CAPM/PMP Cheat Sheets
Everything You Must Know
to Pass the CAPM and PMP Examinations

"The price of success is hard work, dedication to the job at hand, and the determination that whether we win or lose, we have applied the best of ourselves to the task at hand." - Vince Lombardi

How to Use These Cheat Sheets

Congratulations on your desire to become a CAPM or a PMP! I know you want to pass the PMI exam with the least amount of effort, the most retention of the facts and processes you've learned, and then get back to your life. This booklet will help you do just that. It's designed to help you retain the key PMI-isms you'll encounter on the PMI exam.

Your goal is to memorize and to create your own "cheat sheets" from this document. Don't worry, it's not as difficult as it sounds. The reason you want to be able to re-create a cheat sheet from memory is because you'll re-create these essentials when you sit for your CAPM or PMP examination. And no, it's not really cheating.

The testing center will provide you with six sheets of paper, two pencils, and a non-programmable calculator. First you'll memorize these notes. Then, once your exam experience begins, you'll re-create your notes onto the sheets provided in the testing center. And then your exam suddenly gets much easier.

When you enter the testing center and are seated in front of the testing PC, you'll have 15 minutes to take a tutorial on how to use PMI's testing software. Trust me, if you've ever played solitaire on your computer, you can use the testing software. You will, however, take the 15-minute tutorial anyway. You'll use this 15-minute window to create your notes so that you'll have all of the formulas and facts at a glance during your test. Beware! The tutorial software will stop and the exam will begin if no activity is detected, so be certain to occasionally move the mouse and click through the tutorial directions while you're creating your own cheat sheets.

This is the approach that I use in my PMP Boot Camps. It works. It's the approach I used when I passed my PMP exam and the approach I've helped thousands of other CAPMs and PMPs use for their own certifications.

These cards do not explain the in-depth concepts associated with these formulas and facts. If you need explanations beyond what is provided here, I unabashedly recommended my *CAPM/PMP All-In-One Exam Guide, Third Edition* (ISBN: 0071776044) or contact me directly regarding my PMP Boot Camps (**cs@instructing.com**). All my best to you in your project management endeavors.

> Joseph Phillips
> PMP, Project+, CTT+

Extra Project Management Resources

You can rely on these quick resources for additional PMP information, testing tips, project management careers, and articles on project management.

Instructing.com
www.instructing.com

This is my training organization. I am available for on-site PMP Boot Camps, project management fundamentals courses, and other seminars. You might also be interested in my Online PMP Boot Camp. It's self-guided, but includes everything my live PMP Boot Camp offers.

PMP Study Guide, Fourth Edition
McGraw-Hill
(ISBN: 0071775919)

This is the book I wrote on the PMP examination. If you're looking for a friendly, easy-to-read PMP exam prep, this is it. My book is loaded with over 900 PMP practice exam questions and I explain all of the PMP concepts in-depth.

Lifelong Project

This is a personal and challenging presentation creating an analogy between reaching your life goals and project management. I've delivered this presentation for PMI and organizations around the globe.

Project Management Institute: www.pmi.org

PMI's information-packed web site. You'll visit here for additional exam resources, the exam application, and to communicate with PMI officials. While my books are accurate at the time of printing, exam details can change. Always visit www.pmi.org to check exam specifics.

Gantthead: www.projectmanagement.com

A fine online magazine centering on the career of project management. They offer many free resources but charge a yearly subscription for in-depth articles and templates.

Pearson Education: www.informit.com

Informit is an online community centered on information technology, but I've written several articles for them on project management.

Find Me Online: www.josephphillips.com

Connect with me on LinkedIn, Facebook, and Twitter. All of my available social media connections are on my josephphillips.com web site.

Passing the PMI exam can feel just like a project. Make a plan to pass the exam! One of the first steps in the planning should be the requirements to take the exam. Complete your application online: www.pmi.org.

Set a deadline for the exam and then focus on passing.

WBS Facts

The WBS is a **deliverables-oriented** decomposition of the project scope. Some activities are allowed in the WBS (for example, testing).

The WBS can be based on a previous project and this is a called a **WBS template**, also written as WBT.

The WBS is needed for **five project management activities**:

1. Defining project activities
2. Cost estimating
3. Cost budgeting
4. Identifying the project risks
5. Qualitative risk analysis

Scope baseline is comprised of the project scope statement, the WBS, and the WBS Dictionary.

Chart of accounts is an accounting system to track project costs by category (labor, specific materials, contractor rates). A project's chart of accounts works with the organization's chart of accounts for specific deliverables, work, and/or materials.

Code of accounts is a numbering system to identify the deliverables down to the work package within a WBS. The PMBOK uses a type of code of accounts: PMBOK 5.3.3.2.

The **WBS dictionary** defines all of the project deliverables, resources, cost and time estimates, and associated information for each work package.

Project Selection Methods

Scoring Models
Also known as weighted scoring models, these use a common set of values to "score" each project's worthiness.

