# ICT Project Management

### Disclaimer

This document is part of teaching materials for ICT PROJECT MANAGEMENT under the Pokhara University syllabus for Bachelor in Computer Engineering IV/I and Bachelor in Information Technology Engineering IV/I. This document does not cover all aspect of learning ICT PROJECT MANAGEMENT, nor are these be taken as primary source of information. As the core textbooks and reference books for learning the subject has already been specified and provided to the students, students are encouraged to learn from the original sources because this document cannot be used as a substitute for prescribed textbooks.

Various text books as well as freely available material from internet were consulted for preparing this document. Contents in This document are **copyrighted** to the instructor and authors of original texts where applicable

**C@MUKUNDA PAUDEL 2022** 

## **Unit 12: Project Procurement Management**

- ✓ Procurement is the act of obtaining goods, supplies, and/or services.
- ✓ Therefore, project procurement is obtaining all of the materials and services required for the project.
- ✓ Project procurement management encompasses the processes used for making sure project procurement is successful.

Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team. -PMBOK

✓ Project Procurement Management includes the management and control processes required to develop and administer agreements such as contracts, purchase orders, memoranda of agreements (MOAs), or internal service level agreements (SLAs). The personnel authorized to procure the goods and/or services required for the project may be members of the project team, management, or part of the organization's purchasing department if applicable.

## 12.1 Project Procurement Management Process

Project Procurement Management processes include the following:

- **1. Plan Procurement Management:** Process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.
- **2. Conduct Procurements:** Process of obtaining seller responses, selecting a seller, and awarding a contract.
- **3. Control Procurements:** Process of managing procurement relationships, monitoring contract performance, making changes and corrections as appropriate, and closing out contracts.

More than most other project management processes, there can be significant legal obligations and penalties tied to the procurement process.

## 12.2 Plan Project Procurement Management

Plan Procurement Management is the process of documenting project procurement decisions, specifying the approach and identifying potential sellers.

- ✓ This process determines whether to acquire goods and services from outside the project and, if so, what to acquire as well as how and when to acquire it.
- ✓ Goods and services may be procured from other parts of the performing organization or from external sources.
- ✓ Defining roles and responsibilities related to procurement should be done early in the Plan Procurement Management process
- ✓ This process is performed once or at predefined points in the project.

Following responsibilities should be documented in the procurement management plan.

- ✓ Prepare the procurement statement of work (SOW) or terms of reference (TOR).
- ✓ Prepare a high-level cost estimate to determine the budget.
- ✓ Advertise the opportunity.
- ✓ Identify a short list of qualified sellers.
- ✓ Prepare and issue bid documents.
- ✓ Prepare and submit proposals by the seller.
- ✓ Conduct a technical evaluation of the proposals including quality.
- ✓ Perform a cost evaluation of the proposals.
- ✓ Prepare the final combined quality and cost evaluation to select the winning proposal.
- ✓ Finalize negotiations and sign contract between the buyer and the seller.

#### Inputs, tools and techniques, and outputs of this process: plan Procurement Management

#### Plan Procurement Management Inputs Tools & Techniques Outputs .1 Project charter .1 Expert judgment .1 Procurement management .2 Business documents .2 Data gathering · Market research · Business case .2 Procurement strategy · Benefits management plan .3 Data analysis .3 Bid documents .3 Project management plan Make-or-buy analysis .4 Procurement statement of .4 Source selection analysis Scope management plan work Quality management plan .5 Meetings .5 Source selection criteria Resource management plan .6 Make-or-buy decisions Scope baseline .7 Independent cost estimates .4 Project documents .8 Change requests Milestone list .9 Project documents updates · Project team assignments · Lessons learned register · Requirements Milestone list documentation Requirements documentation Requirements traceability matrix · Requirements traceability · Resource requirements matrix · Risk register · Risk register · Stakeholder register · Stakeholder register .5 Enterprise environmental .10 Organizational process factors assets updates .6 Organizational process assets

Figure: Inputs, tools and techniques, and outputs of this process: plan Procurement Management

#### Organizational process asset in procurement management plan (input)

- 1. Preapproved seller list
- 2. Formal procurement policies, procedures and guidelines
- 3. Contract types

