

## CompTIA Project+ Master Cheat Sheet

- **Acceptance:** the decision to tolerate the defects that are found as a result of the quality testing. Tool for risk planning.
- **Acceptance criteria:** the process and the criteria that will be used to determine whether the deliverables are acceptable and satisfactory.
- **Activity definition:** identifying the activities of the project that need to be performed to produce the product or service of the project.
- **Activity duration:** assessing the number of work periods needed to complete the project activities. Usually expressed in hours or days, with larger projects using weeks and months.
- **Activity list:** list of all activities required to complete the work to complete the project also includes an identifier code and the WBS code is associated with. Activities are broken down from the work package level of the WBS.
- **Activity sequencing:** putting activities in logical order and determining whether dependencies exist among the activities.
- **Activity-on-the-arrow PND:** sophisticated approach comes from the 1950's, when the original concept was called AOTA method. Origin of the arrow the "begin activity" sign and the end of the arrow is "end activity" sign.
- **Activity-on-the-node PND:** network diagramming method that allows the project manager to map relationships between activities. With the AON method, the focus is on activities rather than start and end of activities
- **Actual costs:** actual costs are used in earned value management and represent the actual cost of the work performed.
- **Addition:** type of project ending that occurs when projects evolve into ongoing operations.
- **Add/Move/Change projects:** these are generally smaller projects that, as the name implies, add, move, or change some element within an organization. 10% of time is allotted to planning.
- **Adjourning:** the project team, like the project, is not a permanent fixture in the org. at some point the members of the team disperse to other projects.
- **Administrative closure:** this is when the customer or project sponsor documents and accepts the project results. Also needed for terminated projects.

- **Analogous estimating:** relies on historical information to predict estimates for current projects. Aka top-down estimating and is a form of expert judgment.
- **Appraisal costs:** costs of quality that cover activities that keep the product defects from reaching the client, including inspection, testing, and formal quality audits.
- **As late as possible constraint (ALAP):** when a task is specified as ALAP, Microsoft project will schedule the task to occur as late as possible without delaying the dependent tasks. This is default for new tasks when scheduling tasks from the end date. This constraint is flexible.
- **ASAP constraint:** when a task is specified as ASAP, MS project will schedule the task to occur as soon as it can. This is default for new tasks when assigning from the start date. This is a flexible constraint.
- **Assumptions:** beliefs considered to be true, real, or certain for the sake of planning. All project assumptions should be evaluated later in planning to determine their risk for the project should the assumptions prove true.
- **Assumptions log:** an assumption is anything that you believe to be true, but haven't actually proven to be true. These assumptions are proven in the risk management planning. You might assume hardware and software are going to work together.
- **Avoidance:** 1 response to a risk event. The risk is avoided by planning a different technique to remove the risk from the project.
- **Backwards pass:** calculating late start and late finish dates by starting at the end of the network diagram and working back through each path until reaching the start of the network diagram. Part of the critical path method (CPM).
- **Benchmarking:** the process of using prior projects within, or external to, the performing organization to compare and set quality standards for processes and results.
- **Benefit/cost analysis:** the process of determining the pros and cons of any project, process, product, or activity.
- **Benefit measurement methods:** used when comparing the value of one project against the value or benefits or another. Used in project selection models.
- **Bid:** document from the seller to the buyer. Bids are used when price is the determining factor in the decision-making process.

- **Bidder conference:** Aka contractor or vendor conference: This is a meeting with prospective sellers to ensure all sellers have a clear understanding of the product or service to be procured. Allows sellers to query the buyer on the details of the project to ensure the proposal is adequate and appropriate.
- **Bottom-up cost estimating:** the process of creating a detailed estimate for each work component (labor and materials) and accounting for each cost burden. Based on the WBS and WBS dictionary, as they define each element of the project deliverables.
- **Brainstorming:** encourages participants to generate ideas about an opportunity or business problem. Useful to determine different outcomes for the project.
- **Budget:** finances allotted for the project
- **Budget at completion (BAC):** the sum of the budget for each phase of your project. Estimated grand total for the project.
- **Budget estimate:** broad estimate used early in planning process and in top-down estimates. Usually - 10% to +25%.
- **Business case:** document helps the organization to determine if the organization can justify the cost of the project in proportion to the return on investment. Links the value of the project's solution to the organization.
- **Business cycles:** time of the business productivity where activities are very high or low. Accounting firms are high in tax season.
- **Business partners:** sellers, vendors, and contractors that may be involved in a project through contractual relationship. They can provide goods, services such as hardware, software, and SME's for project assistance.
- **Business rules analysis:** if the project outcome will likely affect the way your organization does business, the business rules should be studied. These rules define the internal processes to make decisions, provide definitions for operations and organizational boundaries and afford governance for projects, employees, and operations.
- **Cause and effect diagrams (aka Ishikawa and fishbone):** used for root cause analysis of what factors are creating the risks within the project. Goal is to identify and treat the root of the problem, not the symptom.
- **Centralized contracting:** all contracts for all projects need to be approved through a central contracting unit within the performing organization.