Benefit-Cost Ratios (BCRs)

This model compares benefits to costs. Consider a BCR of 4:1 versus another project of 2:5.

Future Value(FV)
How much is the Present Value (PV) worth in the future?

$FV=PV(1+i)^n$ *where*:

FV is the value to be determined

PV is the current investment

i is the interest rate

n is the number of time periods

Present Value
How much will a future value be worth in today's dollars?

$PV=FV/(1+i)^n$ *where*:

PV is the value to be determined

FV is the promised return on investment

i is the interest rate

n is the number of time periods

Net Present Value
This formula finds the present value on the project for each year the project promises a return:

1. Each time period's promised return is calculated into present value.
2. Sum all of the time periods' present value.
3. Subtract the project's original investment from the sum.
4. An NPV greater than one is good, less than one is bad.

Constrained Optimization Methods
Complex formulas to determine a project's worthiness to be selected. Examples include:

- Linear programming
- Nonlinear programming
- Integer algorithms
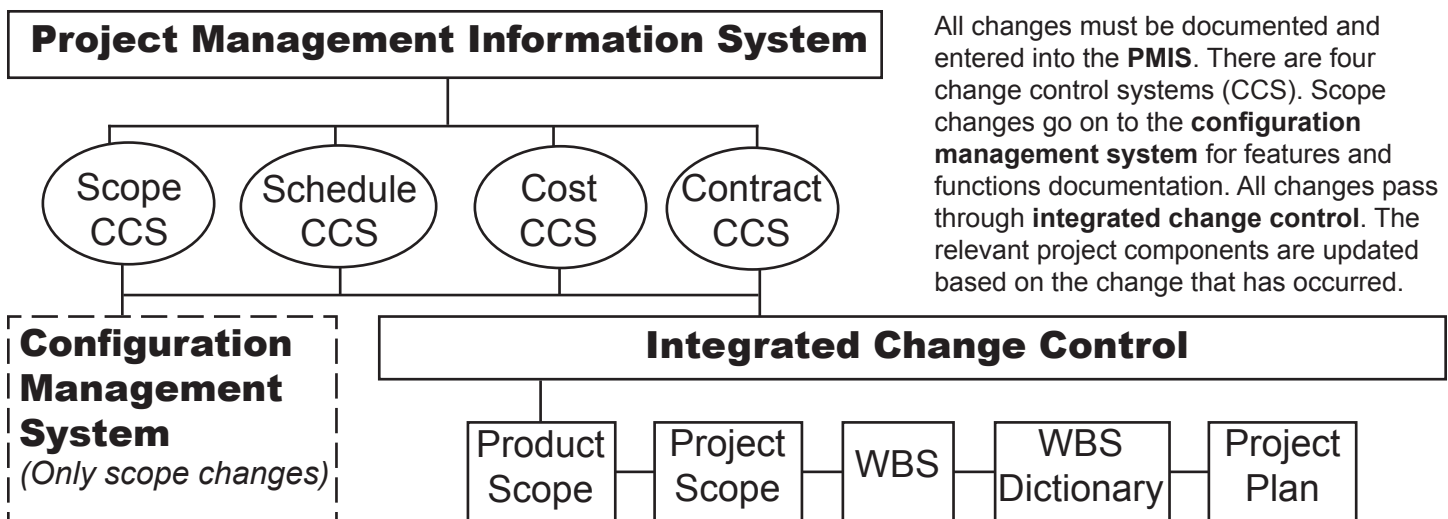- Dynamic programming
- Multiobjective programming

Project Purpose
Projects are chartered to give the project manager the authority to act on behalf of the project sponsor or customer.

Projects are chartered to solve a problem or seize an opportunity.

Project selection is part of an organization's portfolio management process.

Managing the Project Change Control Components

All changes must be documented and entered into the **PMIS**. There are four change control systems (CCS). Scope changes go on to the **configuration management system** for features and functions documentation. All changes pass through **integrated change control**. The relevant project components are updated based on the change that has occurred.