#### **Contract Types:**

- 1. Fixed priced
- 2. Cost reimbursable
- 3. Time and Material Contract (T&M)

#### 1. Fixed priced contract:

- ✓ Involves setting a fixed total price for a defined product, service, or result to be provided.
- ✓ Should be used when the requirements are well defined and no significant changes to the scope are expected.
- ✓ Types of fixed-price contract include:
  - **Firm fixed price (FFP).** The most commonly used contract type is the FFP. It is favored by most buying organizations because the <u>price for goods is set at the outset and not subject to change unless the scope of work changes.</u>
  - **Fixed price incentive fee (FPIF).** This fixed-price arrangement gives the buyer and seller some flexibility in that it allows for deviation from performance, with financial incentives tied to achieving agreed-upon metrics. Typically, such financial incentives are related to cost, schedule, or technical performance of the seller. <u>Under FPIF contracts</u>, a price ceiling is set, and all costs above the price ceiling are the responsibility of the seller.
  - **Fixed price with economic price adjustments (FPEPA).** This type is used whenever the seller's performance period spans a considerable period of years, or if the payments are made in a different currency. It is a fixed-price contract, but with a special provision allowing for predefined <u>final</u> adjustments to the contract price due to changed conditions, such as inflation changes or cost increases (or decreases) for specific commodities

#### 2. Cost-reimbursable contracts.

- ✓ Involves payments (cost reimbursements) to the seller for all legitimate actual costs incurred for completed work, plus a fee representing seller profit.
- ✓ Should be used if the scope of work is expected to change significantly during the execution of the contract.
- ✓ Cost reimbursement contracts come in many forms / types, some of them are:
  - **Cost contracts:** The contract only requires payment for the actual costs of the project. There are no additional fees.
  - **Cost-sharing contracts:** The contractor agrees to assume and share some of the contract expenses. The customer will then reimburse the contractor for a certain portion of the expenses.
  - Cost-plus-fixed fee contracts (CPFF): Here, the contractor receives reimbursement plus a predetermined fee. This fee is negotiated when the contract is finalized and will not change depending on the project cost.

Revisions could occur if the work originally in the agreement changes in the course of the project.

- Cost-plus-incentive-fee contracts (CPIF): The contractor receives reimbursement and an adjustable fee. This adjustment is based on established targets, and the fee is based on a formula designed to reward lower costs.
- Cost-plus-award-fee contracts (CPAF): The contractor will receive reimbursement with a fixed fee and the potential to earn an additional fee. This is based on an assessment of the contractor's performance on the project.
- Cost-plus-percentage-of-cost contracts (CPPC): With these agreements, the seller is paid for all costs plus an additional percentage of those costs.

#### 3. Time and material contracts (T&M).

- ✓ Time and material contracts (also called time and means) are a hybrid type of contractual arrangement with aspects of both cost-reimbursable and fixed-price contracts.
- ✓ They are often used for staff augmentation, acquisition of experts, and any outside support when a precise statement of work cannot be quickly prescribed.

#### **Source Selection Analysis**

✓ It is a good practice to include the evaluation method in the procurement documents so bidders know how they will be evaluated.

Commonly used selection methods include the following:

- 1. Capability and capacity
- 2. Product cost and life cycle cost
- 3. Delivery dates
- 4. Technical expertise and approach;
- 5. Specific relevant experience;
- 6. Adequacy of the proposed approach and work plan in responding to the SOW
- 7. Key staff's qualifications, availability, and competence
- 8. Financial stability of the firm
- 9. Management experience
- 10. Suitability of the knowledge transfer program, including training.

#### **Procurement Strategy**

- ✓ The objective of the procurement strategy is to determine the project delivery method, the type of legally binding agreement(s), and how the procurement will advance through the procurement phases.
  - 1. **Delivery methods.** Delivery methods are different for professional services versus construction projects.
    - For professional services → Buyer/services provider with no subcontracting, buyer/ services provider with subcontracting allowed,

- joint venture between buyer and services provider, and buyer/ services provider acts as the representative.
- For industrial or commercial construction → design build (DB), design bid build (DBB), design build operate (DBO), build own operate transfer (BOOT) etc.
- 2. **Contract payment types.** Lump sum, firm fixed price, cost plus award fees, cost plus incentive fees, time and materials, target cost, and others (i.e. fixed price or cost reimbursement).
- 3. **Procurement phases.** The procurement strategy can also include information on procurement phases. Information may include:
  - Sequencing or phasing of the procurement, a description of each phase and the specific objectives of each phase.
  - Procurement performance indicators and milestones to be used in monitoring
  - Criteria for moving from phase to phase
  - Monitoring and evaluation plan for tracking progress.
  - Process for knowledge transfer for use in subsequent phases.