- **Change control board:** determines the validity and need for project change requests and approves or denies them.
- **Change impact statement:** formal response from the project manager to the originator of the project change request form. Summary of the PM's proposed plan to incorporate the changes. Usually a listing of the paths and trade-offs the PM is willing to do.
- **Change control system:** an internal process the PM can use to block anyone, including management, from changing the deliverables of a project without proper justification. Requires the requestor to have an excellent reason to attempt a change, then it evaluates the proposed change impact on all parts of the project.
- **Change log:** document that records all proposed changes in the project, the effect of that change, the change request status, and other relevant information.
- **Chart of accounts:** coding system used by the performing organization's accounting system to account for the project work. Predefined table of costs for project or organization use for commonly completed activities.
- **Checklists:** list of activities that workers use to ensure work has been completed consistently. Used in quality control.
- **Closing:** the period when a project or phase moves through formal acceptance to bring the project or phase to an orderly conclusion.
- **Close procurements:** a process that concerns completing and settling the terms of the contract and documenting its acceptance.
- **Collocated:** when teams work at the same location.
- **Commercial off-the-shelf (COTS):** describes a software application purchased from a vendor, reseller, or manufacturer.
- **Code of accounts:** numbering system that shows the different levels of WBS components and identifies which components belong to which part of the WBS.
- **Coercive power:** power that comes with the authority to discipline the project team members. Aka "penalty power" generally used when team is afraid of the PM.
- **Collective bargaining agreement:** contractual agreements initiated by employee groups, unions, or labor organizations. Can act as constraint on the project.

- **Common causes of variances:** variances that come about as a result of circumstances that are common to the process you're performing and are easily controlled at the operational level. 3 types are random, known, and variances that are always present in the process.
- **Communication channel formula:** formula to predict the number of communication channels within a project.  $N(N-1) / 2$  where  $N$  = number of stakeholders.
- **Communications management plan:** plan that documents and organizes stakeholder needs for communication. Covers the communication system, its documentation, flow, modalities, schedules, information retrieval and other stakeholder requirements.
- **Compromising:** conflict resolution method requiring both parties to give up something. Lose-lose, as neither party wins.
- **Configuration management:** activities focusing on controlling the characteristics of a product or service. Document process of controlling the features, attributes, and technical configuration of any product or service. Aka rigorous change control system.
- **Confronting:** conflict-resolution technique known as problem solving. Win-win solution and uses fact finding to solve the issue.
- **Control chart:** graph of the variances of several samples of the same process over time based on a mean, an upper control limit, and lower control limit.
- **Corrective actions:** type of change request that usually occurs during the monitoring and controlling processes. These actions bring the work of the project back into alignment with the project plan.
- **Constrained optimization methods:** complex mathematical formulas and algorithms that are used to predict the success of projects, variables, within those projects, and tendencies to move forward with selected project investments. Examples include linear programming, integer algorithms, and multi-objective programming.
- **Consultative decision-making process:** the project team meets with the PM and together arrives at viable solutions. The PM then takes the solutions and makes a decision based on what she thinks is best for the project.
- **Contingency plan:** predetermined decision that will be enacted should the project have issues.
- **Contingency reserve:** time or dollar amount allotted as a response to risk events that may occur within a project.

- **Continuous quality improvement:** the theory that all practices within an organization are processes and that processes can be infinitely.
- **Contract:** a legal, binding agreement, preferably written, between a buyer and seller that details the requirement and obligations of both parties. Must include an offer, acceptance, and considerations.
- **Contract administration:** the process of ensuring that the buyer and seller both perform to the specifications within the contract.
- **Contract change control system:** system that defines the procedures for how contracts may be changed. Includes the paperwork, tracking, conditions, dispute resolution procedures, and procedures for getting the changes approved within the performing organization.
- **Contract closeout:** process for confirming that the obligations of the contract have been met as expected. The PM, customer, key stakeholders and sometimes the seller complete the product verification together to confirm the contract is completed.
- **Contract file:** complete indexed set of records of the procurement process incorporated into the admin closure process. Includes the financial information and performance and acceptance of the procured work.
- **Control account plans:** control tool within the project that represents the integration of the project scope, schedule, and budget. Allows management to measure the progress of the project.
- **Control charts:** illustrate the performance of the project over time. Maps the results of inspections against a chart. Typically used in projects or operations that have repetitive activities such as manufacturing, test series, or help desk functions. Upper and lower control limits indicate whether values are in or out of control.
- **Controlling:** the project is controlled and managed. The PM controls the project scope and changes, and monitors changes to the project budget, schedule, and scope by comparing plans to actual results and taking corrective action as necessary.
- **Cost baseline:** this shows what the project is expected to spend. It's usually shown in an S-curve and allows the PM and management to predict when the project will be spending monies and over what duration. Purpose is to measure and predict performance of the project.
- **Cost budgeting:** a process of aggregating the assigned cost to arrive at a budget for the entire project. This process shows the cost over the execution of the project. Results in an S-curve that becomes the cost baseline for the project.

