charter is a formal document, usually brief, which grants the project manager the authority to use the organisation's resources for project activities. The charter describes the overall objectives, scope, risks, assumptions, constraints and requirements at a high level. The project charter is considered a fundamental element of the project life cycle. Drawing up the project charter requires assessing the project's feasibility based on the given constraints and planning the project at a high level.

The project charter must be drawn up immediately upon approval of the project and allocation of the budget by the project manager, and must be approved by the project owner, who must sign to indicate their approval. The project manager must meet the requirements set out in Annex E – Project Charter Template and Job Description – and possess the following experience:

- : Over 100 million Omani rials: More than 20 years' relevant experience in project management. Holding advanced qualifications such as PMP is considered an additional advantage.
- -40 100 million Omani rials: More than 15 years' experience in project management. Holding such as PMP is considered an advantage.
- 40–10 million Omani rials: More than 10 years' experience in project management. Holding advanced certifications such as PMP is considered an advantage.
- 10–3 million Omani rials: 5 to 10 years' experience in project management.
- 3–0.5 million Omani rials: The project is to be assigned to a project manager with 1 to 5 years' experience in project management.

13. Value Engineering



Value Engineering (VE) is a systematic methodology aimed at analysing the function of systems, equipment, facilities and services, and supplies with the aim of fulfilling their core functions at the lowest cost, whilst maintaining the required performance, reliability, quality and safety.

Value engineering must be applied to government projects with a capital value of 10 million Omani rials or more during the following two phases:

- Stage 3: Design
- Phase 4: Definition (during the tender phase if an alternative design is required)

It is recommended that Value Engineering be applied to projects with a value of less than 10 million Omani rials to maximise the value of the project.

Please refer to Appendix H – Value Engineering Guide for further details.

14.1 General Project Supervisor

- An individual who holds an executive or senior management position within the relevant organisation and bears overall responsibility for the project.
- He is the sole person responsible for the success or failure of the project.
- He reviews and approves the project charter.
- He or she participates in relevant meetings with the Decision Review Board (DRB).
- Reviews the summary of the stage gate reviews.
- Ensures that all recommendations and decisions issued by the Decision Review Board are implemented.
- Approves the assurance and risk management plans for projects.
- Provides adequate resources to support the project.
- Reviews and approves deviations/changes from the project performance baselines in accordance with the authority matrix.
- Appoints a project manager with the appropriate experience, competencies and skills.
- Provides guidance and advice to the project manager.
- Evaluates and monitors projects throughout their lifecycle.
- Encourages stakeholder participation and builds and maintains their ongoing commitment through effective communication strategies.
- Seeks to reach agreement amongst stakeholders when differences of opinion arise.
- Ensures that all resources required to successfully complete the project are made available.

14.2 Project Manager

The Project Manager (or Project Leader or Lead Engineer) is appointed by the relevant authority to lead the development of the project and is responsible and accountable for the following:

- Leading all project activities and requirements throughout the project lifecycle and managing the project on a day-to-day basis. The project manager ensures that project requirements are completed within the agreed scope, schedule and budget.
- Developing and managing the Project Execution Plan (PEP), which includes the scope of work, the project schedule and the cost.
- Managing project changes by applying the appropriate procedures.
- Preparing the project charter.
- Lead the project team and manage project plans to ensure success.
- Maintain the risk register, issue logs and change control logs.
- Report on project progress and performance to the project sponsor and other stakeholders, including regular updates to the project management system.
- Evaluate the performance of contractors, consultants, suppliers and other parties involved in the project throughout the project lifecycle.
- Develop and manage engineering processes, from detailed design and procurement through to construction and support for the project's operational phase, in line with the project's scope, budget and schedule.
- Manage the interfaces between the project and ensure that all relevant disciplines and stakeholders are involved in the process.

- Manage and optimise all allocated resources (including contractors' resources) to ensure effective implementation and value for money.
- Lead and coordinate the activities of the project delivery team to ensure the achievement of objectives shared by all parties.
- Provide ongoing support to the implementing parties throughout the project life cycle.
- Support the implementation of quality assurance activities throughout the project lifecycle.
- Consolidate and apply lessons learnt throughout the project lifecycle.
- Ensure effective and timely communication within the project and with external stakeholders.

14.3 Stage Gate Review Committee (SGR)

Members of the Stage Gate Review Committee (SGR) are responsible for providing high-quality recommendations regarding the project by offering support and advice based on their expertise.

The Stage Gate Review Committee draws up a list of recommendations as to whether the project should be approved, approved

subject to conditions, or rejected from one stage to the next during the documentation cycle, and submits its report to the Decision Review Board (DRB) for a final decision.

Committee members vary from one portal to another depending on the approved budget for the project and the stage the project is at; the committee is formed by the executive body in accordance with Appendix A – the documentation cycle for government projects.

The roles of the Stage Gate Review Committee include:

- Holding stage gate review meetings.
- Confirming that all stage gate requirements have been met.
- Confirming that any issues relating to the requirements have been resolved.
- Provide input within their area of expertise/experience.
- Provide technical/functional support.
- Support and contribute to decision-making to maximise the value of the project.
- Ensuring compliance with project quality assurance and quality controls.
- Ensure that project requirements are reliable, sustainable and can be maintained efficiently.
- Submit audit recommendations to the Decision Review Board (DRB).

14.4 Decision Review Board (DRB)

The membership of the Decision Review Board (DRB) varies from portal to portal, depending on the project's approved budget and the stage the project is at. The Decision Review Board is mentioned and included in Appendix A – The Documentation Cycle for Government Projects. The roles of the Decision Review Board (DRB) include the following:

- Ensuring that high-quality decisions are made regarding the project following each Stage Gate Review (SGR).
- Approving or rejecting the recommendations of the Stage Gate Review (SGR) Committee.
- Ensuring that the project is assessed and its value is validated at the appropriate stages.

Based on the recommendations of the Stage Gate Review Board (SGR), the Decision Review Board (DRB) will have the following options for a decision:

- Progress: The required criteria have been met to the satisfaction of the Stage Gate Review Committee (SGR).
- Conditional progression: The outstanding requirements present an acceptable level of risk to the project, and progression through the gate is permitted provided that the outstanding requirements are completed at a later date.
- No progression: The outstanding requirements pose an unacceptable risk to the project, and progression through the gate is not possible until the requirements are met.

14.5 Ministry of Economy

- Prepare and update the project evaluation selection matrix (Phase 0). (Please refer to Appendix B)
- Organising the selection process for new projects (Phase 0)
- Organising awareness-raising sessions to identify priorities for development programmes. (Phase 0)
- Submitting proposals for the allocation of the development budget. (Phase 1)
- To form and lead the government project evaluation team on an annual basis (the Evaluation Team). (Phase 1)
- Evaluating and approving the project based on the Evaluation Team's recommendations. (Stage 1)
- Conducting a review of Phase 1 (Phase 1)
- Correspondence with the Ministry of Finance regarding preliminary approval of the projects. (Phase 1)
- Contact the relevant authority regarding the status of project approval and the inclusion of their budget in the system in coordination with specialists at the Ministry of Finance. (Stage 1)
- Approval of budget amendments in the event that updated financial estimates increase by more than 10 per cent compared to the initial approval, in coordination with the Ministry of Finance. (Stage 3)
- Approval of the project budget in the event that project costs exceed the approved budget. (Stage 4)
- Review of the recommendations for the contract award decision and project implementation options in coordination with the Office Government Projects Follow-up Office in the event that the project is not allocated.)Stage No. (4
- Updating the project budget data following the award of the contract. (Phase 4)
- Monitoring project implementation performance in coordination with the Government Projects Monitoring Office. (Stage 5)
- Periodically monitoring the project and ensuring the financial system is updated in coordination with the Ministry of Finance. (Phase 5)
- Monitoring the closure of the project in coordination with the Government Projects Monitoring Office. (Phase 7)
- Financial closure of the project. (Stage 7)

14.7 Ministry of Finance

- Approval of the development ceiling allocation framework. (Stage No. 1)
- Approval of the operating budget for new projects. (Stage 1)
- Contributing to the selection of development projects and assessing implementation priorities on an annual basis (as part of the evaluation team). (Stage 1)
- Issuing preliminary financial approval for projects to the Ministry of Economy. (Stage 1)
- Coordinate with the Ministry of Economy to approve the tender if the updated financial estimates exceed the initial approval by 10 per cent. (Stage 3)

- Issuing final financial approval for the project (budget confirmation). This is carried out in parallel with the financial assessment to expedite procedures. (Stage 4)
- Pay the contractor's dues. (Stage 5)
- Update the financial system records. (Stage 5)
- Approval of the final accounts. (Stage 7)
- Closure of the project's financial commitment. (Phase 7)

14.7 Authority for Projects, Tenders and Local Content

The following units fall under the Projects, Tenders and Local Content Authority: **14.7.1 General**

Directorate of Tenders

- Review of the pre-qualification assessment of potential consultants. (Stage 2)
- Carrying out the main tendering processes. (Stage 3)
- Review of tender documents and the project strategy. (Stage 3)
- Review and submit pre-qualification documents for contractors in accordance with project requirements. (Phase 3)
- Reviewing tender documents and contracts for projects exceeding 5 million Omani rials prior to the tender is launched, and non-standard contracts as part of the SGR3 Committee (Phase 3)
- Reviewing and approving the technical evaluation. (Phase 4)
- Review of the final evaluation of tenders (Stage 4)
- Approval of the award of contracts with a value exceeding 10-3 million Omani rials through the Tender Committee. (Stage 4)
- Review of the contract prior to project award. (Stage 4)
- Submitting recommendations to the Tender Board to award the project to the contractor. (Stage 4)
- Reviewing the assessment of contractors and consultants during the implementation of the project phases. (Stage 5)

14.7.2 Project Monitoring Office

- To work with the evaluation team to review and prioritise projects in line with development objectives. (Phase 1)
- Conduct a Stage 2 review of projects valued at 10 million Omani rials or more, including the following:
 - o Reviewing the tender documents for the preliminary stage of the engineering design and the permits required for the project.
 - o Approving the commencement of the tendering process for the project design. In the event of non-approval, the relevant authority will be notified of the project's shortcomings.
 - o Review and approve the procurement strategy.
- Conducting a Stage 3 review for projects valued at 10 million Omani rials or more, including the following:
 - o Reviewing the procurement plan relating to the project.
 - o Review of the tender documents and project strategy.
 - o Review the pre-qualification assessment of potential contractors.
 - o Review the contracting strategies and plans.