#### **Bid Document**

- ✓ A Bid Document is an output of the Plan Procurement Management process.
- ✓ This document is used when requesting proposals from potential suppliers to the project.
- ✓ The document will contain a description of the products or services that are to be procured.
- ✓ The same document can be issued to several potential suppliers so that responses can be compared in order to select the best supplier for the products or services that are being requested.
- ✓ Terms such as bid, tender, or quotation are generally used when the seller selection decision is based on price (as when buying commercial or standard items), while a term such as proposal is generally used when other considerations such as technical capability or technical approach are the most important.

The Bid Document can have different forms depending on the nature of the products and services that are being requested.

#### 1. Request for Information (RFI):

- ✓ Where products or services are required and there isn't enough information to determine whether they are a good fit for the requirements of the project, a Request for Information (RFI) will be issued first to determine more about the product or service.
- ✓ The response to the RFI can be used to ask further questions to refine the product or service if required.
- ✓ Suppliers can be shortlisted on the basis of the response to the RFI to concentrate on those which have a good fit prior to moving to the next stages.

✓ It will typically be followed by an RFQ or RFP.

#### 2. Request for Quotation (RFQ)

- ✓ If the products and services on offer by the potential supplier are already a fit for the project, the bid document may take the form of a Request for Quotation (RFQ) or Request for Proposal (RFP).
- ✓ In this case, the evaluation of the bid responses will usually be based on the cost and delivery schedule.
- ✓ Based on the response to the RFI, the next stage will progress to a Request for Quotation (RFQ) to determine the cost of the products or services required.
- ✓ In this document, more detail will be provided to enable the supplier to provide an accurate quote for the costs and a schedule for delivery.

#### 3. Request for Proposal (RFP)

- ✓ RFP is used when there is a problem in the project and the solution is not easy to determine. This is the most formal of the "request for" documents and has strict procurement rules for content, timeline, and seller responses
- ✓ The Bid Document itself will vary in complexity depending on the value and risks associated with the procurement.
- ✓ Where there is uncertainty or complexity, a Request for Proposal (RFP) may be used which will ask the supplier to describe in more detail how they will provide the products or services and how they satisfy the requirements of the proposal.

The supplier will then be expected to respond formally with a Statement of Works (SoW) and contractual terms and conditions in preparation for agreeing to the procurement of the products or services.

## 12.3. Conduct Procurement

- ✓ Conduct Procurements is the process of obtaining seller responses, selecting a seller, and awarding a contract.
- ✓ This Process selects a qualified seller and implements the legal agreement for delivery.
- ✓ The end results of the process are the established agreements including formal contracts.
- ✓ This process is performed periodically throughout the project as needed.

After planning for procurement, project procurement managers assess bids from vendors and select partnerships based on their project needs.

Any vendor negotiations often take place during this phase of procurement and all involved parties sign the agreed-upon contracts.

Project procurement managers may also make payments for products and services at this time.

#### Inputs, Tools & Techniques and Outputs of the process: Conduct Procurements

#### **Conduct Procurements**

#### Inputs

- .1 Project management plan
  - Scope management plan
  - Requirements management plan
  - Communications management plan
  - Risk management plan
  - Procurement management plan
  - Configuration management plan
  - Cost baseline
- .2 Project documents
  - · Lessons learned register
  - · Project schedule
  - Requirements documentation
  - · Risk register
  - · Stakeholder register
- .3 Procurement documentation
- .4 Seller proposals
- .5 Enterprise environmental factors
- .6 Organizational process assets

#### Tools & Techniques

- .1 Expert judgment
- .2 Advertising
- .3 Bidder conferences
- .4 Data analysis
  - Proposal evaluation
- .5 Interpersonal and team skills
  - Negotiation