- **Cost change control:** part of the integrated change control system and documents the procedures to request, approve, and incorporate changes to project costs.
- **Cost control:** active process to control causes of cost change, document cost changes, and monitor cost fluctuations within the project. When changes occur, the cost baseline must be updated.
- **Cost estimating:** the process of calculating the costs, by category, of the identified resources to complete the project work.
- **Cost of conformance:** the cost of completing the project work to satisfy the project scope and expected level of quality. Examples include safety measures, training, and quality management activities.
- **Cost of nonconformance:** the cost of completing the project work without meeting the quality standards. The biggest issue here is the money lost by having to redo the project work, others include loss of sales, customers, downtime, and corrective actions to fix problems by not doing to work right the first time.
- **Cost management plan:** this plan details how changes to costs within the project will be managed and the procedures to report and document cost changes.
- **Cost performance index (CPI):** this is a ratio of the actual cumulative dollars spent on a project's work and how closely that value is to the predicted budgeted amount.
- **Cost plus contract:** represents a set fee for the procured work plus a fee for the actual cost of that work. Watch out for vendors that try to use a cost plus a % of costs contract where they expect you to pay for the cost of the materials plus a % fee for the materials. Risky for buyers, as the vendor can inflate the prices by wasting materials. You can add incentives and penalties to these contracts to keep vendors in line.
- **Cost variance:** difference in the amount of budgeted expense and actual expense. Negative variance means more \$\$ spent than was budgeted. ☹️☹️
- **Crashing:** this is the addition of more resources to activities on the critical path in order to complete the project earlier. Results in higher project costs.
- **Critical path:** This is represented in a project network diagram as one or more paths that equate to the longest duration of sequenced activities to reach the completion of all activities in the project. Shows the latest finish and early finish for the project.

- **Critical path method (CPM):** most common approach to calculating when a project may finish. Uses forward and backward paths to reveal which activities are considered critical and which contain float. If activities on the critical path are delayed, the project end date will need to be adjusted.
- **Critical success factor:** elements that must be completed in order for the project to be considered complete.
- **Customers and stakeholders:** can be internal to your organization or external customers purchasing what you created for them.
- **Date constraints:** there are 3 types:
  1. **No earlier than:** specifies that a task may happen any time after a specific date, but not earlier than the given date.
  2. **No later than:** deadline oriented. This task must be completed or must start by this date or else.
  3. **On this date:** this constraint is most time oriented. There is no margin for adjustment as the tasks must be completed or must start on this date, no sooner and no later.
- **Decision model:** formal method of project selection that helps managers makes the best use of limited budgets and human resources. Includes the benefit measurement methods and constrained optimization models.
  - **Decomposition:** the process of breaking project deliverables into smaller, manageable components of work so work packages can be planned and estimated.
  - **Defect repairs:** type of change request that typically comes with monitoring and controlling process groups. They correct or replace components that are substandard or malfunctioning.
  - **Deliverable:** output or result that must be completed in order to consider the project complete or to move forward to the next phase. Tangible and easily measured.
- **Decision tree analysis:** type of analysis that determines which of 2 decisions is best. Assists in calculating the value of the decision and determining which decision costs the least.
- **Decoder:** this is the part of the communications model; it is the inverse of the encoder. If the message is encoded, a decoder translates it back to usable format.
- **Definitive estimates:** one of the most accurate. Used late in the planning process and is associated with bottom-up estimates. Variance is -5% to +10%.



- **Delphi technique:** a method to query experts anonymously on foreseeable risks within the project, phase, or component of the project. The results are analyzed and organized, then given to the experts. Goal is to gain consensus and the anonymous nature allows for honest feedback.
- **Demotivators:** an element of Herzberg's theory that employees are motivated or demotivated by effects within the organization. The hygiene factors are actually the expected benefits a company has to offer, such as insurance, vacation time, and other benefits. Absence of these demotivates workers.
- **Dependencies:** relationships between project activities.
- **Dependency relationships:** they type of dependency between the 2 activities and the specific relationship between the activities.
- **Design of experiments:** this relies on statistical "what if" scenarios to determine which variables within a project will result in the best outcome. It can be used to eliminate a defect. Most often used on the product of the project, rather than the project itself.
- **Detailed variance reports:** detailed explanation of any quality, scope, cost, or schedule variance within the project.
- **Directive decision-making process:** The PM makes the decision with little or no input from the project team. Acceptable and needed in some instances, but will isolate the PM from the team.
- **Discounted cash flow (DCF):** compares the value of the future cash flows of the project to today's dollars.
- **Document control process:** defines how revisions are made, the version numbering system, and placement of them.
- **Duration compression:** use of techniques such as fast-tracking or crashing to shorten the planned duration of a project or to resolve schedule slippage.
- **Discretionary dependencies:** the preferred order of activities: PMs should adhere to the order at their discretion and should document the logic behind the ordering. These dependencies have activities happen in a preferred order because of best practices, conditions unique to the project work, or external events. Known as soft logic.
- **Early finish:** the earliest date an activity may finish as logically constrained by the network diagram.
- **Early start:** the earliest date an activity may start as logically constrained by the network diagram.