- Conducting a Phase 4 gateway review for projects valued at 10 million Omani rials or more, including the following:
 - o Reviewing and approving the technical evaluation.
 - o Reviewing the final evaluation of tenders.
 - o Review the requirements for the final award decision for the project.
 - o Review the commercial evaluation of the project.
- Monitoring the updating of project data on the Government Projects Platform. (Stage 5)
- Monitoring progress across the various project phases. (Stage 5)
- Assess change orders, if any. (Stage 5)
- Provide advice and guidance to the relevant government body. (Stage 5)
- Prepare reports and recommendations for the project. (Stage 5)
- Oversee the closure of the project. (Stage 7)
- Updating the lessons learnt database. (Phase 7)
- Retain electronic copies of project documents. (Phase 7)
- Continue to update project data on the government projects platform. (Stage 7)

14.7.3 National Office for Local Content

- Review local value-added requirements. (Stage 3)
- Ensure that local value-added requirements are applied. (Stage 5) For further details, please refer to Annex K on the local value-added process.
- Approve the financial assessment. (Stage 4)
- Approve the award decision for projects valued at over 10 million Omani rials. (Stage 4) For further details, please refer to Annex K on the local value-added process.

14.8 Tender Board

- Approval of the financial evaluation. (Stage 4)
- Approval of the decision to award contracts for projects valued at over 3 million Omani rials. (Stage 4)

14.9 Government

Agency (Stage 0):

- Preparation of the project feasibility study.
- Assessing the project's priorities and their alignment with plans and programmes.
- Identify the project manager/leader and the project sponsor.
- Fulfil the requirements of the project evaluation selection matrix for priority projects (see Appendix B)
- Conduct the Phase 0 gate review.
- Prepare the project commencement form.
- Submit the completed project commencement form in August each year.

Stage No. (1)

- Present a proposal on the project to the evaluation team and answer any queries.
- Appoint the engineer/project manager and the project sponsor (an employee of the organisation).
- Send the preliminary approval for the project to the Ministry of Finance.
- Participate in the review of Phase 1 portal
- Participate in the annual government project evaluation team.

Phase 2:

- Determine the procurement strategy.
- Defining the tendering strategy for designs.
- Developing the scope of work for the design.
- Ensuring that innovations and lessons learnt from previous projects are incorporated.
- Preparing tender documents for the designs and providing all necessary requirements.
- Include local content value (ICV) requirements.
- Keep the project manager/leader and project sponsor updated.
- Conduct a Phase 2 milestone review in collaboration with the Government Projects Monitoring Office.

Phase 3:

- Submit all requirements and liaise with the General Secretariat of the Tender Board.
- Supervise the design work for the project.
- Prepare the main tender documents for the construction works and submit them to the Tender Board.
- To draw up a procurement strategy for the main tender and the local value-added requirements.
- Conduct a review of Phase 3 in collaboration with the Government Projects Monitoring Office.

Phase 4:

- Technical analysis of tenders and preparation of the technical evaluation report.
- Participate in the financial evaluation of tenders.
- Preparing and submitting the requirements for the contract award decision.
- Co-ordinate with companies to arrange site visits and liaise in the event of amendments to the contract terms.
- Notify the contractor once approval to award the contract has been obtained.
- Keep the project manager/leader and project sponsor informed.
- Award contracts with a value of less than 3 million Omani rials.
- Co-ordinate with the Ministry of Finance to approve the financial assessment.
- Conducting a review of Phase 4 in collaboration with the Government Projects Follow-up Office.

Phase 5:

- Signing the main contract following the decision to award the contract.
- Update the project's financial commitment.
- Entering project data into the financial system and the government projects platform.
- Prepare monthly reports and update the government projects platform.
- Review and approve the project's financial entitlements and update the timetable.
- Adhere to the approved scope, cost and schedule baselines.
- Assess the performance of the contractor and consultant during the project implementation phases.

- ## Phase 6

- Close the project and submit a closure report to the Ministry of Economy, the Ministry of Finance and the Projects Authority
Tenders and Local Content Authority
- Update the Government Projects Platform.
- Update the lessons learnt register and the risk register.
- Preparation of the project's final accounts.
- Evaluate the performance of the contractor and the project consultant.
- Retain electronic copies of project documents.
- Conduct a review of Phase 7 in collaboration with the Government Projects Monitoring Office.

15. Stages of the project's documentation cycle

The Project Management Manual (PMM) follows a logical structure and methodology in accordance with best practice for monitoring and controlling government infrastructure projects throughout the project life cycle. The phases of the documented cycle are based on a process structured around phase gates, which are divided into seven phases.

This process provides a framework that project teams must follow. The project manager must define the following:

- A precise definition of the project phases.
- The key requirements for each stage.
- The key events and decisions that represent milestones.
- The resource and organisational requirements for each phase, including business continuity requirements.
- The tools and processes that will contribute to maximising value.

Figure 4 illustrates the documentation cycle for government projects, showing seven phases and the key outputs for each phase.

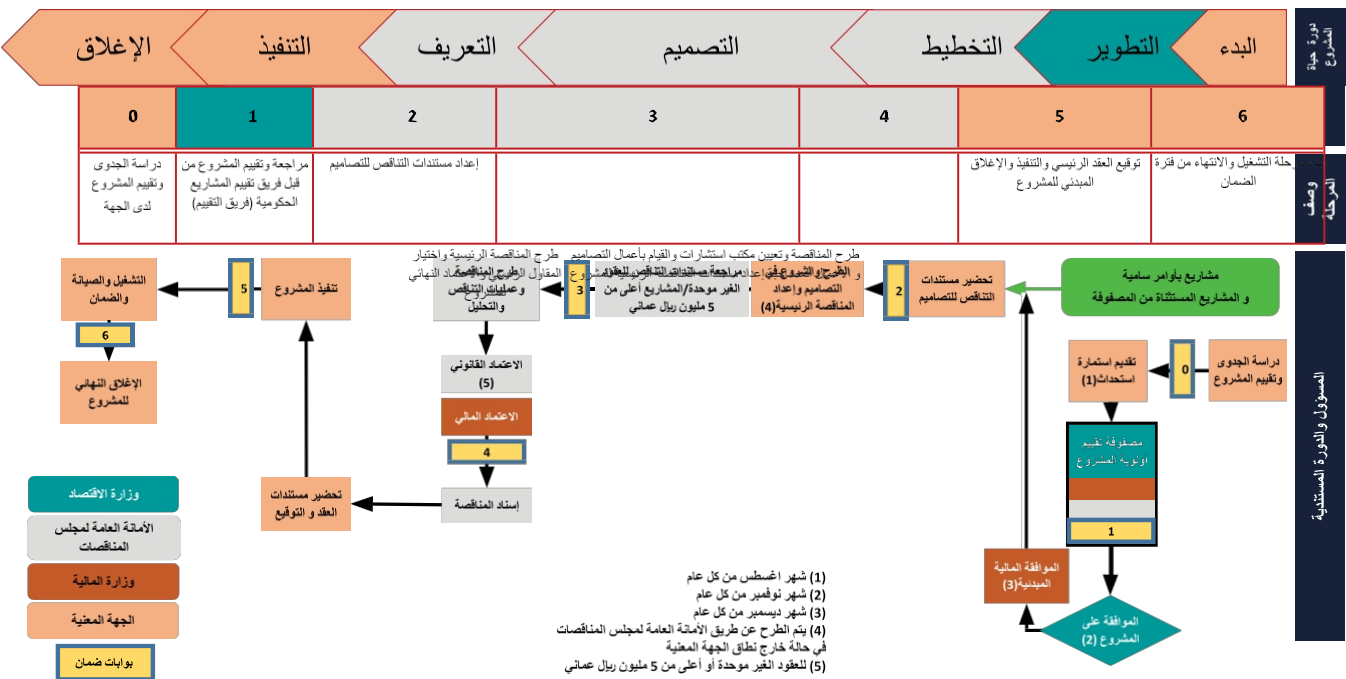


Figure 4 – Model of the project documentation cycle

It covers stages (0) to (4), whilst stage 5 relates to project implementation, and stage 6 focuses on project closure and operation. The sub-sections below provide further details, including the required activities that must be in place by the relevant government body prior to each review of the (SGR), and the key requirements at the end of each phase to ensure the success of the review and secure the subsequent decision from the Decision Review Board (DRB) to proceed to the next phase.

Government projects have been divided into three categories based on the project budget:

- Over 10 million Omani rials
- 3–10 million Omani rials
- 500,000 – 3 million Omani rials

Please refer to Appendix A for further details regarding the reviews of the Stage Gate (SGR) and the decisions of the Decision Review Board (DRB) for each stage gateway, based on the different project budget values.

15.1 Phase 0: Initiation

The aim of this phase is to determine the potential value of the project and its alignment with the strategies of the relevant government body. All projects must be presented using a selection and evaluation matrix, and the highest priorities must be selected in line with the strategic objectives of the government agency.

The main output of this stage is the project initiation form, and the stage is illustrated in Figure 5.



Figure 5: Initiation phase

The opportunity mapping workshop serves as the starting point for the project (it may be carried out as part of the feasibility study – as required – and updated in Phase 2 alongside the project's procurement strategy. This workshop aims to enable the project to commence and to determine its strategic suitability. High-level technical and financial data will be required to understand or mitigate the risks associated with the project. In addition, a preliminary economic study will be carried out on the development options identified at that time. In parallel with this work, a preliminary development plan for the project will be drawn up. This will also address other matters such as regulatory approvals and potential partnership options.

