Software Project Management

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Project Management's nine Knowledge Areas

- Project Integration Management

- Project Scope Management

- Project Time Management

- Project Cost Management

- Project Quality Management

- Project Human Resource Management

- Project Communications Management

- Project Risk management

- Project Procurement Management

Project Scope Management

- When a construction site is being built, the constructor raises a fence on the site defining the boundaries of the construction.

- This process of building a fence is called scoping.

- Scope management is the process of defining what work is required and then making sure all of that work – and only that work – is done.

Project Scope Management

- Project Scope Management includes the processes required to ensure that the project includes all the work required to complete the project successfully.

- It is primarily concerned with defining and controlling what is or is not included in the project.

- The processes, tools, and techniques used to manage product scope vary by application area and are usually defined as part of the project life cycle.

Project Scope Management

- A project generally results in a single product, but that product may include subsidiary components, each with its own separate but interdependent product scopes.

- For example, a new telephone system would generally include four subsidiary components—hardware, software, training, and implementation.

Project Scope Management

- Completion of the project is measured against the project plan, but completion of the product scope is measured against the product requirements.

- Both types of scope management must be well integrated to ensure that the work of the project will result in delivery of the specified product.

Project Scope Management

- Project Scope Management has six processes:

- Plan Scope Management: Planning the process, and creating a scope management plan.

- Collect Requirements: Defining and documenting the stakeholder's needs.

- Define Scope: Developing a detailed project scope statement.

- Create Work Breakdown Structure(WBS): Subdividing project deliverables into smaller work units.

- Validate Scope: Formalizing the acceptance of the deliverables.

- Control Scope: The ongoing process of monitoring and managing changes to the project scope.

Project Time Management

- Project Time Management includes the processes required to ensure timely completion of the project.

- The followings are major processes in developing the project time schedule:

- Activity Definition

- Activity Sequencing

- Activity Duration Estimating

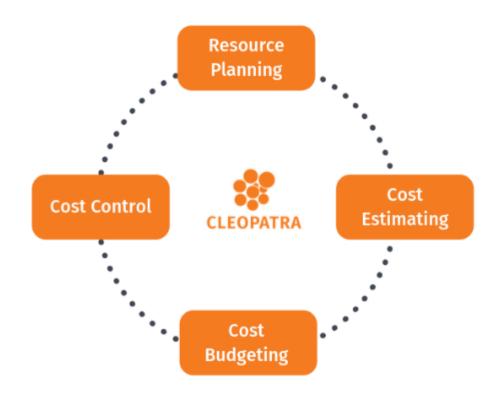- Schedule Development

- Schedule Control

Project Time Management

- **Activity Definition:** identifying the specific activities that must be performed to produce the various project deliverables.

- **Activity Sequencing:** identifying and documenting interactivity dependencies.

- **Activity Duration Estimating:** estimating the number of work periods that will be needed to complete individual activities.

- **Schedule Development:** analyzing activity sequences, activity durations, and resource requirements to create the project schedule.

- **Schedule Control:** controlling changes to the project schedule.

Project Time Management

- How to present the Project time management:
- **Activity list** shows a short description of each activity, start and end dates, and assigned resource respectively.
- **The bar chart** shows a short description of each activity and relationships of activities with bars next to each activity.
- **Network diagram** shows each activity as a box and duration of the activity is placed in the box. The interrelationship of activities is shown with arrows.

Project Time Management

- Project Time Management is mostly about the relationship of the activities, defining the start and end dates of the activities, creating the project schedule and guaranteeing to end all of the project activities on time.

Project Cost Management

- Project Cost Management includes the processes required to ensure that the project is completed within the approved budget.

Project Cost Management

- **Resource Planning:** determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.

- **Cost Estimating:** developing an approximation (estimate) of the costs of the resources needed to complete project activities.

- **Cost Budgeting:** allocating the overall cost estimate to individual work activities.

- **Cost Control:** controlling changes to the project budget. All changes to the cost baseline need to be recorded and the expected final total costs are continuously forecasted.

Project Quality Management

- Project Quality Management includes the processes required to ensure that the project will satisfy the needs for which it was undertaken.

- It includes "all activities of the overall management function that determine the quality policy, objectives, and responsibilities.