- **Earned value management:** EVM integrates scope, schedule, and cost to give an objective, scalable point-in-time assessment of the project. EVM calculates the performance of the project and compares current performance against the plan. EVM can also assist in predicting future success and failure.
- **Earned value (EV):** value of the work that has been completed and the budget for that work.  $EV = \% \text{ complete} * BAC - (\text{Budget at completion})$
- **Economic model:** type of benefit measurement method. A series of financial calculations that provide data on the overall financials of the project.
- **Effective listening:** the receiver is involved in the listening experience by paying attention to the speaker's visual cues and paralingual intentions and by asking relevant questions. Look for body language, too.
- **Encoder:** part of the communications model and encoder is the device or technology that packages the message to travel over the medium.
- **Enhance:** this positive risk response tries to make the conditions right for positive risk to happen. You could save money by finishing up a milestone by a given date, by adding extra resources.
- **Enterprise environmental factors:** the rules and policies of your organization may require you to deal with a risk management department, follow particular risk analysis rules, or complete risk assessment forms. Always follow the org's rules.
- **Estimate at completion (EAC):** represents how much more money is needed to complete the project work.  $ETC = EAC - AC$ .
- **Evaluation criteria:** these criteria are used to rate and score proposals from sellers. In some instances, such as bid or quote, the evaluation criterion is focused on price the seller offers. In some instances, such as proposal, the evaluation criteria can be multiple values: experience, references, certs, and more.
- **Executing:** the project plans are carried out or executed. The PM coordinates people and other resources to complete the plan.
- **Expectancy theory:** people will behave on the basis of what they expect as a result of their behavior, they will work for the expected rewards.
- **Expert power:** a type of power where the authority of the PM or other person comes from experience in the area the project focuses on.

- **Exploit:** positive risk response aims to take advantage of a positive risk. Your team might create a by-product that can take off time from the project.
- **External dependency:** where a relationship between a project task and a factor outside the project, such as weather, drives the scheduling of that task.
- **Extinction:** project ending that occurs when the project is completed and accepted by the stakeholders.
- **Failure costs:** cost if the project fails, including downtime, user support, rework, and scrapping the project.
- **Fast tracking:** doing phases in parallel, rather than sequentially.
- **Feasibility study:** document expression of what your research has told you. Written plan to help determine the validity of a proposed project, section of the project, or scope. This is broken down into 8 sections.
  1. Executive summary
  2. Defined business problem or opportunity
  3. Requirements and purpose of the study
  4. Description of the options assessed
  5. Assumptions used in the study
  6. Audience impacted
  7. Financial obligations
  8. Recommended actions
- **Final project report:** the collection of all cumulative reports may serve as a final record of each phase's work, with few additions. Includes the project vision statement, proposal, WBS, PND, meeting minutes – basically all project paperwork.
- **Finish no early than (FNET) constraint:** this semi-flexible constraint requires that a task be completed on or after a specified date.
- **Finish no later than (FNLT) constraint:** this semi-flexible constraint requires a task to be completed on or before this date.
- **Finish-to-finish:** project task relationship in which the finish of the successor task can't begin until the predecessor is done.

- **Finish-to-start:** project task relationship in which the successor task can't begin until the predecessor task has completed.
- **Fixed-price contracts:** a contract that states a fixed fee for the work that the vendor will perform.
- **Fixed-fee contracts:** fixed fees are generally a low-risk solution for the buyer, as any cost overruns go back to the vendor. Set price for work defined in the SOW.
- **Flexible constraints:** constraints with no dates assigned to their activities and are bound only by predecessor and successor activities.
- **Float time:** the amount of time the early start of a task may be delayed without delaying the finish date of the project. Aka slack time.
- **Flowchart:** diagram showing the logical steps that must be performed in order to accomplish an objective. Also shows how the individual elements of a system interrelate.
- **Focus groups:** type of stakeholder analysis. They are led through a discussion about the opportunity by impartial moderator.
- **Force majeure:** often a clause in contracts to release the parties from obligations in the case of powerful and unexpected events, like natural disasters.
- **Forcing:** conflict-resolution technique where 1 party forces their solution on the others. This is a win-lose solution.
- **Forecasting:** an educated estimate of how long the project will take to complete.
- **Formal acceptance:** the formal acceptance of the project's deliverables is a process that is completed by the client of the project and the appropriate members of the project team. These acceptances are contingent on a project acceptance agreement.
- **Formal power:** type of power where the PM has been assigned by senior management to be in charge of the project.
- **Forming:** the stage of team development allows the project team to come together and learn about each other.
- **Fully burdened workload:** the amount of work, in hours, required by the staff to complete each phase of the project.
- **Formal communications:** planned communications such as project kick-off meetings, team status meetings, status reports, etc.

- **Forward pass:** working from left to right of a network diagram in order to calculate early start and early finish dates for each activity.
- **Functional organization:** form of organizational structure. Traditional, with hierarchical reporting structures.
- **Functional requirements:** define what product of the project will do by focusing on how the end user will interact with the product.
- **Functional decomposition:** this method takes a large problem and breaks it down into smaller, more manageable components.
- **Future value:** formula to calculate the future value of present money
- **Gantt chart:** allows a PM to see the intersection of dates until completion and the tasks within a project. Developed by Henry Gantt, in 1917.
- **Graphical evaluation and review technique (GERT):** conditional advancement, branching, and looping of activities based on problematic estimates activities.
- **Hard logic:** logical relationship between activities based on the type of work.
- **Herzberg's theory of motivation:** suggests there are 2 catalysts for workers: hygiene agents and motivating agents. Hygiene is salary, job security. Motivating is rewards, recognition.
- **High-level requirements:** these explain the major characteristics of the product and describe the relationship between the business need and the product requested. Aka product description.
- **Human resource:** the people with the background and skills to complete the tasks on the project schedule.
- **Human resource planning:** defining team members roles and responsibilities, establishing an appropriate structure for team reporting, securing the right team members, and bringing them on the project as needed for the appropriate length of time
- **Impact:** the consequences imposed if a risk event occurs on the project.
- **Informal communications:** unplanned or ad hoc communications, including phone calls, email, conversations in the hallway, or impromptu meetings.
- **Inflexible constraints:** these constraints have date values associated with them but are very rigid.
- **Invitation for bid (IFB):** document from buyer to the seller that requests the seller provide a price for the procured service or product.
  - **Inspection:** quality control technique that includes examining, measuring, and testing the work.