As a guide, the project initiation form should generally contain the following elements:

- Strategic alignment with both business strategies and corporate strategies.
- Key technical and financial data.
- A preliminary development plan for the project.
- Preliminary operational philosophy.
- Health, Safety and Environment (HSE) as defined at this early stage.
- Economic analysis with high-level cost estimates.
- A preliminary feasibility study.
- SWOT analysis (Strengths, Weaknesses, Opportunities and Threats).
- Key success factors and value.
- Key risks and opportunities.
- Preliminary timetable.
- Objectives of the next sub-phase (feasibility study), including planned activities, timing and resources.

Following the successful completion of the initiation phase, and supported by the Stage 0 Gateway Review (0-SGR) and the Stage 0 Gateway Review Decision (0-BRD), the project will be ready to move to the development phase.

15.2 Phase 1: Development

The objective of this phase is to review and evaluate the feasibility of the project as received from the relevant government authority, and to determine the project's potential value and its alignment with Oman Vision 2040 and the Sultanate's five-year plans and strategies, whilst taking into account all projects in the Sultanate of Oman.

The Government Projects Evaluation Team employs a clear methodology – the Evaluation Selection Matrix – through which priority projects are selected to ensure social and economic impact. The evaluation team for the Phase 1 review of the portal (1-SGR) of members from the Ministry of Finance and the Project Monitoring Office, led by the Ministry of Economy, and the recommendation is submitted to the Decision Review Board No. 1 (1-DRB).

The main output of this phase is approval to proceed with the project (Project Charter); this phase is illustrated in Figure

مراحل وبوابات ضمان الجودة



Figure 7 – Development Phase

15.3 Phase 2: Planning

The objective of the planning phase is to generate and evaluate options and select the preferred development option. The main output of this phase is the tender package documentation for the engineering designs, and the phase is described in Figure 7 below.

During the planning stage, the selected concept is developed to transform the project from among several possible concepts presented in the feasibility study report. This is also the stage at which most strategic decisions regarding how the project will be implemented and operated are taken. At this stage, the options identified in the feasibility study are refined through the completion of technical and commercial studies, so that a specific development option can be selected.

This stage is considered the most important from a front-loading perspective (Stages 0–4), as strategic thinking and planning activities have a significant impact on the value of the project. The planning phase may begin with an update to the opportunities framework, where a contracting strategy workshop is held with relevant stakeholders to determine the best contracting strategy suited to the project.

The planning phase concludes with a review of Phase 2 Gateway (2-SGR) and the Phase 2 Review Decision (2-DRB) to ensure that all requirements have been met and to determine whether the project is ready to move to the design phase.

مراحل وبوابات ضمان الجودة

المرحلة رقم (2)

الأمانة العامة لمجلس المناقصات

وصف المرحلة: تحديث استراتيجية تنفيذ المشروع، وإعداد مستندات مناقصة تصميم المشروع والخدمات الاستشارية وإشراك أصحاب العلاقة

المدخلات: استمارة استحداث مشروع معتمدة

المخرجات: مستندات التناقص للتصاميم

متطلبات البوابة (2):

1. تحديد استراتيجية التعاقد
2. تطوير نطاق عمل المشروع
3. تحديث خطة تنفيذ المشروع واستراتيجية إدارة الأصول والمرافق
4. تحديث قائمة التصاريح المبدئية اللازمة للمشروع، واستراتيجية حيازة الموقع
6. توفير الجدول الزمني للمشروع من المستوى رقم (1)
7. خطة إشراك ذوي العلاقة
8. تحديث التكلفة المشروع
9. التأهيل المسبق للاستشاريين
10. عمل تقييم للمخاطر
11. تضمين الدروس المستفادة من المشاريع السابقة
12. تضمين الابتكارات والتقنيات الحديثة (إن وجدت)
13. متطلبات القيمة المحلية المضافة
14. مستندات التناقص ومنهجية التحليل الفني والمالي.

الأدوار والمسؤوليات

الأمانة العامة لمجلس المناقصات

- مراجعة مستندات التناقص لمرحلة التصميم الهندسي التمهيدية والتصاريح اللازمة للمشروع
- مراجعة تقييم التأهيل المسبق للاستشاريين
- الموافقة على الشروع في إجراءات التناقص للتصاميم
- في حالة عدم الموافقة، يتم إبلاغ الجهة المعنية بالنواقص
- مراجعة واعتماد استراتيجية التناقص
- القيام بالبوابة المرحلية لضمان الجودة رقم (2) للمشاريع التي تساوي أو تزيد قيمتها عن 10 مليون ريال عماني

وزارة المالية

وزارة الاقتصاد

الجهة المعنية

- تحديد استراتيجية التعاقد
- تحديد استراتيجية التناقص للتصاميم
- تطوير نطاق عمل التصميم
- تضمين الابتكارات والدروس المستفادة من المشاريع السابقة
- تحضير مستندات التناقص للتصاميم وتوفير جميع المتطلبات
- تضمين متطلبات القيمة المحلية المضافة
- تحديث مهندس/ مدير المشروع والمشرف العام للمشروع
- القيام بالبوابة المرحلية لضمان الجودة رقم (2) بالمشاركة مع مكتب متابعة المشاريع الحكومية للمشاريع التي تقل قيمتها عن 10 مليون

Figure 7: Planning stage

15.4 Phase 3: Design

The objective of this phase is to invite tenders for the project design, appoint a consultancy firm, carry out the design and associated works, and prepare the main tender documents for the project. The main outputs of this phase are the updated cost estimate, the main tender documents, and any services associated with the main tender.

In addition, this phase involves defining the technical specifications and refining the scope and cost of the selected development to an advanced stage required to reach a decision on contract award in the next phase.

Furthermore, the design work for the main project must be complete, along with the other requirements outlined in Figure 8, in order to proceed to the next phase. The design phase is concluded with a review of Phase 3 Gateway (3-SGR) and the Stage 3 Review Decision (3-DRB) to ensure that all requirements have been met and to determine whether the project is ready to proceed to the definition stage.

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المرحلة رقم (3)

الأمانة العامة لمجلس المناقصات

وصف المرحلة: يتم اختيار مكتب/مكاتب استشارات متخصصة للقيام بأعمال التصميم التفصيلية والأعمال المصاحبة وإعداد مستندات مناقصة الإنشاءات الرئيسية للمشروع

المدخلات: مستندات التناقص للتصميم

المخرجات: التكلفة التقديرية ومستندات مناقصة الإنشاءات وأي خدمات مصاحبة

متطلبات البوابة (3):

1. تحديث خطة تنفيذ المشروع واستراتيجية إدارة الأصول والمرافق
 2. تطوير نطاق العمل لمرحلة الإنشاءات
 3. مراجعة متطلبات القيمة المحلية المضافة
 4. تقييم الأثر البيئي للمشروع (التصريح المبدئي على حسب متطلبات هيئة البيئة) و الموافقات المطلوبة
 5. حيازة الموقع وموافقات أصحاب المصلحة
 6. تقدير التكلفة التقديرية رقم (3)، بماحابة لا تتجاوز (15%)
 7. تحديث الجدول الزمني للمشروع مستوى (1) ومستوى (2)
 8. تنفيذ توصيات الهندسة القيمة
 9. دراسات مستقلة إن وجدت
 10. إعداد خطط تقييم العطاءات للمناقصة الرئيسية (الفنية والمالية)
 11. تحديث خطة إشراك ذوي علاقة
 12. مراجعة خطط التشغيل والصيانة
 13. تحديث تقييم المخاطر
 14. الدروس المستفادة من مرحلة التصميم
 15. التأكد من توفر جميع التصاريح
 16. التأهيل المسبق للمقاولين المحتملين
 17. التقييم النهائي للاستشاري المصمم
 18. مراجعة مستندات التناقص والعقود
- الموحدة للمشروع الأعلى من 5 مليون ريال عماني قبل طرح المناقصة والعقود الغير نموذجية للمشاركة

الأدوار والمسؤوليات

الأمانة العامة لمجلس المناقصات

- إجراءات التناقص لمناقصة الاستشاري
- عرض مراجعة مستندات المناقصة واستراتيجية المشروع
- مراجعة متطلبات القيمة المحلية المضافة
- مراجعة خطة المشتريات المتعلقة بالمشروع
- مراجعة تقييم التأهيل المسبق للمقاولين المحتملين
- مراجعة وطرح المستندات للتأهيل المسبق للمقاولين حسب متطلبات المشروع
- مراجعة استراتيجيات وخطط التعاقد
- مراجعة مستندات التناقص والعقود الموحدة للمشروع الأعلى من 5 مليون ريال عماني قبل طرح المناقصة والعقود الغير نموذجية للمشاركة
- القيام بالبوابة المرحلية لضمان الجودة رقم (3) للمشاريع التي تساوي أو تزيد قيمتها عن 10 مليون ريال عماني إبلاغ الجهة المعنية بالتوصيات

وزارة المالية

- التنسيق مع وزارة الاقتصاد على الموافقة
- طرح المناقصة في حالة
- التقييمات المالية المحدثة
- أكثر من (الموافقة
- المبدئية) المعتمدة بنسبة (20%)

وزارة الاقتصاد

- الموافقة على تعديل
- الميزانية في حال زيادة
- التقييمات المالية المحدثة
- أكثر من (الموافقة
- المبدئية) بنسبة (20%)
- بالتنسيق مع وزارة المالية

الجهة المعنية

- الإشراف على أعمال التصميم للمشروع
- إعداد مستندات مناقصة الإنشاءات الرئيسية وتقديمها لمجلس المناقصات
- إعداد استراتيجية التعاقد للمناقصة الرئيسية ومتطلبات
- توفير جميع المتطلبات والمتابعة مع الأمانة العامة لمجلس المناقصات
- القيام بالبوابة المرحلية لضمان الجودة رقم (3) بالمشاركة مع مكتب متابعة المشاريع للمشاريع التي تقل قيمتها عن 10 مليون

Figure 8 – Design phase

15.5 Phase 4: Definition

The objective of this phase is to issue the main tender, select the main contractor, and take the decision to award the contract for the project. The main requirements for this phase include the selection of the contractor, the decision to award the project, the approval of contracts, and the updating of the project implementation plan.