How to Calculate Float
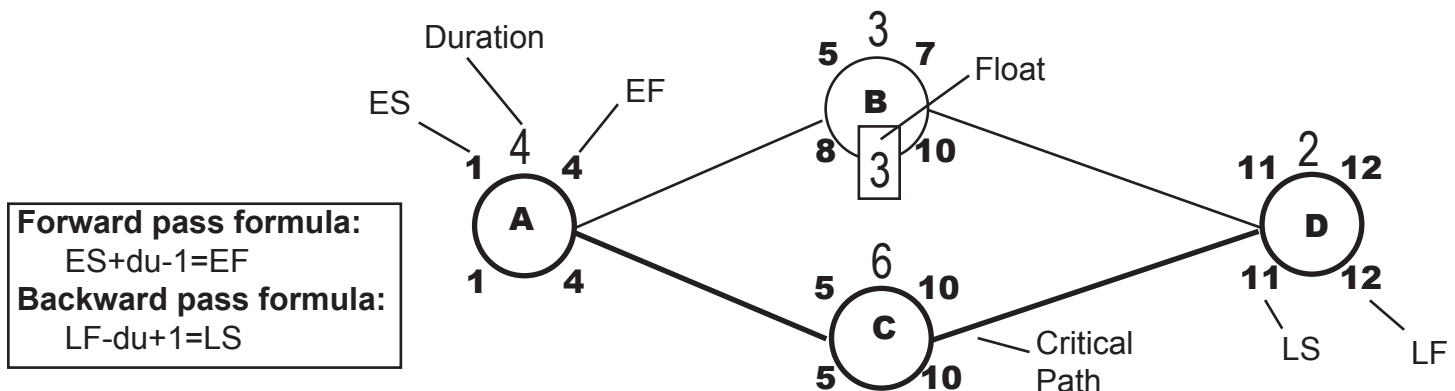
Complete the Forward Pass

1. The Early Start (ES) of the first task is one. The Early Finish (EF) is a task's ES, plus the duration, minus one.
2. The ES of the next task(s) will be the EF for the previous activity, plus one.
3. The EF for the next task(s) equals its ES, plus the task duration, minus one.
4. Use caution with predecessor activities; the EF with the largest value is carried forward.

Complete the Backward Pass

1. Backward pass starts at the end of the PND. The Late Finish (LF) for the last activity in the PND equals its EF value. The Late Start (LS) is calculated by subtracting the duration of the activity from its LF, plus one.
2. The next predecessor activity's LF equals the LS of the successor activity minus one.
3. The LS is again calculated by subtracting the task's duration from the task's LF, plus one.

Calculate Float

1. To calculate float, the ES is subtracted from the LS and the EF is subtracted from the LF. The following illustration shows a completed PND with the float exposed.

Forward pass formula:
    ES+du-1=EF
Backward pass formula:
    LF-du+1=LS

Time Facts

Lag: Waiting time between activities (positive time).

Lead: Activities are moved closer together or even overlap (negative time).

Crashing: Adding resources to reduce the project duration. This adds costs to the project.

Fast tracking: Allows project phases to overlap to reduce the project duration. This adds risk to the project.

Free float: The amount of time an activity can be delayed without delaying the next activity's start date.

Total float: The amount of time an activity can be delayed without delaying the project's end date.

Float: An opportunity to delay an activity. Also called slack.

Task Relationships

Finish-to-start (FS): This relationship means Task A must complete before Task B can begin. This is the most common relationship.

Start-to-start (SS): This relationship means Task A must start before Task B can start. This relationship allows both activities to happen in tandem.

Finish-to-finish (FF): This relationship means Task A must complete before Task B does. Ideally, two tasks must finish at exactly the same time, but this is not always the case.

Start-to-finish (SF): This relationship is unusual and is rarely used. It requires Task A to start so that Task B may finish. It is also known as just-in-time (JIT) scheduling.
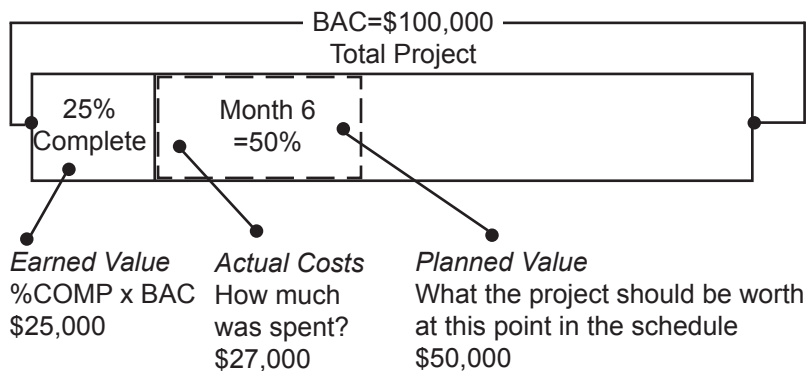
Miscellaneous Time Facts

Three-point estimate: This time estimate approach uses three factors to predict the duration of each task. The formula is (optimisitic + most likely + pessimistic) divided by three. It is an average of the three time factors for each activity.

PERT (Program Evaluation and Review Technique): This approach is weighted on the most likely estimate. The formula is the optimisitic, plus four times the most likely, plus the pessimistic; this sum is then divided by six. I like to write this as (O + (4ML) + P)/6.

Critical chain: This network diagraming approach is based on the availability of project resources to determine project completion. It is more accurate than the traditional network diagram, but is more complex to create.

There are a few float questions on the CAPM and PMP exams.