- **Informal distribution:** providing stakeholders with information regarding the project in a timely manner via status reports, project and review meetings, and email.
- **Initiating:** the first process in a project life cycle and the first of 5 project process groups. This is the formal acknowledgement that the project should begin. Primary result is project charter
- **Integrated change control:** process that influences that factors that cause change, determines if a change is needed or occurred, and manages and monitors all changes.
- **Integration:** a type of project ending where the resources of the project are reassigned or redeployed to other projects or other activities within the organization.
- **Internal rate of return:** the discount rate when the present value of the cash inflows equals the original investment. Projects with higher IRR values are generally considered better than projects with lower IRR. Assumes that cash inflows are reinvested at the IRR value.
- **Ishikawa diagram:** aka fishbone. Quality control technique that shows cause and effects.
- **ISO 9000:** international standard that helps organizations follow their own quality procedures. It's not a quality system, but a method of following procedures.
- **Iterative process:** process repeated more than once. The 5 process groups are repeated throughout the project's life due to change requests, responses to change, corrective action.
- **Key performance indicators (KPI):** helps decide whether the project is on track and progressing as planned by monitoring the project against predetermined criteria.
- **Law of diminishing returns:** law of economics, sometimes called Law of Variable Proportions. States that if one factor of production is increased while other factors remain the same, the overall returns will eventually decrease after a certain point.
- **Lead:** the negative time added to a task to bring it closer to project start date. It's calculated by subtracting time between activities.
- **Licensing per connection:** license required for each workstation to server connection.
- **Licensing per station:** license required for each workstation it's installed on.
- **Late finish:** the latest date an activity can complete without impacting the end date.
- **Late start:** the latest date an activity can start without impacting the project's end date.
- **Lessons learned:** information gathered throughout the project that documents the successes and failures of the project. Used to benefit current and future projects.
- **Lines of communication:** mathematical formula =  $n(n-1) / 2$  n = # of participants.

- **Loaded rate:** rate used for cost estimating of human resources that includes a % of the salary to cover employee benefits, like medical and dental.
- **Logical relationships:** the dependency relationships that may exist between tasks. Finish to start is the most common here.
- **Macro project:** project taking more than 2,000 hours of implementation and \$250,000 to do.
- **Management by project:** characterized by organizations that manages operations as projects.
- **Management by walking around:** method to manage quality and allow yourself to be seen. Basically, letting your team know you are there, without be intrusive.
- **Make or buy analysis:** determines the cost effectiveness of producing goods or services in-house vs. getting from outside of the organization.
- **Managerial reserve:** an amount of money set aside by upper management to cover future expenses that can't be predicted during project planning.
- **Mandatory dependency:** where the relationship between 2 tasks is created by the type of work the project requires.
- **Maslow's hierarch of needs:** theory stating that there are 5 layers needs for all humans: physiological, safety, social, esteem, and self-actualization.
- **Materials:** category that includes hardware, software, utilities, and other supplies.
- **Mathematical analysis:** calculating theoretical early and late start and finish dates for all project activities.
- **McClelland's theory of needs:** person's need for achievement, affiliation, and power.
- **McGregor's theory of X and Y:** X people are lazy, need to be managed. Y people are the opposite.
- **Medium:** part of the communications model, this is the path the message takes from sender to receiver.
- **Matrix organization:** organizational structure where employees report to one functional manager and at least one PM. The FM assigns employees to projects and carries out administrative duties, while the PM assigns tasks associated with project to team members.
- **Metric:** standard of measurement that specifically defines how something will be measured.
- **Micro Project:** project taking less than 2000 hours / \$250,000. About 25% planning time.
- **Mitigation:** reducing the probability or impact of risk.