- The three processes associated with Project Quality Management are: Quality Planning, Perform Quality Assurance, Perform Quality Control.

Project Quality Management

- **Quality Planning** – Quality planning identifies the standards which are relevant to the project and how to assure the standards are achieved. This is a key process of the planning process group.

- **Perform Quality Assurance** – Performing Quality Assurance is the execution of the quality activities during project execution.

- **Perform Quality Control** – Performing Quality Control is the monitoring deliverables to evaluate whether they comply with the project's quality standards and to identify how to permanently remove causes of unsatisfactory performance. This process occurs as a part of the monitoring and controlling process group.

Project Quality Management

- These processes interact with each other and with the processes in the other knowledge areas as well.

- Each process may involve effort from one or more individuals or groups of individuals, based on the needs of the project.

- Each process generally occurs at least once in every project phase.

Project Human Resource Management

- Project Human Resource Management includes the processes required to make the most effective use of the people involved with the project.

- It includes all the project stakeholders—sponsors, customers, partners, and individual contributors.

Project Human Resource Management

- The processes in this knowledge area are:
- Plan Human Resource Management
- Acquire Project Team
- Develop Project Team
- Manage Project Team

Project Human Resource Management

- **Plan Human Resource Management**
  - Before any project can proceed, the project team needs to be defined. The main part of this initial planning step involves identifying the number of people that are required and writing out their job descriptions
- **Acquire Project Team**
  - Obtaining workers is often a time-intensive activity. Whether obtaining project team member internally or externally, the tasks involved in advertising jobs, interviewing candidates, and making hiring decisions fall under this process within the Project Execution process group.

Project Human Resource Management

- **Develop Project Team**
  - It isn't enough to hire a project team and expect them to know everything they need to know to execute the project to perfection. Developing the project team should be seen as a constant activity,

- **Manage Project Team**
  - Many books have been written on the subject of managing project teams. But it is clear that project success is heavily dependent on managing the changing roles and responsibilities and performance criteria of the team.

Project Communications Management

- Project Communications Management includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information.

- It provides the critical links among people, ideas, and information that are necessary for success.

- Everyone involved in the project must be prepared to send and receive communications, and must understand how the communications in which they are involved as individuals affect the project as a whole.

Project Communications Management

- Major processes include:

- Communications Planning—determining the information and communications needs of the stakeholders: who needs what information, when they will need it, and how it will be given to them.

- Information Distribution—making needed information available to project stakeholders in a timely manner.

- Performance Reporting—collecting and disseminating performance information. This includes status reporting, progress measurement, and forecasting.

- Administrative Closure—generating, gathering, and disseminating information to formalize a phase or project completion.

Project Risk Management

- Project Risk management is the systematic process of identifying, analyzing, and responding to project risk. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events to project objectives.

- **Risk Management Planning:** deciding how to approach and plan the risk management activities for a project.

- **Risk Identification:** determining which risks might affect the project and documenting their characteristics.

- **Qualitative Risk Analysis:** performing a qualitative analysis of risks and conditions to prioritize their effects on project objectives.

Project Risk Management

- **Quantitative Risk Analysis:** measuring the probability and consequences of risks and estimating their implications for project objectives.

- **Risk Response Planning:** developing procedures and techniques to enhance opportunities and reduce threats to the project's objectives.

- **Risk Monitoring and Control:** monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle.

- These processes interact with each other and with the processes in the other knowledge areas.

- Each process generally occurs at least once in every project.

Project Procurement Management

- Project procurement management is the creation of relationships with outside vendors and suppliers for goods and services needed to complete a project.

- For simplicity, goods and services, whether one or many, will generally be referred to as a product.

Project Procurement Management

- An overview of the major processes includes:
- **Procurement Planning:** determining what to procure and when.
- **Solicitation Planning:** documenting product requirements and identifying potential sources.
- **Solicitation:** obtaining quotations, bids, offers, or proposals, as appropriate.
- **Source Selection:** choosing from among potential sellers.
- **Contract Administration:** managing the relationship with the seller.
- **Contract Closeout:** completion and settlement of the contract, including resolution of any open items.
- These processes interact with each other and with the processes in the other knowledge areas as well.

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