Earned Value Management

Name	Formula	Mnemonic Device
Planned Value	% planned completion	Please
Earned Value	% complete x BAC	Eat
Cost Variance	CV=EV-AC	Carl's
Schedule Variance	SV=EV-PV	Sugar
Cost Performance Index	CPI=EV/AC	Candy
Schedule Performance Index	SPI=EV/PV	S (*this and the next two spell SEE*)
Estimate at Completion	EAC=BAC/CPI	E
Estimate to Complete	ETC=EAC-AC	E
To-Complete Performance Index (Using BAC)	(BAC-EV)/(BAC-AC)	The
To-Complete Performance Index (Using EAC)	(BAC-EV)/(EAC-AC)	Taffy
Variance at Completion	VAC=BAC-EAC	Violin

BAC=$100,000
Total Project

25% Complete

Month 6 =50%

Earned Value
%COMP x BAC
$25,000

Actual Costs
How much was spent?
$27,000

Planned Value
What the project should be worth at this point in the schedule
$50,000

Five EVM Rules to Memorize

1. Always start with earned value.
2. Variance means subtraction.
3. Indexes are "something" divided by "something" and they show performance for the project objectives.
4. When it comes to any index, the closer to 1 the better.
5. Variances can be positive or negative.

Project Cost Types

Variable costs: The cost of the deliverable, service, or materials can fluctuate based on varying factors.

Fixed costs: A constant "fixed" cost throughout the project.

Indirect costs: An expense that can be shared with other projects or the organization, such as rent, phone, or equipment.

Direct costs: Costs that are directly tied to the project.

Sunk costs are monies that have been invested into a project. Sunk costs are gone, they are "sunk" into a project.

An **opportunity cost** is the amount of an opportunity that is given up. Consider: Project A is worth $55,000 and Project B is worth $89,000, you'd choose Project B to do. The opportunity is $55,000—the amount of Project A that you can't do because of the opportunity of Project B.

Estimate Types

Rough order of magnitude: Simple, early estimate. Range of variance is -25% to +75% for the project completion.

Budget estimate: Early planning estimate and/or top-down approach. Range of variance is -10% to +25% for the project completion.

Definitive estimate: Most accurate estimate, but takes longest to complete; uses the bottom-up approach. Range of variance is -5% to +10% for the project completion.

Bottom-up: Requires a WBS and accounts for each work package.

Analogous: Creates an analogy between projects; also known as a top-down estimate.

Parametric: Uses a parameter (cost per ton, cost per unit) for the estimate.
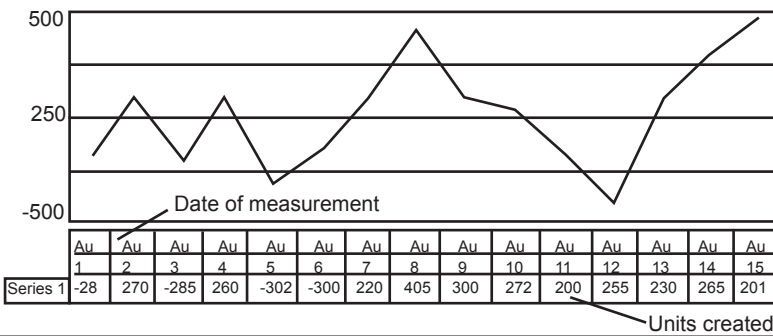
Quality Costs

Cost of quality is the cost to achieve the expected quality on a project. Consider training, safety, and materials.