- **Monte Carlo Analysis:** this process predicts how scenarios may work out given any number of variables. It doesn't actually create a specific answer, but offers a range of possible ones. For example, it could show optimistic, most likely and pessimistic time frames.
- **Milestone:** major deliverable or key event in the project used to measure project progress.
- **Monitoring and controlling:** project process group is where activities are performed to monitor the project's progress and determine whether there are variances from the plan. Corrective action is taken to get the project back on course.
- **Multiple business unit projects:** project initiated by multiple business units.
- **Must finish on (MFO) constraint:** this inflexible constraint is a deadline-oriented task, which must be completed on a certain date.
- **Must start on (MSO) constraint:** inflexible constraint requires a task to begin on a specific date.
- **Negotiating:** leadership technique and conflict-resolution technique. 2 or more parties coming to mutual agreement by explaining their needs.
- **Network diagram:** a depiction of project activities and the interrelationships between those activities.
- **Net present value (NPV):** evaluation of the cash inflows using the discounted cash flow technique, which is applied to each period the inflows are expected. The total present value of the cash inflows is deducted from the initial investment.
- **Nonverbal communication:** about 55% of communication is nonverbal. Includes facial gestures, hand gestures, and other body language.
- **Norming:** once control of the team has been established, the team's focus shifts towards the project work. People are working together!
- **Operational definitions:** quantifiable terms and values used to measure a process, activity, or work result. Aka metrics.
- **Operations:** typically involves ongoing functions that support the production of goods or services. No beginning or end.
- **Order or magnitude:** high-level estimate of the time and cost of a project based on the actual cost and duration of a similar project.
- **Organizational constraints:** within your organization, there may be other projects and milestones to complete before your own project can continue.



- **Ouchi's Theory Z:** theory suggests that workers are motivated by a sense of commitment, opportunity, and advancement. Workers will work better if they are challenged to do so.
- **Organizational planning:** process of addressing factors that may impact how to manage a project team, defining roles and responsibilities for project team members, identifying how the team will be organized, and documenting a staffing management plan.
- **Paralingual:** relating to the pitch, tone, and inflections in the sender's voice that affect the message that is being sent.
- **Parkinson's Law:** work expands to fill the time available for a project.
- **Program evaluation and review technique (PERT):** it graphically illustrates tasks, their durations and dependencies for other work tasks.
- **Parametric testing:** quantitatively based estimating technique that is typically calculated by multiplying rate times quantity.
- **Pareto diagram:** a quality control technique used to rank importance of a problem based on its frequency of occurrence over time. This diagram is based on Pareto principle, aka the 80/20 rule, where 80% of the problems are caused by 20% of the issues.
- **Payback period:** length of time it takes a company to recover the initial cost of producing the product or service of the project.
- **Performance reporting:** collecting information regarding project progress and project accomplishments and reporting it to the stakeholders, project team members, management, and other interested parties. Makes predictions about future project performance.
- **Planned value (PV):** the cost of work that's been budgeted for an activity during a certain time period.
- **Planning:** the process group where the project plans are developed that will be used throughout the project to direct, monitor, and control work results.
- **Post-mortem analysis:** performed when the project is cancelled or ends prematurely. Describes the reason for cancellation or failure and documents the deliverables that were completed.
- **Post-project review:** conducted at the end of project to document lessons learned.
- **Precedence diagramming method (PDM):** network diagramming method that places activity on nodes, which connect to dependent activities using arrows, aka activity on node.
- **Predecessor:** task on network diagram that occurs before another task.

- **Preliminary investigation:** an investigation at project request time to determine the costs and benefits of the project, as well as examine alternatives to the proposed solution in order to determine the feasibility of carrying out the project.
- **Probability:** likelihood a risk event will occur. Expressed as number between 0.0 -1.0
- **Preventive action:** type of change request that usually occurs during monitoring and controlling process group. These actions are implemented to help reduce the chance of a negative risk event.
- **Prevention:** quality control tool that keeps errors from reaching the customer. Less expensive than having to fix issues after they've occurred.
- **Prevention costs:** costs of activities to avoid quality problems, including quality planning, training, and any product or process testing.
- **Procurement planning:** the process of identifying what goods or services will be purchased from outside the organization. It uses make or buy analysis to determine whether goods or services should be purchased outside the organization or produced internally.
- **Product description:** explains the major characteristics of the product and describes the relationship between the business need and the product, aka high-level requirements.
- **Product verification:** occurs in the close procurements process and determines whether the work of the contract is acceptable and satisfactory.
- **Program:** a grouping of related projects that are managed together to capitalize on benefits that couldn't be achieved if the projects were managed separately.
- **Program evaluation and review technique (PERT):** calculates the expected value, or weighted average of critical path tasks to determine project duration by using 3 estimates, most likely, optimistic, and pessimistic.  
Formula =  $\text{optimistic} + \text{pessimistic} + (4 \times \text{most likely}) / 6$  so,  $2 + 6 + 4(4) = 24/6 = 4$ .
- **Progress reports:** reports from the project team members listing tasks each member is working on, current progress of each task, and work remaining.
- **Project:** temporary in nature, with definite start and end dates, creates a unique product, service, or result. Completed when the goals and objectives of the project have been met and signed off on by stakeholders.