#### Outputs

- .1 Selected sellers
- .2 Agreements
- .3 Change requests
- .4 Project management plan updates
  - Requirements management plan
  - Quality management plan
  - Communications management plan
  - Risk management plan
  - Procurement management plan
  - Scope baseline
  - Schedule baseline
  - Cost baseline
- .5 Project documents updates
  - · Lessons learned register
  - Requirements documentation
  - Requirements traceability matrix
  - Resource calendars
  - · Risk register
  - · Stakeholder register
- Organizational process assets updates

Figure: Inputs, Tools & Techniques and Outputs of the process: Conduct Procurements

### **12.4 Control Procurement**

- ✓ Control Procurements is the process of managing procurement relationships, monitoring contract performance, and making changes and corrections as appropriate, and closing out contracts.
- ✓ This process ensures that both the seller's and buyer's performance meet the project's requirements according to the terms of the legal agreement.
- ✓ This process is performed throughout the project as needed.

Controlling procurement often includes:

- ✓ Evaluating regular internal status updates
- ✓ Reviewing contractor agreements
- ✓ Reviewing progress and performance updates from vendors

- ✓ Conducting inspections and audits
- ✓ Assessing work orders
- ✓ Issuing additional payment as necessary

#### Inputs, Tools & Techniques and Outputs of the process: Control Procurements

#### **Control Procurements**

#### Inputs

- .1 Project management plan
  - Requirements management plan
  - · Risk management plan
  - Procurement management plan
  - Change management plan
  - Schedule baseline
- .2 Project documents
  - Assumption log
  - Lessons learned register
  - Milestone list
  - · Quality reports
  - Requirements documentation
  - Requirements traceability matrix
  - Risk register
  - Stakeholder register
- .3 Agreements
- .4 Procurement documentation
- .5 Approved change requests
- .6 Work performance data
- .7 Enterprise environmental factors
- .8 Organizational process assets

#### Tools & Techniques

- .1 Expert judgment
- .2 Claims administration
- .3 Data analysis
  - Performance reviews
  - Earned value analysis
  - Trend analysis
- .4 Inspection
- .5 Audits

#### Outputs

- .1 Closed procurements
- .2 Work performance information
- .3 Procurement documentation updates
- .4 Change requests
- .5 Project management plan updates
  - Risk management plan
  - Procurement management plan
  - Schedule baseline
  - Cost baseline
- .6 Project documents updates
  - · Lessons learned register
  - · Resource requirements
  - Requirements traceability matrix
  - · Risk register
  - Stakeholder register
- .7 Organizational process assets updates

Figure: Inputs, Tools & Techniques and Outputs of the process: Control Procurements

#### 12.5. Close Procurement

- ✓ Closing procurement involves all necessary steps in ending a partnership or contract.
- ✓ This often involves a review of the work or services completed, renegotiation of any changes to original contract terms and confirmation of payments issued and received.
- ✓ Organizations may also file a formal release of liability upon procurement closing.
- ✓ This contract confirms that the vendor has fulfilled the terms of the original contract and is no longer responsible for any additional involvement in the project.

## 12.6 Public Procurement Act in Nepal

- ✓ This Act is called "Public Procurement Act, 2007."
- ✓ In making procurement, a Public Entity have to make such procurement by complying with the procedures set out in this Act.

#### **Objectives of Public Procurement Act in Nepal**

- 1. To make legal provisions: in order to make the procedures, processes and decisions relating to public procurement much more,
  - > Open
  - > Transparent
  - Objective and
  - > Reliable
- **2.** To obtain the maximum returns of public expenditures in an economical and rational manner by promoting:
  - Competition
  - > Fairness
  - ➤ Honesty
  - > Accountability and
  - > Reliability in public procurement processes.
- **3.** To ensure good governance by enhancing the managerial capacity of procurement of public entities in procuring, or causing to be procured, construction work and procuring goods, consultancy services and other services by such entities.
- **4. To ensuring the equal opportunity for** producers, sellers, suppliers, construction entrepreneurs or service providers to participate in public procurement processes without any discrimination.

#### Provision for procuring Software according to PPA, 2063

Software Procurement is defined under the chapter -1 (Preliminary) point number → 2, Definition) → e: Consultancy Service), Public Procurement Act, 2007.

i.e.