Cost of poor quality, also known as the cost of nonconformance to quality, is the cost of not achieving quality: rework, loss of life or limb, loss of sales.
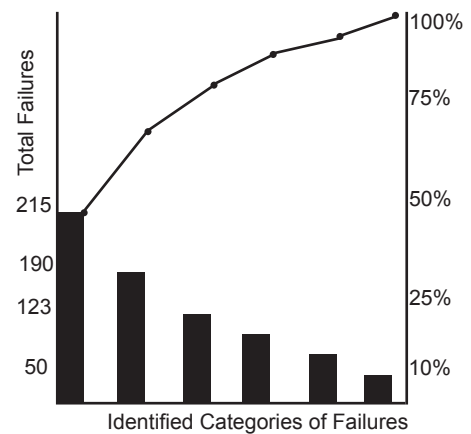
Don't change your answers. Most people change correct answers to wrong answers.
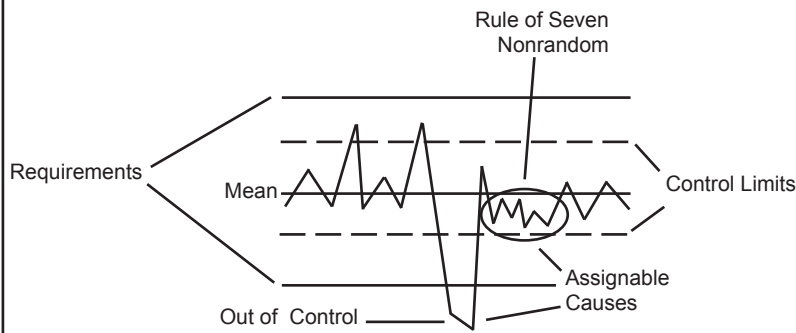
Project Management Charts and Values
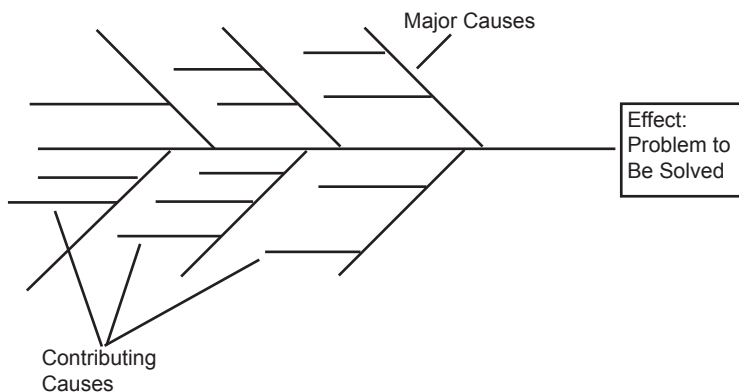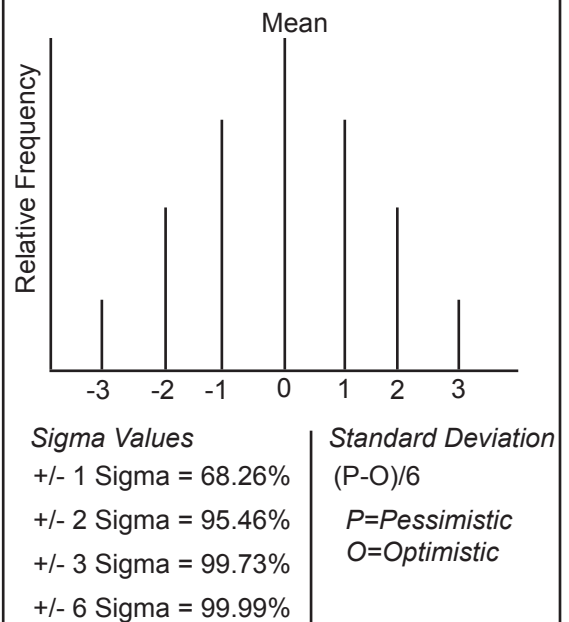
Run Chart

Date of measurement

	Au 1	Au 2	Au 3	Au 4	Au 5	Au 6	Au 7	Au 8	Au 9	Au 10	Au 11	Au 12	Au 13	Au 14	Au 15
Series 1	-28	270	-285	260	-302	-300	220	405	300	272	200	255	230	265	201

Units created

Control Chart

Rule of Seven Nonrandom

Requirements

Mean

Control Limits

Out of Control

Assignable Causes

Cause-and-Effect Chart
Also Called Fishbone and Ishikawa Chart

Major Causes

Effect: Problem to Be Solved

Contributing Causes

Pareto Chart

Total Failures

215
190
123
50

100%
75%
50%
25%
10%

Identified Categories of Failures

Normal Distribution

Mean

Relative Frequency

-3 -2 -1 0 1 2 3

Sigma Values
+/- 1 Sigma = 68.26%
+/- 2 Sigma = 95.46%
+/- 3 Sigma = 99.73%
+/- 6 Sigma = 99.99%

Standard Deviation
(P-O)/6

P=Pessimistic
O=Optimistic

Hard questions and easy questions are worth the same: one point. Don't spend too much time laboring over a question. Choose an answer, mark it for review, and then move on.

Quality Facts

Quality is a conformance to requirements and a fitness for use. It is fulfilling the project scope.

Grade is a category or rank given to entities having the same functional use but different technical characteristics.

Gold plating is the process of adding extra features to drive up costs and consume the budget.

Quality assurance is a *prevention-driven* process to do the project work right the first time.

Quality control is an *inspection-driven* process to keep mistakes from entering the customers' hands.

Scope creep is the addition of small, undocumented changes that bypass the scope change control system. Scope creep is sometimes called **project poison**.

A **scatter diagram** is like a run chart, but it instead tracks the relationship between two variables. The two variables are considered related the closer they track against a diagonal line. Consider the relationship of costs and schedule.

Project Management Professional Theories

Maslow's Hierarchy of Needs

Maslow believed that we have five needs; we're on a quest to satisfy these needs. The needs are, from the bottom up:

1. **Physiological.** We need air, food, clothing, and shelter.
2. **Safety.** We need safety and security.
3. **Social.** We need friends, approval, and love.
4. **Esteem.** We need respect, appreciation, and approval.
5. **Self-actualization.** We need personal growth, knowledge, and fulfillment.

Herzberg's Theory of Motivation

There are hygiene agents and motivating agents. **Hygiene agents** are expectations for employment: paycheck, insurance, safe working environment. **Motivating agents** are motivators for employees such as bonuses, career advancement, opportunity to grow. Hygiene agents will not motivate, but their absence will de-motivate.

Halo Effect

All opinions are formed by one component. A great engineer doesn't always make a great project manager.