Project plans at the definition stage must contain a sufficient level of detail to enable a decision to be made as to whether or not to proceed with the project. The definition phase provides an opportunity to achieve cost-effective solutions before committing to any funding, and it is therefore essential to draw on the most experienced and creative staff during this phase. Figure 9 below illustrates the details of this phase.

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Figure 9: Definition phase

Before proceeding to the decision to award the tender, a value assurance check is carried out at Stage 4 (4-SGR), where compliance with all stage requirements is verified and recommendations are submitted to the Decision Review Board No. 4 (4-DRB) for the award decision to be taken. Once the decision has been taken, the project moves to Phase 5: Implementation.

15.7 Phase 5: Implementation

The objective of Phase 5: Implementation is to sign the main contract, implement the project, and carry out the preliminary closure of the project. The key requirements for this phase include the signing of the main contract, project handover, preliminary closure, and the project handover and closure report; the phase is described in Figure 10 below.

The primary objective of the implementation phase is to deliver an asset ready for operation by the owner, which has been achieved in accordance with the project's health, safety and environment (HSSE) objectives, cost, time and quality.

The implementation phase is concluded through a review of Phase 5 Gateway (5-SGR) and the Decision Review Board (5-DRB) (5) to ensure that all requirements have been met and to determine whether the project is ready to move to the closure phase.

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Figure 10: Implementation Phase

15.7 Phase 7: Closure

The objective of this phase is to commission the facilities, ensure that performance meets specifications, and evaluate project implementation during the warranty period. The main deliverable of this phase is the final closure of the project. Upon completion of the warranty period, the project manager must submit the final closure report, together with all requirements for this phase, to the Phase 7 Gateway Review Committee (7-SGR).

The closure phase is finalised by reviewing Phase 7 gateway (7-SGR) and Decision Review Board No. 7 (7-DRB) to ensure that all requirements have been met and to determine whether the project will be closed or not. The phase is described in Figure 11 below.

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Figure 11 – Closure phase

16. Project Change Management

Project change management is a fundamental element of project scope, quality and performance management, and is key to the success of any project in ensuring that projects are completed within budget and on time.

The procedures for managing change are set out in Annex O - Project change management procedures are a systematic methodology for identifying, quantifying, evaluating, approving, implementing and reporting changes based on the approved project, during the implementation phase.

These procedures describe the change management process through the early identification, recording, documentation, review, assessment of impact, review, approval, implementation and reporting of changes.

The early identification of potential changes, the rapid flow of information, and timely decision-making lead to the success of this process.

17.1 Project Control

Project control refers to the processes aimed at collecting and analysing project data to maintain oversight and control over the scope, cost and schedule in line with the project's baseline, using various software programmes such as SAP, Primavera, project management systems, GIS and others. Project control functions include:

- Initiating, planning, monitoring and controlling project costs and the project schedule.
- Communicating and finalising project costs and the project schedule.

Essentially, project control involves recurring processes to assess the status of the project, forecast potential outcomes based on these assessments, and then improving project performance if those expected outcomes are unacceptable. This ensures the project remains on track, within budget and on schedule.

The project baseline is considered the most important tool in project management for tracking performance in terms of cost the schedule and scope. For this reason, effective baselines can be the difference between success and failure in a project. Monitoring and control processes are carried out by the project manager, who monitors the project's performance throughout its life cycle based on the project's baselines. The monitoring and control process focuses on:

- Comparing the project's actual performance against the project management plans and the project baseline.
- assessing performance to determine whether corrective or preventative action is required, and thereafter recommending such actions as necessary.
- Maintain an accurate and up-to-date database of project deliverables and associated documentation until the project is completed.
- Provide information to support status reports, progress measurements and future forecasts.
- Provide forecasts to update information on the schedule based on the time remaining.
- Evaluate the project after reviewing actual progress.
- Monitor the implementation of approved changes as they occur.
- Updating the monthly project dashboard by the project manager via the project management platform (PMS). The standard dashboard includes:
 1. Key project status metrics
 2. Actual cost curve
 3. Schedule progress curve
 4. Key risks
 5. Key issues and lessons learnt

Please refer to Annex J – Key Performance Indicators (KPI) Procedures for Government Projects for further details.

17.1.1 Scope Management

Managing the project scope from the early stages is a good practice for minimising changes and change orders during the implementation phase. The requirements for scope management and control are a continuous process throughout the project lifecycle, right up to the implementation phase. The project scope should be clarified as much as possible in the early stages to support project initiation activities, and should be summarised in the project initiation form and the feasibility study report. The scope of the project is then clarified in greater detail through the documents to be submitted in subsequent stages.

At the end of the scoping phase, the scope of work will form part of the Invitation to Tender (ITB) for the main tender. At this stage, it becomes necessary to establish a sufficiently detailed definition of the scope that is clear enough to support the successful achievement of the project's objectives. No tender should be issued unless the final scope of work has been reviewed and approved as part of the project assurance process. This applies to all tenders, including design, construction, design and construction, EPCM, EPC, cost-plus contracts, and others.

The Work Breakdown Structure (WBS) is a detailed breakdown of the scope of work. The WBS must cover the entire scope of the project. Please refer to Appendix L – Work Breakdown Structure (WBS) Procedures for further details.

17.1.2 Schedule Management

Appropriate schedule management for a project generally increases the chances of the project being completed successfully. The development of project schedules should focus on the project as a whole and be at an appropriate level of detail throughout the project life cycle. The schedule should cover all key project activities, important milestones and the resources required to deliver the project on time. Development of the schedule should begin at an early stage of the project documentation cycle.

The scheduling system must be based on a logical network, using the computerised Critical Path Method (CPM), whereby lower-level activities are aggregated into higher-level activities. The hierarchical scheduling system is the cornerstone for detailed monitoring of the schedule and control of service progress. The schedule structure consists of four levels, with each lower level representing the project activities in greater detail. The structure and level of detail of the schedule must be such that the status of the schedule can be summarised from the detailed level and effective control over the project can be ensured. The hierarchical structure of the schedule is applied as follows:

- Level 1: the main project schedule.
- Level 2: The project's overall schedule.
- Level 3: Detailed project schedule.

The Critical Path Method (CPM) must be used for planning, organising and managing the work. This method is used to calculate the earliest and latest dates in the schedule, as well as the total and free float.

Planning engineers typically use project management software to develop what is known as a schedule model. This model is usually presented in the form of a Gantt chart (Gantt chart), accompanied by documentation of additional details such as resource requirements and assumptions. Once the schedule model has been approved by the relevant parties, it becomes the baseline for the project schedule.

Effective schedule control is essential to ensure that project implementation remains in line with the schedule baseline and that any deviations are identified and addressed in a timely manner.. Comparing project progress against the schedule baseline allows project managers to determine whether any project activities are ahead of or behind schedule. Once approved, the project schedule becomes the baseline and is used to measure and monitor project performance.

The detailed components of the schedule baseline may vary between projects. However, the key information reflected by the baseline usually includes the following:

- The sequence of project activities.
- Relationships between activities, including lead times and lag times.
- The duration of the activities.
- Planned (tentative) start and end dates for activities.
- Key assumptions and constraints.
- Resource requirements.
- Other elements necessary for project scheduling.

There are numerous tools used in the industry to assess the quality of a project schedule, through the analysis of the critical path percentage, activity dependencies, resource utilisation, etc. These tools are extremely useful for ensuring that the project follows the approved schedule.

Key performance indicators (KPIs) for the schedule must be established to monitor project performance throughout the project duration. For further details, please refer to Annex J – Key Performance Indicators (KPIs) Procedures for Government Projects.

17.1.3 Cost Management

The key elements of project cost management include the following:

1. Cost estimation
2. Cost control

Cost Estimation

Cost estimation is the process of forecasting the quantities, costs and prices of the resources required within the scope of the project. As an estimate is a forecast, it must address risks and uncertainties. Estimates are determined using expertise, calculations and projections of the future costs of resources, methods and management at a specific point in time, to be implemented within a defined timeframe.

The quality of an estimate depends largely on:

- The definition of the scope of the project or development scenario under consideration, which must be consistent with the specific requirements for each type of estimate; please refer to Annex L – Work Breakdown Structure (WBS) Procedures for further details.
- The project implementation plan and procurement strategy must be sufficiently detailed and in line the project phase (even if in a preliminary form for early estimates).

- The risks and opportunities associated with the project must be recognised and incorporated into the estimate.
- Local cost data, including the level of detail and price indices for other materials.

The accuracy of the cost estimate usually increases as each phase of the project progresses, as the scope becomes better defined and assumptions are reduced. Different types of estimates are used for various purposes, such as project initiation, feasibility studies, concept development, tender award decisions, and budget approval. Estimates must be consistent with the requirements of the project's reference phase, and any underestimation or increased risks associated with the decision must be clarified.

Cost estimation software may be used by cost specialists to produce project estimates. A quality assurance review is carried out on all estimates before they are submitted to the Stage Gate Reviews (SGRs).

The basic estimate is calculated based on the project phase, using appropriate methods such as proportional capacity, equipment analysis, parametric analysis, symmetrical analysis, detailed estimation, and others. The base estimate includes any additional allowances, usually expressed as percentages, to allow for 'known unknowns'—such as design growth that may occur in future phases.

It is important to assess the level of risk associated with the estimates in order to carry out a proper evaluation. A contingency reserve is applied based on the project's risk level

The general cost estimation process includes the following:

- Gathering available information (project requirements, timetables, risks, assumptions, complexity).
 - Selecting an estimation method.
 - Verifying the available information with all relevant parties.
 - Generate the valuation.
 - Assess allowances, market factors, reserves, the contractor's mark-up and inflation.
 - Verifying the estimate with all relevant parties.
- Estimates must undergo specific reviews to assess their accuracy before being submitted for approval. - Please refer to Appendix C – Project Cost Estimation Procedures.