#### **Chapter 1: Preliminary**

- **2. Definitions**: Unless the subject or context otherwise requires, in this Act
  - e) "Consultancy Service" means any study, research, survey, design, drawing, supervision, training, testing, software development service or other intellectual or professional service of a similar nature.

**Chapter-2:** Provisions Relating to Responsibility for Procurement and Procurement Methods.

- **8**. Procurement Method to be selected:
  - (b) Procurement of consultancy service:
    - (1) By requesting competitive proposals,
    - (2) Through direct negotiations
- (2) In making procurement pursuant to this Act and the rules framed under this Act, procurement shall not be so made in piecemeal as to limit competition.

#### **Chapter-4: Provisions Relating to Consultancy Services**

- 29. **Consultancy Services May be Procured:** (1) A Public Entity may procure consultancy services from any person, firm, organization or company in the following conditions:
  - (a) If any work cannot be performed by the human resource available at the concerned Public Entity, or
  - (b) If a service is required to be obtained from a consultant under the foreign aid source in accordance with an agreement with a donor party.
  - (2) In procuring the consultancy services under sub-section (1), procurement shall be made by fulfilling the procedures referred to in this Act.
- **30. Short List to be Prepared by Soliciting Expression of Interest Openly:** (1) Where it is required to procure consultancy service that costs more than the prescribed threshold, the Public Entity, in order to solicit expression of interest from the persons, firms, organizations or companies that are interested in providing such consultancy services shall publish a notice in a newspaper of national circulation, giving a period of at least fifteen days, setting out the matters as prescribed.
- **31. Soliciting Proposals:** (1) After a short list has been prepared pursuant to Section 30, the Public Entity shall request for proposals from intending proponents, by giving a period of at least thirty days, sending the documents relating to proposal, as prescribed to the intending proponents who are short listed.
- **32. Opening of Proposals:** (1) after the expiry of the deadline for the submission of proposal, the outer envelope of the proposal received from the proponent shall be opened and the sealed envelope of technical and financial proposal shall be separated.
- **33. Evaluation of Technical Proposal:** The technical proposal shall be evaluated in accordance with the evaluation criteria as prescribed in the documents relating to proposal.
- **34. Opening of Financial Proposal:** The financial proposals of only those proponents who have been qualified from the evaluation of technical proposals shall be opened as prescribed.
- **35. Evaluation of Financial Proposal:** Evaluation of financial proposal will be done as per defined condition hereunder.

- **36. Rejection of Proposal and Cancellation of Procurement Proceedings:** (1) The Public Entity may reject all proposals or cancel the procurement proceedings in the following conditions.
- **37. Negotiations with the Proponent:** (1) Negotiations with the proponent selected pursuant to Section 35 may be held in the matter of terms of reference and scope of the proposed services, progress report, and facility to be made available by the Public Entity.
- **38. Procurement Contract to be concluded:** (1) the proposal of the proponent who has reached to the agreement from the negotiations pursuant to Section 37 shall be selected for acceptance.
- **39.** Other Provision for Consultancy Services: Other procedure concerning procurement of consultancy service and evaluation process thereof shall be as prescribed.

**For More Details:** Read "Public Procurement Act", 2007, Chapter 4 and "Public Procurement Regulation", 2064 (2007)

#### **Provision for Direct purchase in Consultancy Services**

As per, Public Procurement Regulation, point number 82.

- **82.**<sup>137</sup> **Procurement through direct negotiation:** (1) If it is required to acquire a service only for such matters as a training, workshop and seminar which are useful and necessary for the public entity, such service may be so procured through direct negotiation by the chief of the public entity himself or herself in the case of a service the cost of which does not exceed five hundred thousand rupees, and with the approval of one level higher authority in the case of a service the cost of which exceeds such an amount but not exceed two million rupees that it is not contrary to Section 37 of the Act.
- (2) In the case where it is required to procure a consultancy service the cost of which does not exceed two million rupees with the approval of one level higher authority for the work referred to in subrule (1), procurement shall be made by obtaining at least three proposals and holding direct negotiations with the proponent whose proposal is the most useful and offers the lowest price, for the purpose of ascertaining, *inter alia*, the quality and price.

\*\*End of chapter 12\*\*