Parkinson's Law

Individuals allow their work to consume all of their time. Work will expand to fill the amount of time allotted to it.

McGregor's X and Y

Management's perspective of employees. X people are bad, lazy, and need to be micromanaged. Y people are self-directed. Most managers have X and Y attributes.

Ouchi's Theory Z

Workers do well if motivated. This provides participative management, familial work environment, and lifelong employment. Known as Japanese Management Style.

McClelland's Theory of Needs

Needs are acquired over time and are shaped by life experiences. Our needs are categorized as achievement, affiliation, and power. McClelland used a Thematic Apperception Test (TAT) to determine an individual's needs.

Vroom's Expectancy Theory

People behave based on what they believe (expect) their behavior to bring them.

PMI HR Terms

Role: This person is accountable by the title they possess (network engineer, business analyst).

Responsibility: The owner of the assigned work is accountable for the work.

Authority: Based on organizational structure; autonomy to make decisions, approvals, and manage resources.

Stakeholder Identification

Stakeholder analysis: This is a three-step process of identifying the project stakeholders early in the project, identify the impact/support of each stakeholder, and then plan how to influence stakeholders to act in given situations.

Stakeholder register: Documents stakeholder identification, assessment of influence, and stakeholder type.

Stakeholder classification models: These are grids to plot out stakeholder power, influence, and interest in the project. Here are four common models:

Power/interest grid - how much power/interest do the stakeholders have?

Power/influence grid - how much power/influence do the stakeholders have?

Influence/impact grid - how much influence (involvement of decisions) and impact on project change do the stakeholders have?

Salience model - classifies stakeholders based on power, urgency, and legitimacy for the project.

Project Manager Powers

Expert: The authority of the project manager comes from experience with the technology the project focuses on.

Reward: The project manager has the authority to reward the project team.

Formal: The project manager has been assigned by senior management and is in charge of the project. Also known as **positional power**.

Coercive: The project manager has the authority to discipline the project team members. This is also known as "**penalty power**."

Referent: The project team personally knows the project manager. Referent can also mean the project manager refers to the person who assigned him the position.

Conflict Management

Problem solving: Both parties work together for the good of the project in a spirit of problem solving. Also known as confronting. This is a **win-win** solution.

Compromising: Both parties give up something, often in a heated scenario. This is a **lose-lose** solution.

Forcing: One party quickly forces their solution over another. Often done by seniority. This is a **win-lose** solution.

Withdrawal (also known as avoidance): One party leaves the discussion. This is a **yield-lose** solution.

Smoothing: The differences of the problem are downplayed. This is a delay and is a **lose-lose** solution.

Be careful who sees the stakeholder management strategy because it may contain sensitive information.

Project Communications Management Facts

Communication channels formula: N(N-1)/2, where N represents the number of stakeholders.

55% of communication is nonverbal.

Paralingual: the pitch, tone, inflection of the speaker that affects the content of the message.

Effective listening: watching the speaker's body language, interpreting paralingual clues, asking questions for clarity, and offering feedback.
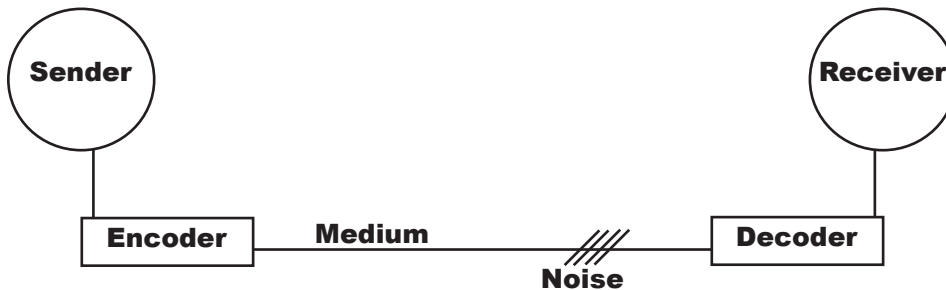
Active listening: participating in the conversation through verbal and nonverbal signs of message receipt.

Messages are **transmitted**; knowledge is **transferred**.

Acknowledgment of a message doesn't mean acceptance of the message.

The **communications management plan** defines who needs what information, when they need it, and in the specified modality.

Communications Model

The **sender** sends the message and it is **encoded**. The **medium** transfers the message. The **decoder** decodes the messsage for the **receiver**. **Noise** on the medium could interfere with the message. **Barriers** prevent communication from happening. An **acknowldgement** of the message doesn't mean agreement with the message. Communication happens when information is **transferred**.

Risk Responses

Avoidance: Avoid the risk.

Mitigation: Reduce the probability or impact of the risk event.

Acceptance: The risk may be small so the risk may be accepted.

Transference: The ownership of the risk is transferred to some other party, usually for a fee.

Exploit: A positive risk that a project wants to take advantage of.

Share: A positive risk that can be shared with the organization or other projects.