Cost Control

Completing the project within the approved budget is one of the most important criteria for project success. Effective cost control ensures that the team has a clear overview of project costs and accurate, up-to-date and reliable forecasts, enabling appropriate interventions at the right time and mitigating risks.

Cost control is the process of measuring cost variances against the baseline and taking appropriate action, such as increasing the allocated budget or reducing the scope of work, to rectify the gap. Cost control is an ongoing process carried out throughout the project life cycle.

The project cost control process includes the following:

- Preparing the original budget in accordance with the Work Breakdown Structure (WBS).
- Uploading the cost structure into the project management software.
- Calculating the value of work performed (VOWD), earned value metrics, and so on.
- Calculating cost estimates.
- Change management.
- Cost reporting.

The Cost Work Breakdown Structure (CWBS) is a detailed hierarchy of the various costs within a project. The CWBS is established in the early stages and is a crucial tool for managing the financial aspects of any project; it creates the framework for implementing cost control

costs.

17.2 Knowledge Management

Knowledge management is the process of organising, creating, utilising and sharing collective knowledge within the organisation and with other parties. Successful knowledge management involves maintaining information in a way that makes it easy to access, communicate, transfer and share.

Knowledge is considered one of the most valuable assets in any organisation. Its storage, development and sharing are of paramount importance to any institution. Knowledge management encompasses the processes that help to acquire, organise and share:

- Explicit knowledge – knowledge that is easy to document and share.
- Explicit knowledge – applied knowledge.
- Unstated tacit knowledge – knowledge gained from personal experience.

The knowledge management process is the way in which an organisation manages knowledge, from its creation, through the methodology of its organisation, to ensuring that it continues to be shared.

A. Knowledge creation:

Knowledge creation begins with the acquisition of knowledge. This knowledge may come from any source, including staff within the organisation or external individuals brought in to benefit from their knowledge or expertise on a specific subject. It is common for a research and development department to act as a team to enhance the organisation's knowledge.

b. Organising knowledge

Knowledge must then be organised within a knowledge management system for future use. The organisation process is not limited to simply arranging knowledge; it must also include security features to ensure that knowledge is accessible only to authorised persons when required.

C. Knowledge sharing:

Knowledge sharing encompasses everything from knowledge training to knowledge exchange, whereby knowledge can be acquired or improved through discussions with other staff members within the organisation. When an organisation is able to easily access, share and update knowledge, it becomes more productive and cost-effective. The ability to access the right knowledge at the right time through a robust knowledge management system helps to ensure accurate decision-making and fosters collaboration and innovation.

17.3 Lessons learnt:

Lessons learnt are documented information that reflects the positive and negative experiences of a particular project. The capture of lessons learnt must be a continuous process throughout the project life cycle. The project manager must strongly encourage the use of lessons learnt from past experiences and ongoing activities from day one.

If we do not learn from project failures, this may lead to a repetition of the same situations; and if we do not take full advantage of project successes, this may lead to missed opportunities to manage the project more effectively. Figure 13 below illustrates the lessons learnt process. Lessons learnt sessions should generally be organised at least once every quarter.

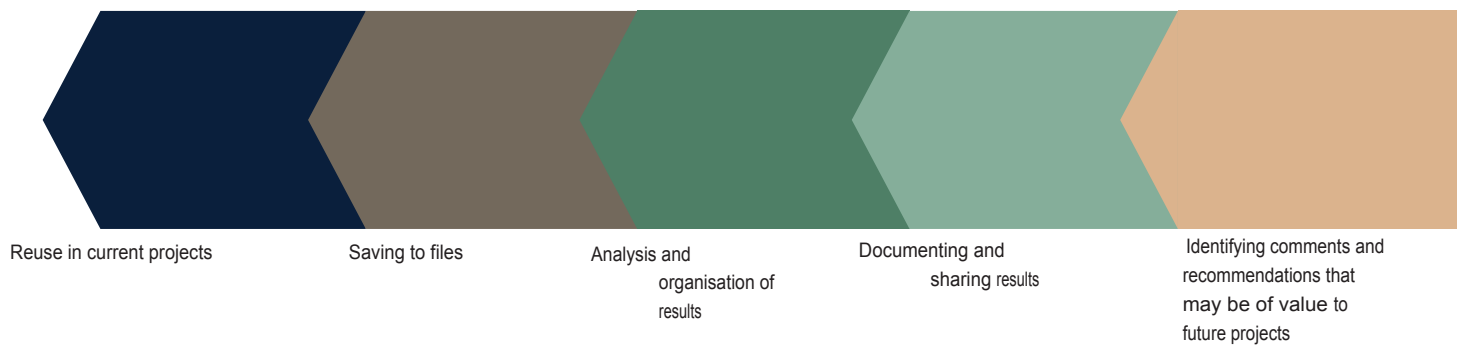


Figure 12 – The lessons learnt process

17.4 Document Control

In project management, document control is a function aimed at managing project documents for the purposes of storing, tracking, transferring, communicating, managing and organising them. This is carried out through an Electronic Document Management System (EDMS), which is one of the functions of a Project Management System (PMS).

17.5 Risk Management

Risk management is an integral part of project management and aims to minimise and mitigate the impact of potential risks and capitalise on opportunities to improve performance. The risk management process, as illustrated in Figure 13 below, begins at the planning stage by defining the roles, responsibilities, procedures and templates to be used during project implementation.

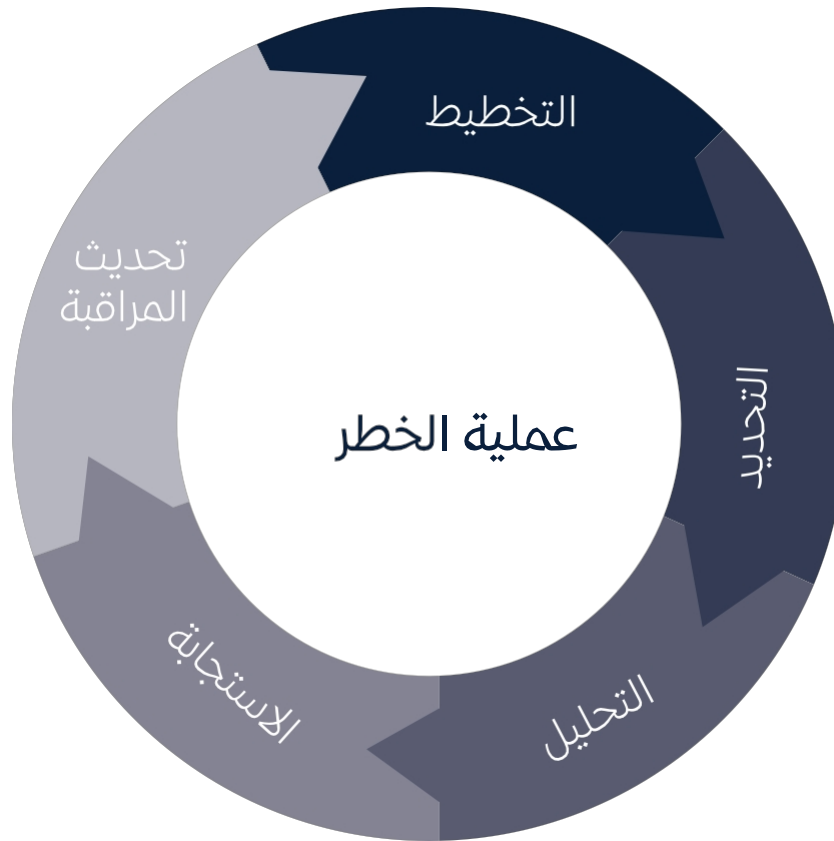


Figure 13: The risk management process

The next step involves the systematic identification of all potential risk events (threats and opportunities) that may affect the project. Negative risks are usually defined as 'threats', which are those that will have a negative impact on the project's value drivers or objectives. Positive risks, on the other hand, are usually defined as 'opportunities', which, if exploited, can have a positive impact on the project's performance. All risks can be categorised according to their cause or source (such as financial uncertainties, legal liabilities, technological issues, strategic management errors, accidents and natural disasters). (A standard risk register should be used to document risks, the response plan and the audit trail.

Risk response involves developing options and defining procedures to mitigate threats or enhance opportunities to achieve the project's objectives. Measures are identified and assigned to parties responsible for responding to the risks. This process ensures that every risk requiring a response has an 'owner'. The project manager and the project team determine the most appropriate strategy for each risk based on its severity and significance, and then select the specific actions to implement that strategy.

Risk monitoring and updating involves tracking identified risks and the response plan for them, monitoring residual risks, identifying new risks, and ensuring that the risk plan is fully implemented and effective in mitigating risks. Risk monitoring and control is an ongoing process throughout the life of the project. Please refer to Appendix F – Risk Register Template. Figure 14: Standard Risk Assessment Matrix.

25 Intolerable	20 Intolerable	15 Critical	10 Critical	5 Tolerable	5 Almost certain (Above 80 per cent)	LIKELIHOOD
20 Intolerable	16 Critical	12 Critical	8 Tolerable	4 Tolerable	4 Likely (50%–80%)	
15 Critical	12 Critical	9 Tolerable	6 Tolerable	3 Acceptable	3 Probable (10%–50%)	
10 Critical	8 Tolerable	6 Tolerable	4 Tolerable	2 Acceptable	2 Unlikely (1%–10%)	
5 Tolerable	4 Tolerable	3 Acceptable	2 Acceptable	1 Acceptable	1 Rare (0%–1%)	
5 Severe	4 High	3 Moderate	2 Low	1 Insignificant		
IMPACT						

Figure 14: Standard risk assessment matrix

To assess the impact of risks and the likelihood of their occurrence, a standard risk assessment matrix is used, as shown in the figure 14. The risk assessment matrix may be 3x3, 4x4 or 5x5, depending on the complexity of the project, and is selected at the discretion of the project team. The project team holds regular (monthly) meetings to reassess the impact and likelihood of risks, as well as to monitor mitigation, prevention and recovery measures. Risks that have been resolved must be marked as 'Closed' in the risk register, and new risks must be added as they arise.