- **Project-based organization:** an organizational structure focused on projects. PMs usually have ultimate authority over the project and sometimes the supporting departments such as HR and accounting might report to the PM for decisions.
- **Project champion:** person who fully understands, believes in, and supports the project. Aka the project cheerleader.
- **Project charter:** an official, written acknowledgement and recognition that a project exists. Signed by sponsor and gives the PM the authority to assign organizational resources to the work of the project.
- **Project closure:** the formal acceptance of a project and the activities to formally end the work.
- **Project description:** documents the key characteristics of what is being created.
- **Project execution:** carrying out the project plan: activities are clarified, the work is authorized to begin, resources are committed and assigned to activities, and the product or service is created. Largest portion of budget funds is spent here.
- **Project justification:** documentation in the charter that includes the reason the project is being undertaken and the business need being addressed.
- **Project life cycle:** the grouping of project phases in a sequential order from beginning of the project to the close.
- **Project management:** applying skills, knowledge, and PM tools and techniques to fulfill the project requirements.
- **Project management institute:** world's leading professional project management association
- **Project management knowledge areas:** 9 management groupings:
  1. Integration
  2. Scope
  3. Time,
  4. Cost
  5. Quality
  6. Human resource
  7. Communications
  8. Risk
  9. Procurement

- **Project management office (PMO):** established by organizations to create and maintain procedures and standards for project management methodologies for the organization.
- **Project performance indicators:** measures that the PM uses to determine whether the budget is on track, looks for deviations from schedule or budget.
- **Project plan:** document(s) that constitute what the project is, what it delivers, how processes will be managed. Used as the guideline throughout the executing and controlling phases to track and measure project performance and to make future decisions.
- **Project review:** formal presentation by the PM or team member to the sponsor, client, or stakeholders.
- **Project schedule:** determines the start and end dates for project activities.
- **Project selection:** used to determine which proposed projects are approved to move forward
- **Proof of concept:** a project that undertakes to prove that a specific activity can be done.
- **Qualitative risk analysis:** determining the impact of identified risks on the project and probability they will occur. Aligns risks in a priority order according to their effect on project objectives.
- **Quality planning:** identifying the quality standards that apply to the project, how they work.
- **Quality control:** monitoring the work results to see whether they are fulfilling quality standards set out in the quality management plan, determines whether the end product conforms to the requirements and product description defined during the planning processes.
- **Quality management plan:** describes how the project management team will enact the quality policy and documents the resources needed to carry out the quality plan. It describes the responsibilities of the project team in implementing quality.
- **Quantitative risk analysis:** complex analysis technique that uses mathematical approach to numerically analyze the probability and duration of risk events.
- **Quantitatively based durations:** duration estimate obtained by applying a productivity rate of the resource performing the task.
- **RACI chart:** responsibility assignment matrix that describes the resources needed for the task and their role for that task using the descriptors: **responsible, accountable, consult, inform.**
- **Rebaselining:** setting a new project baseline because of substantial changes to the budget or schedule.
- **Report performance:** process where the PM gathers and documents the collection of baseline data for the project. Includes cost, schedule, scope, and quality data.

- **Request for proposal (RPP):** document sent to potential vendors requesting them to provide a proposal for a product or service.
- **Requirement:** the specifications and characteristics of the goal or deliverable.
- **Resource planning:** process that defines and documents all the resources needed and quantity of resources needed to perform project activities, including human, material, etc.
- **Resource pool description:** listing of all the job titles within a company or department with a brief description of the job.
- **Resource requirements:** document containing a description of the resources needed form all 3 resource types for work packages from the WBS.
- **Responsibility assignment matrix (RAM):** resource chart that defines the WBS identifier, the resource type needed for the WBS element, the quantity of resources needed for the task. Displayed in chart form.
- **Revision:** an update to the approved start or end date of the schedule baseline, usually as a result of approved scope changes.
- **Rework:** an action that is taken as a result of quality activities to correct a defect.
- **Risk:** potential future event that can have either negative or positive results.
- **Risk analysis:** the process used to identify and focus on those risks that are the most critical to the success of your project.
- **Risk identification:** identifying the potential risks and documenting their characteristics.
- **Risk list:** a numbered list of risks that are produced during the risk identification process and are documented within a risk register.
- **Risk management plan:** details how risk management processes will be implemented, monitored, and controlled throughout the life of the project. It does not define responses to individual risks.
- **Risk monitoring and control:** the processes that involve implementing the risk response plan, tracking, and monitoring identified risks, and identifying and responding to new risks as they occur.
- **Risk planning:** identifying, analyzing, and determining how risk events will be managed for a project.
- **Risk response planning:** a process that describes how to reduce threats and take advantage of opportunities, documents the plan for negative and positive risk events, and assigns owners to each risk.
- **Risk trigger:** an event that warns a risk is imminent and a response plan should be created.

- **Run chart:** quality control tool and technique that shows variation in the process over time or shows trends such as improvements or the lack of improvements in the process.
- **Schedule baseline:** the final, approved project schedule that is used during project execution to monitor project progress.
- **Schedule control:** the process of documenting and managing changes to project schedules
- **Schedule development:** calculating and preparing the schedule of project activities, which becomes the schedule baseline. It determines activity start and finishes dates, finalizes activity sequences and durations, and determines activity duration estimates.
- **Schedule performance index (SPI):** measures the progress to date against the progress that was planned. The SPI indicator acts as an efficiency rating. If the result is greater than one, performance is better than expected and you are ahead of schedule. If it's less than one, performance is less than expected and you are behind schedule.  $SPI = EV/PV$ .
- **Schedule update:** any change that is made to the project schedule as part of the ongoing work involved with managing the project.
- **Schedule variance (SV):** the difference between a task's progress as compared to its estimated progress represented in terms of cost. Formula is  $SV = EV - PV$
- **Scope:** the description of the work involved to complete the project. It defines both what is included in the project and what is excluded from the project.
- **Scope creep:** the minor changes or small additions that are made to the project outside of a formal scope change process that causes the scope to grow.
- **Scope control:** the process of documenting and managing changes to the scope. Any modification to the agreed-upon WBS is considered a scope change. Changes in product scope will require changes to project scope, and scope changes always require schedule changes.
- **Scope definition:** per the PMBOK guide, the process of breaking down the major deliverables from the scope statement to create the WBS. For the purposes of the Project+ exam, scope definition is used in a broad sense to cover several scope planning elements, including scope statement and scope management plan.
- **Scope management plan:** defines the process for preparing the scope statement and the WBS. Documents the process that manages project scope and changes to project scope.