Enhance: A response that ensures that a positive risk will likely happen.

Risk Terms

Contingency fund: An amount of funds used to offset a project's risks.

Secondary risks: A risk response creates another risk.

Residual risks: A risk response may create small generally accepted risks.

Triggers: Condition, event, or warning sign that a risk is about to happen. Usually "triggers" a risk response.

Positive risk: Risks with a positive impact.

Negative risks: Risks with a negative impact.

Pure risk: Only offers a negative impact (injury, fire, theft, destruction).

Business risk: Risks that can offer an upside or a downside (both positive and/or negative impacts). Investing in a project is a business risk.

Qualitative analysis: Qualifying the risks for their legitimacy. This is a very quick, subjective approach.

Quantitative analysis: Quantifies the risk exposure based on evidence, research, and in-depth analysis of the risk events.

Utility function: A person's or organization's willingness to accept risk. Relative to the project priority as high-priority projects are typically risk adverse. Also known as risk tolerance.

Quantitative Risk Matrix

Risk	Probability	Impact	Ex$V
A	.60	-$10,000	-$6,000
B	.20	-25,000	-5,000
C	.40	-40,000	-16,000
D	.10	35,000	3,500
Risk exposure			**-$23,500**
Contingency reserve			**$23,500**

The **risks** are identified and recorded in the **risk register**. The **probability** of each risk is found, as is the risk **impact**. The probability times the impact equates to the **Expected Monetary Value (Ex$V)**. Some risks can have a positive impact. The sum of the Ex$V is the **risk exposure**. The positive opposite of the risk exposure is the amount needed for the **contingency reserve**.

Procurement Terms

Contracts: An offer and consideration. Contracts are backed by the court system.

Cost reimbursable contracts: Risk is with the buyer as the buyer pays for cost overruns.

Fixed-price (lump-sum contracts): Risk is with the seller as seller pays for cost overruns.

Time and materials contract: Buyer pays for the time and materials of the vendor. Must have a **not-to-exceed** (NTE) clause.
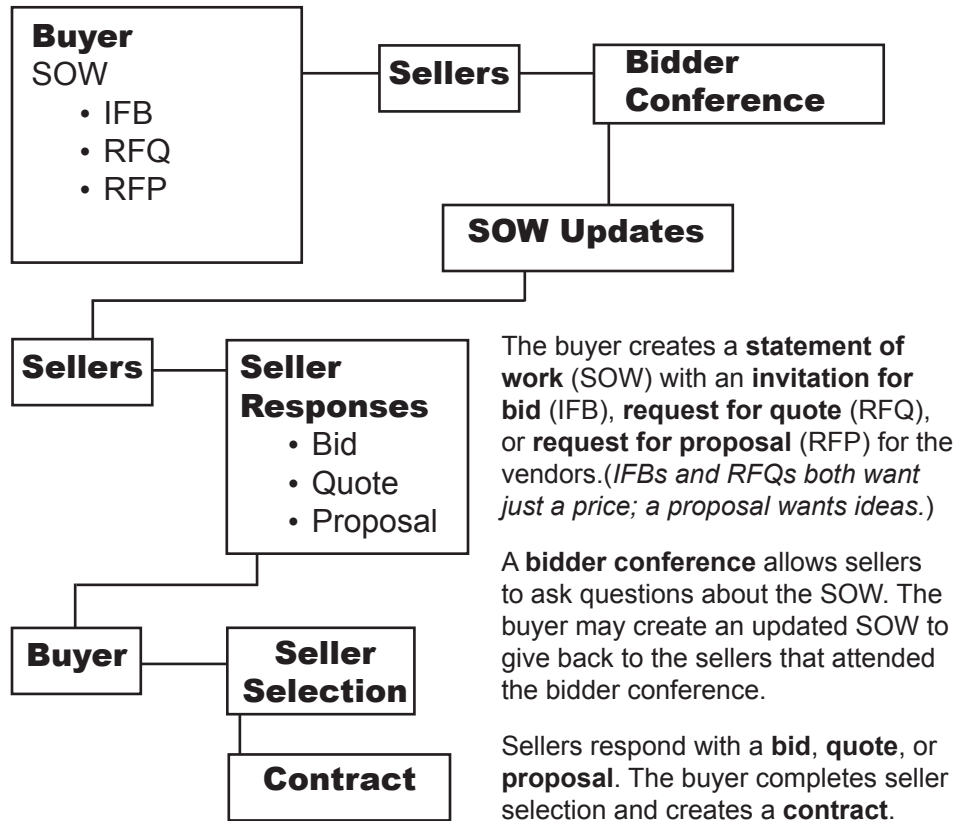
Purchase order: A unilateral form of a contract.

Letter of intent: The buyer tells the vendor they intend to do business with them; not a binding agreement.

Letter contract: Generally short-term purchase used as a stopgap or emergency response.

Bidder conference: Vendors all meet with the buyer to discuss the details of the statement of work so they may prepare a bid, quote, or proposal.