18. Quality Management

Quality management is a fundamental element in achieving project objectives and must always be regarded as a given rather than an option, just as is the case with health, safety and environmental management.(HSSE) Throughout history, failure to implement quality management has led to catastrophic consequences, including harm to people, property and the environment, as well as a deterioration in project objectives, which invariably leads to cost overruns and delays to the schedule.

Quality management is based on specific processes designed to ensure compliance with these processes in order to ultimately achieve and enhance the project's objectives.

To ensure that quality is properly integrated throughout the project life cycle, there are four key elements that the project team must address:

1. Risk management – managing uncertainty regarding the achievement of defined objectives and avoiding a recurrence of incidents or previous failures.
2. Continuous improvement – enhancing value during project implementation.
3. Quality assurance – planning for success.
4. Quality control – verifying and controlling that identified requirements or expectations, whether implicit or mandatory, are met.

18.1 Quality Management System

Figure 15: Quality Management System (QMS) with the five key steps for determining requirements

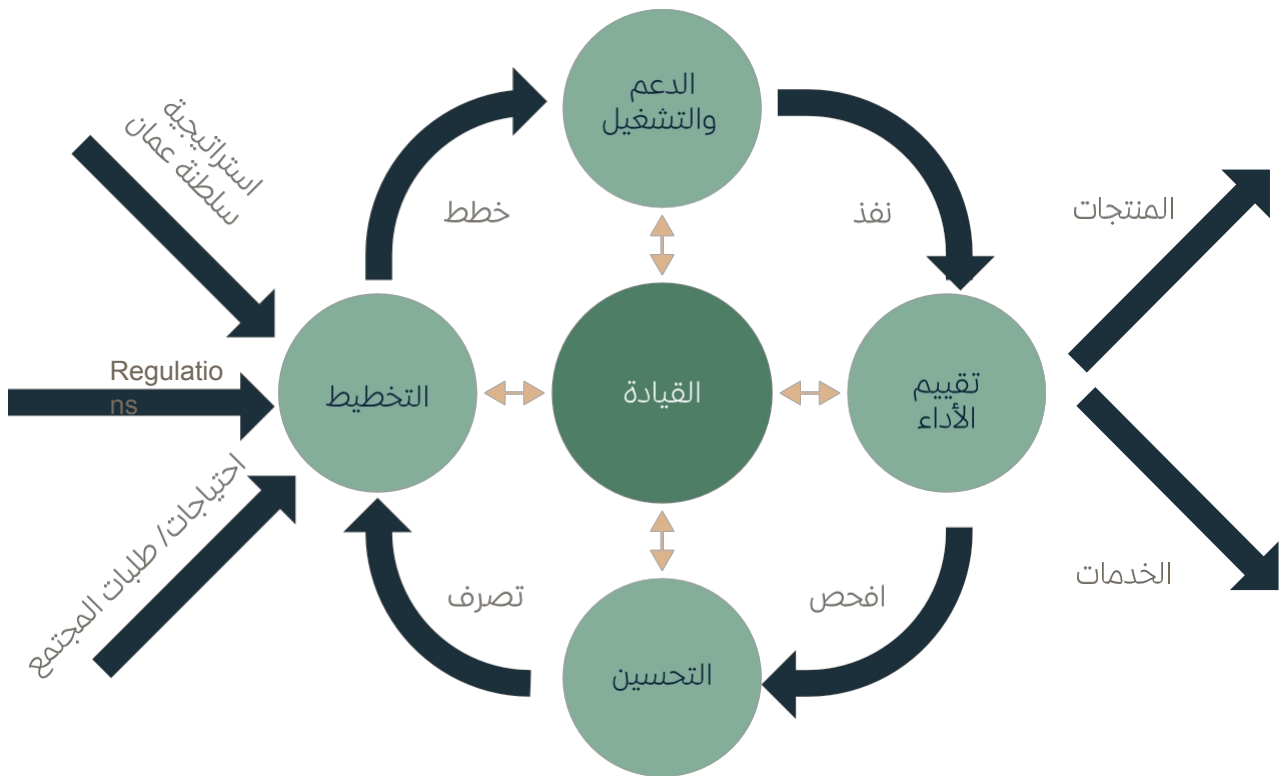


Figure 15 – Steps in the Quality Management System

Leadership:

Leaders are the key driving force in ensuring that all staff, including those from the government body and the contractor, comply with quality management requirements. Leaders shall provide the necessary support to ensure that appropriate resources are made available for quality management and that suitable quality training is provided. In addition, leaders must be committed to the government body's quality policy and to fulfilling its requirements through their decision-making powers.

Planning:

All standards, procedures, guidelines and processes must be made available so that staff can use them. All of these elements must form part of the Project Quality Plan (PQP). Please refer to Appendix G – Project Quality Plan Guide for further details.

Support and Operation:

The requirements set out in the planning stage must be implemented, and compliance and verification must be ensured. This includes, for example, carrying out audits and reviews, and conducting the necessary assessments to ensure that quality requirements are met.

Performance Evaluation:

Key Performance Indicators (KPIs) are essential for monitoring quality-related performance within the project. Please refer to Annex J – Key Performance Indicator Procedures for Government Projects.

Improvements:

Continuous improvement is essential, drawing on lessons learnt from quality monitoring, Non-Conformance Reports (NCRs) and the review of the Quality Management System.

Project quality management aims to define the process through which quality requirements are applied and implemented on an ongoing basis

across all projects. It specifies how quality management activities are to be planned, carried out, recorded and monitored throughout the project lifecycle. It covers quality assurance (QA), quality control (QC), reporting and continuous improvement.

The Quality Management System (QMS) must be extended and adapted by the project team, implemented through the Project Quality Plan (PQP), and reviewed at each decision gate. Please refer to Annex G – Project Quality Plan Guide for further details.

Resource management is a fundamental pillar of project delivery. It involves securing qualified and competent personnel at the appropriate time to support project implementation, and developing talent in accordance with the defined competency framework.

19.1 Provision of project resources

The project manager is responsible for establishing the project's organisational structure and securing the required resources, which must include core and non-core resources, as well as full-time and part-time resources, in order to manage resources effectively within the government organisation. The project manager must update the organisational structure prior to each phase/milestone of the project for the next stage, and allow sufficient time for resource allocation, as the resource allocation process usually takes time.

The project manager must submit the organisational structure plan for review and approval in accordance with the authority matrix in force within the government body. The project manager is also responsible for managing resources within the government body based on the requirements and importance of each project.

19.2 Talent Development

To develop talent within the public sector, three key areas must be addressed: on-the-job training or work experience, which accounts for around 70 per cent; learning from others through mentoring and guidance, which should account for around 20 per cent of talent development; and finally, 10 per cent is accounted for by organised and formal training, such as training courses, workshops and e-learning, as illustrated in the figure17. The scope of the project may include any technical or specialised training required for local Omani talent.



Figure 17: Talent development models

Health, Safety, Security and the Environment (HSSE) must be the government agency's top priority throughout the project lifecycle, and must be regarded as a mandatory requirement rather than an option. Throughout the project phases, all HSSE deliverables must be identified and their compliance verified by the relevant technical authority. HSSE procedures and processes must also be adhered to, particularly during the project implementation phase. This includes, as a minimum, the following for the project, as illustrated in Figure 17

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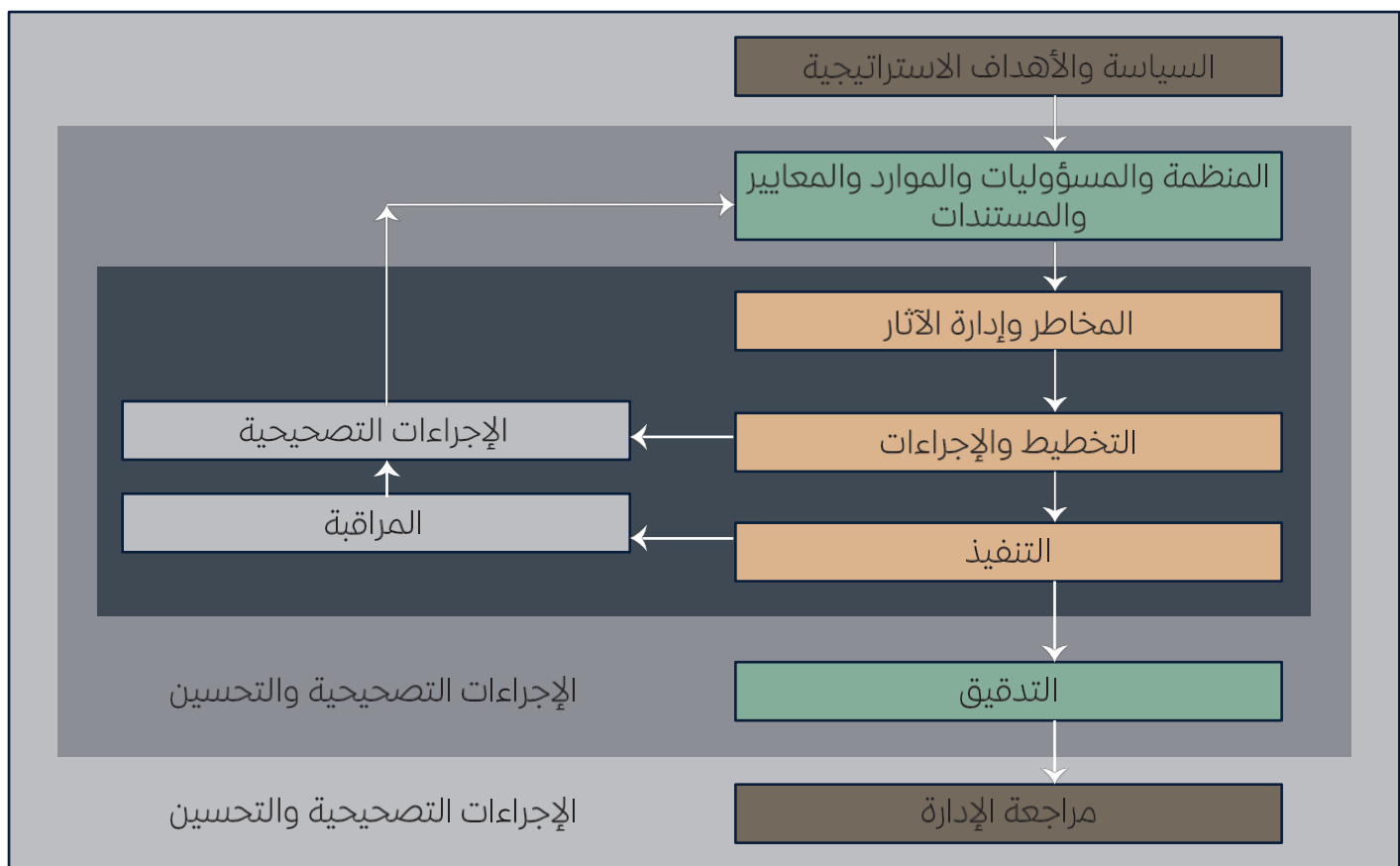