- **Scope planning:** the process of defining the scope management plan, the scope statement, and the WBS and WBS dictionary.
- **Scope statement:** documents the product description, key deliverables, success and acceptance criteria, key performance indicators, exclusions, assumptions, and constraints. It's also used for future project decisions.
- **Scope verification:** process that concerns formally accepting the deliverables of the project and obtaining sign-off that they are complete.
- **Scoring model:** one of the benefit measurement methods used for project selection. It contains a predefined list of criteria against which project is ranked. Each criterion has a scoring range and a weighting factor. A scoring model can also be used as a tool to select from the competing vendors.
- **Sequencing:** putting the project activities in the order they will be done.
- **Slack time:** the amount of time allotted to delay the early start of a task without delaying the finish date of a project. Aka float time.
- **Sole source:** requirement that a product or service must be obtained from a single vendor in government work; also includes justification.
- **Solicitation:** obtaining bids and proposals from vendors in response to RFPs and similar procurement documents prepared during the planning process.
- **Sponsor:** an executive in the organization with authority to allocate funds, assign resources, and enforce decisions regarding the project.
- **Staff acquisition:** obtaining human resources and assigning them to the project. May come from outside of the organization.
- **Staffing management plan:** documents when and how human resources will be added to and released from the project team and what they will be working on while they are part of the team
- **Stakeholder:** person or organization that has something to gain / loss as a result of the project
- **Start-to-finish:** task relationship where the finish of the successor task is dependent on the start of its predecessor.
- **Start-to-start:** task relationship where the start of the successor task is depends on the start of the predecessor task.
- **Starvation:** type of project ending where resources are cut off from the project.
- **STAR method:** situation, task, action, and result.

- **Start no earlier than (SNET) constraint:** when you specify a task having SNET, you are assigning that task to start on or after a specific date. Semi flexible constraint.
- **Start no later than (SNLT) constraint:** semi-flexible task, specifying that a task begin by a specific date at the latest.
- **Storming phase:** struggles during team development. Hierarchy is figured out here and the leader is set.
- **SWOT analysis:** strengths, weaknesses, opportunities, and threats.
- **Statement of work (SOW):** contains the details of a procurement item in clear, concise terms and includes the projects objectives, a description of the work of the project, and concise specifications of the product or services required.
- **Status date:** the date where the PM measures how much has been spent on a specific task.
- **Success criteria:** see acceptance criteria
- **Successor:** a task on the network diagram that occurs after another task.
- **Team building:** a way to get diverse groups of people to work together efficiently and effectively. This is the responsibility of the PM. It can involve activities performed together as a group or individually designed to improve team performance.
- **Team development:** creating an open, encouraging environment for stakeholders to contribute, as well as developing the project team into an effective, functioning group.
- **Technical requirements:** aka nonfunctional requirements. The product characteristics needed for the product to perform the functional requirements. Technical requirements usually refer to IT-related projects.
- **Task list:** list of the major steps required from the project's origin to its conclusion. Based on the work packages with the WBS.
- **Time and materials contract:** type of contract where the buyer and seller agree on a unit rate, such as hourly rate for a programmer. The total cost is unknown and will depend on the amount of time spend to produce the product.
- **To-complete performance index (TCPI):** the projected performance level that must be achieved in the remaining work of the project in order to satisfy financial or schedule goals. The formula is  $TCPI = (BAC - EV) / (BAC - AC)$



- **Top-down estimating:** estimating technique that uses actual durations from similar activities on a previous project. Aka analogous estimating.
- **Trend analysis:** mathematical technique that can be used to predict future defects based on historical results.
- **Triple constraint:** time, cost, and quality. This is according to CompTIA. Other sources may list scope rather than quality in their definition.
- **Variance analysis:** the comparison of planned project results with actual project results. The formula is  $VAC = BAC - EAC$
- **Work breakdown structure (WBS):** deliverables-oriented hierarchy that defines total work of the project. Each level is more detailed than the previous level.
- **WBS dictionary:** document that describes the deliverables and their components, the code of accounts identifier, estimates, resources, criteria for acceptance, and any other information that helps clarify the deliverables.
- **Work effort:** that total time it takes a person to complete a task if they did nothing else from the time they started until the task was complete.
- **Workaround:** unplanned response to a risk that is not identified or accepted.
- **Work package:** the lowest level in the WBS. Team assignments, time estimates, and cost estimates can be made at this level. On large assignments, this level is handed off to subproject managers who develop their own WBS to fulfill the requirements of the work package deliverable.
- **Zero-based budgeting:** the budget to be created must always start at the number zero rather than factoring new expenses into a budget from a similar project.