Figure 17: Health, Safety and Environment Management System

There are many factors that contribute to the success of a project, but one of the most important is effective communication between all stakeholders. Every project has a unique set of individuals and circumstances that determine the best forms of communication. Decision-making requires open channels of communication to enable the flow of information in both directions as required.

Communication with stakeholders can take place through written or verbal means, and may be formal or informal. Examples of each type of communication are set out in Table 2.

Type	Formal	Informal
Oral	• Project presentations • Brief review procedures • Product presentations • Brainstorming • Meetings	• Conversations • Discussions as required
Written	• Progress reports • Project documents • Business Status • Letters • Email	• Brief notes • Messages / Text messages • Social media

Table 2) (– Types of communication

The purpose of communications management is to define the communication protocol, project requirements, how information is disseminated, and how feedback is received from all stakeholders. Communications management defines the following points:

- Communication requirements for stakeholders.
- Analysis, design, development and evaluation of communications.
- Identification of the best means of communication.
- Handling frequent and proactive communications.
- Project-specific communication standards.
- The communications approval process.
- Completing and using the communications matrix.

The communications management defines the framework for communications within the project and serves as a guide for communications throughout the project lifecycle. The contents of the communications matrix must be updated from time to time due to changes that occur during the project lifecycle.

To develop a comprehensive communications management strategy or plan, it is strongly recommended that the project manager or the team member responsible for communications planning guide the project team through several steps to ensure that the plan is as robust and effective as possible. These steps include:

- Identifying stakeholders' needs.
- Developing key objectives and messages.
- Identifying information elements.

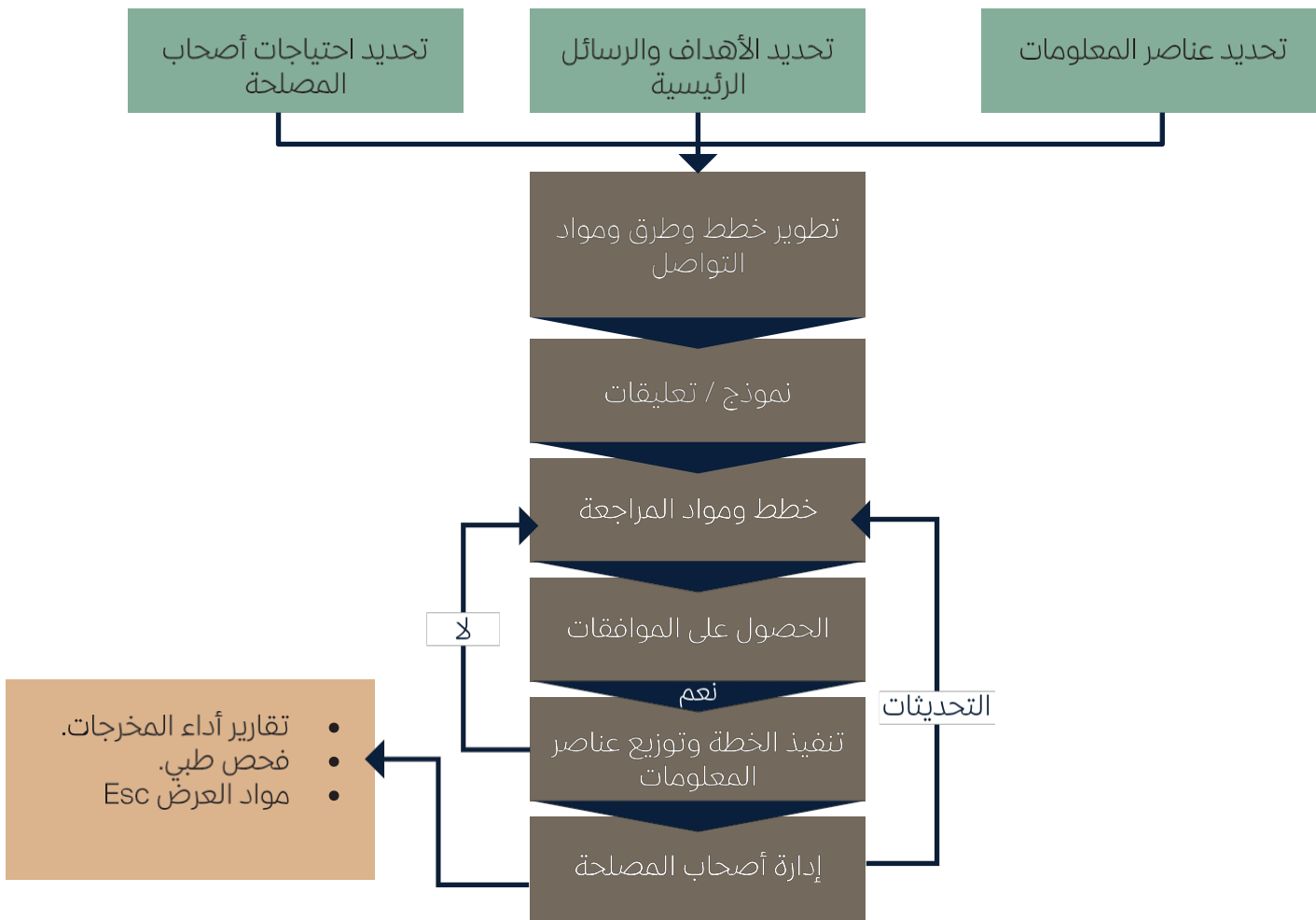


Figure 18: The communication management process

Communication management tools take the form of documents and materials. Project documents take various forms, such as financial statements, design and planning drawings, specifications and contracts, standards and codes, policies and procedures, scheduling and monitoring, and reporting systems. Depending on the project, these tools are generally required.

Every professional discipline has its own specialised language that facilitates communication within that field.

Project managers need to understand the language and terminology relating to several fields, such as architecture, various engineering disciplines, accountancy, contract law, construction, industrial processes, and a wide range of professions.

22. Stakeholder Management

Stakeholder engagement is a systematic process aimed at identifying, analysing, planning and implementing measures designed to influence stakeholders. This process involves identifying stakeholders, mapping them, determining their priorities, and documenting all internal and external stakeholders in a stakeholder register to identify the best tactics for effective communication whilst making the most of available resources.

Stakeholder engagement helps organisations to effectively consider the needs and wishes of relevant stakeholders, thereby strengthening ties, trust and reassurance, and support for the organisation's key initiatives. If managed well, stakeholder engagement can help to minimise potential risks and conflicts with stakeholder groups, including uncertainty, dissatisfaction, incompatibility, a lack of engagement, and resistance to change.

The stakeholder engagement strategy identifies the needs of key groups, and the project manager plays a vital role in ensuring that these needs are met. The strategy includes a detailed list of the various stakeholders' needs, interests and concerns, and their expectations, leading to the development of the required communication strategy, its application across the project phases, and the identification of mitigation measures, those responsible for implementing them, the frequency of engagement, and the relevant parties.

The aim of the stakeholder management plan is to proactively manage stakeholder-related risks that could affect the project's objectives. Figure 19 provides an example of a stakeholder mapping exercise for the project.

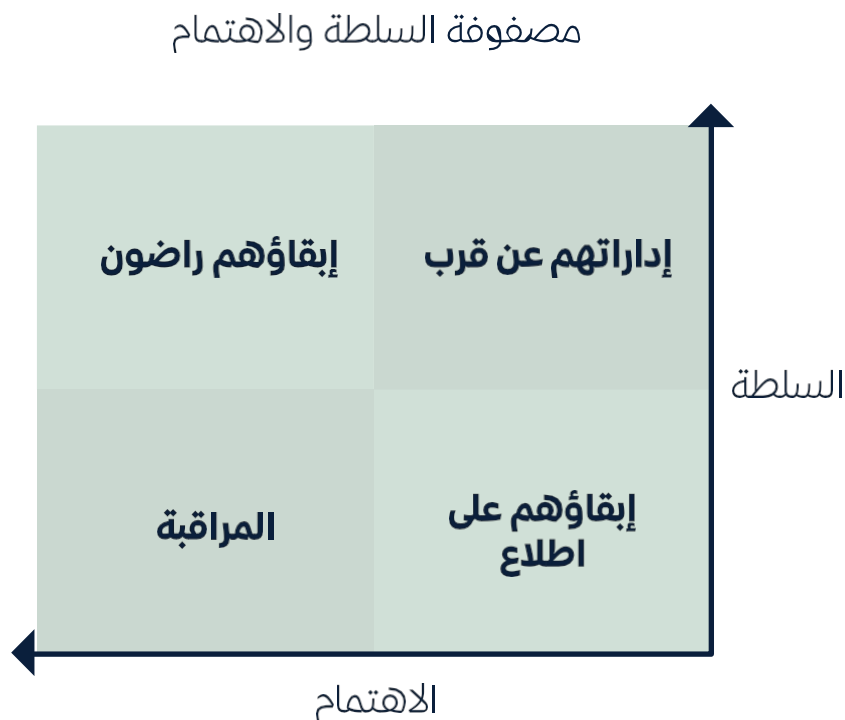


Figure 19: Project Stakeholder Authority and Interest Matrix

Stakeholders are individuals or organisations that have an interest in or influence over a project or strategy implemented by the organisation. They wield a certain degree of influence over the project for various reasons and with varying levels of interest. They may benefit from the project and, consequently, be supportive and positive towards it; conversely, they may be adversely affected by the project or perceive it as having negative consequences for them, and may therefore seek to halt it or, at the very least, portray it in a negative light.

Stakeholder engagement involves implementing strategies and procedures aimed at promoting productive stakeholder participation. Stakeholder engagement activities begin before or at the start of the project and continue throughout its duration, as illustrated in Figure 20 below.

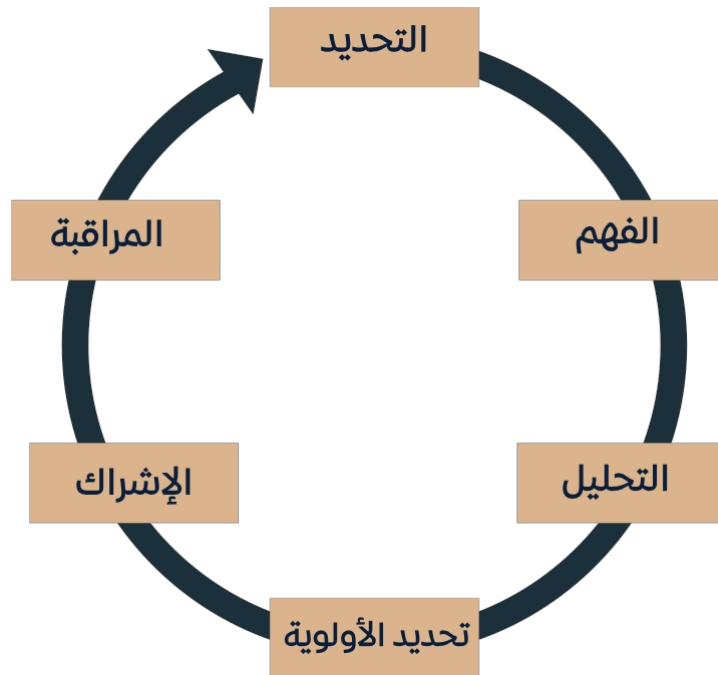


Figure 20 – Initiating effective stakeholder engagement

Typical stakeholders may include:

- Within the same organisation.
- Users of the building or facilities.
- Funding bodies.
- Neighbours.
- Regulatory bodies.
- The general public.
- Utility suppliers.

It is the client's responsibility to manage stakeholders in the early stages of the project and then provide support to contractors during the implementation phase.

A stakeholder matrix is a project management tool used to analyse stakeholders in order to identify the measures necessary to align their objectives with those of the project.

The term 'multi-headed client' is used to describe organisations in which decisions are not taken by a single individual, but by a group. Some projects are the result of a joint venture between different organisations or development partners, which is common in the public sector, such as transport projects. In public projects or projects within large private organisations, there are usually many internal and external stakeholders.

The influence of stakeholders is felt most strongly in the early stages of the project. At this stage, the project is still in its infancy and open to change, and stakeholders are generally aware of this. Once the project begins to progress, it gains momentum and the cost of halting it .

or changing its course becomes high. The influence of stakeholders usually decreases significantly once construction begins, but it increases again as completion approaches.

Project managers must continue to manage stakeholders' expectations to ensure that the completed building meets their needs as effectively as possible and is received positively.

Some clients are more effective at managing the influence of stakeholders than others, and some stakeholders are easier to manage than others. In a large, publicly funded project, between 40 and 50 stakeholder groups can be identified, each with a different level of involvement, requirements, and capacity to influence the project, as well as a varying level of interest in doing so, which makes the situation extremely complex for management.

Internal and external stakeholders

Broadly speaking, there are two groups of stakeholders in a project: those who are internal to the client organisation and those who are external to it. External stakeholders are usually easy to identify; however, managing internal stakeholders is often more complex.

• Internal stakeholders:

In construction projects, it can be difficult to determine who the actual client is. There may be a specific individual acting as the sole point of contact, but this person is not, in fact, the 'client' themselves; rather, they are merely a representative of the client organisation. In many cases, this person is responsible for reconciling a diverse range of conflicting requirements within the client organisation, and as a result, they will be subject to numerous influences that may affect the project, such as changes

Within the client organisation, there will be a diverse group of individuals with different interests in the project. Unless the appointed client representative takes a very firm stance, these individuals may succeed in influencing the course of the project. The client organisation consists of a broad group of individuals with different needs and desires, constituting what is known as a 'multi-headed client'. In such cases, the decision-making process becomes complex. Questions cannot be answered directly by the client's designated single point of contact; but rather that person must negotiate with various other stakeholders within the client organisation to obtain an answer.

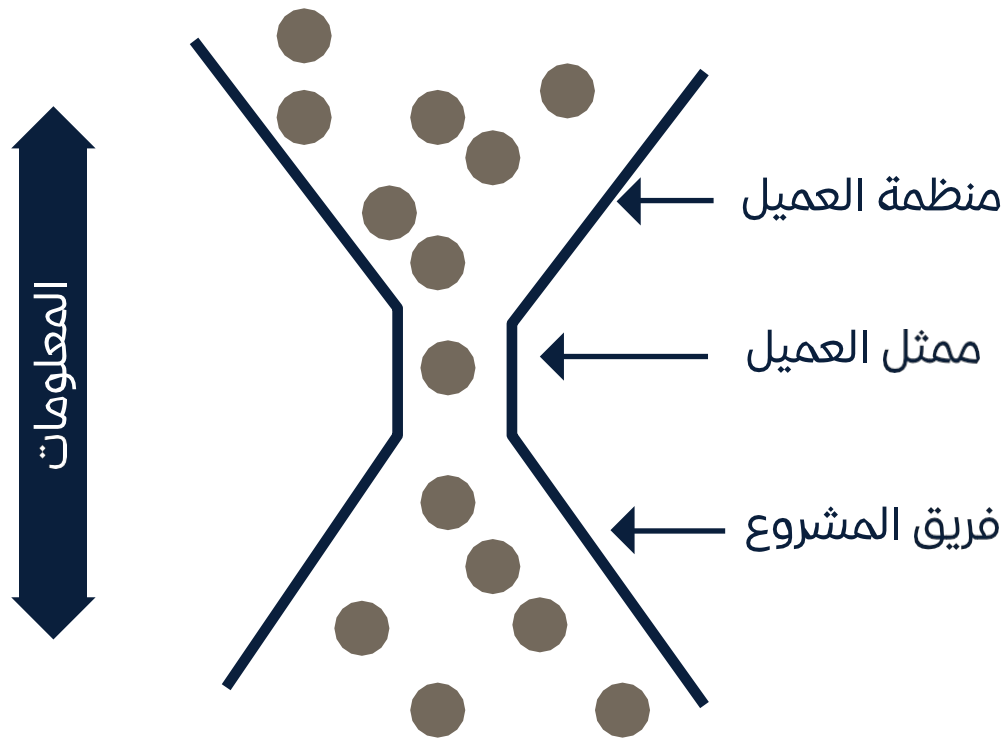


Figure 21: Effective interaction with stakeholders

Generally speaking, all project information flows from various members of the client organisation through the client representative, and vice versa. The client representative acts as a 'filter' to channel this information.

Internal stakeholders may be anyone within the organisation. In most cases, they are the end users of the project, but they could also include heads of departments such as marketing, information technology or human resources, as well as other staff, trade unions, and so on. They all have a stake in the project, and all of them can influence it, either directly or indirectly, through their influence.

• External stakeholders:

External stakeholders are individuals or organisations that are not part of the client organisation, but who nevertheless have an interest in the project. These stakeholder groups are usually the most clearly defined. In publicly funded projects, the number of identifiable stakeholders tends to be high. These groups usually include:

funders, whether a government department, a grant provider or a private-sector partner;

Users, whether they are passengers on a transport project or visitors to a museum.

Regulatory **bodies**, which are usually planning authorities, as well as any specialist regulatory bodies, such as those responsible for railway projects.

Those affected, such as neighbours or people who work or live near the project.

The press and the media, which are an important group that can significantly influence perceptions of the project and its expected success, and in some cases, its actual success.

23. Contract and Procurement Management

Contract and procurement management involves the evaluation, selection and establishment of formal contractual agreements, as well as the management of the company's ongoing supplier relationships. Procurement is a complex field comprising numerous interrelated activities. For this reason, contract and procurement management involves identifying clear value drivers and the criteria used to evaluate methods of contracting for products and services to ensure they align with the project's objectives. Contract and procurement management must also strive to secure competitive tenders whilst taking into account the project's life-cycle costs.

In addition, the department aims to maximise the use of products and services with local added value (ICV) and to achieve sustainable development. Please refer to Annex N – Contract Closure Procedures for further details.



Annexes

Annex (A): Project Documentation Cycle.

Appendix (b): Project Development Matrix Template.

Appendix (t): Project Cost Estimation Procedures.

Appendix (th): Opportunity Framing Workshop

Template. Appendix (c): Work Organisation
Structure.

Appendix (h): Risk Assessment Register.

Appendix (i): Project Quality Plan.

Appendix (r): Value Engineering.

Appendix (g): Lessons Learnt Register.

Appendix (S): Procedures for Key Performance Indicators for
Government Projects. Appendix (T): Procedures of the National Office for
Local Content.

Appendix (S): Work Breakdown Structure (WBS) Procedure

Annex (D): Responsibility Allocation Matrix for the Project Document Cycle. Annex

(E): Contract Closure Procedures.

Appendix (Z): Change Management Procedure

To access the appendices, scan here