Procurement Process

The buyer creates a **statement of work** (SOW) with an **invitation for bid** (IFB), **request for quote** (RFQ), or **request for proposal** (RFP) for the vendors.(*IFBs and RFQs both want just a price; a proposal wants ideas.*)

A **bidder conference** allows sellers to ask questions about the SOW. The buyer may create an updated SOW to give back to the sellers that attended the bidder conference.

Sellers respond with a **bid**, **quote**, or **proposal**. The buyer completes seller selection and creates a **contract**.

Decentralized contracting is done by the PM; centralized contracting is done with a purchasing agent or through a central procurement office.

Organizational Structures

Projectized

- PM has the most authority.
- Team is typically assigned to the project full-time.
- Competition between teams may hurt the organization.
- Team is uncertain of future work after the project is completed.
- PM is full-time and has full-time administrative staffing.

Strong Matrix

- PM has strong authority.
- Typical full-time resources from functional departments.
- Internal competition may increase for resources.
- Project team members are on multiple projects.
- PM is full-time and has full-time administrative staffing.
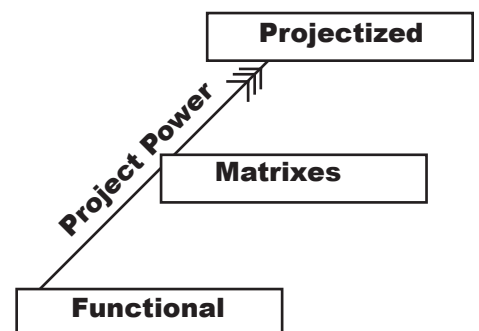
Balanced Matrix

- PM and functional managers balance power.
- Power struggles are common. Internal competition may increase for resources.
- Project team members are on multiple projects.
- PM is full-time and has part-time administrative staffing.

Weak Matrix

- PM has less power than functional managers.
- Internal competition may increase for resources.
- Project team members are on multiple projects.
- PM is part-time and has part-time administrative staffing.

Functional

- PM has little authority.
- Organization is structured by departments or functions (sales, manufacturing, IT, etc.).
- PM may be called a project coordinator or expeditor.
- The functional manager has all of the authority.
- Focus is on completing the project work along with day-to-day work.
- PM is part-time and has part-time administrative staffing.

Organizational structure affects questions; pay attention to who has the power.

10 CAPM/PMP Exam Tips

1. You don't have to do all 47 processes, but you should be familiar with all 47 processes as if you did have to do them in a project.

2. Think of the largest project—like building a skyscraper—when answering questions. This helps you to think of projects beyond your current focus (unless you build skyscrapers for a living).

3. The process groups are not phases of the project management life cycle. Process groups are Initiating, Planning, Executing, Monitoring and Controlling, and Closing.

4. Stakeholder management is a "new" knowledge area in *PMBOK Guide, Fifth Edition*. Invest extra time in Chapter 13.

5. Procurement seems to beat up many PMI candidates. I think this is because it's something the project manager rarely does on her own and because this is one of the last *PMBOK Guide* chapters. Learn the contract types and the general approach to procurement.

6. Project integration management means that the whole project is connected to the rest of the project. What you do in one area affects the rest of the project.

7. It's usually easier to get more time than to get more money. Never go to management with a problem without bringing a solution.

8. The customer is the most important person in the project. Customers are the people that pay for the project and the people that will use what the project creates.

9. Quality is an adherence to the project scope. Low grade may not be a problem. Low quality is always a problem.

10. Saying you can manage a project because you have Microsoft Project is like saying you can write a novel because you have Microsoft Word.

10 Exam-Passing Tips

1. Prepare to *pass* the exam, not *take* the exam. There's a difference in the mindset of preparing to pass an exam compared to just showing up to take the test.

2. Schedule your exam now to create an exam deadline. You can delay the exam forever, but until you get online, complete the application, and set a deadline for the testing day, the exam is just a dreamy goal. Do it now—quit stalling.

3. Create a clutter-free area reserved for studying. You need a clean place to study for the exam. Get rid of the distractions—or go somewhere distraction-free—and put in the hours of study time.

4. Study in regular intervals at the same time the exam is scheduled for. Get your brain trained to study project management every day at the same time. When it's time for your exam, you're already in test-passing mode mentally.

5. Repetition is the mother of learning. Practice all formulas and facts over and over.

6. Use these cheat sheets as your PMI exam foundation. Don't let a day go by without reading through all these tips, formulas, and facts at least once.

7. Answer the questions according to PMI, not "the real world." How you do project management may be entirely different than how you'll be tested. No problem. Answer according to the PMBOK, get your CAPM or PMP, and then get back to the real world.

8. Practice creating your notes that you'll create in the exam testing center.

9. Create a reward for passing your exam and then work toward that reward. Think of something you really want, and give it to yourself when you pass the CAPM or PMP.

10. Make a commitment to pass.

"Nothing in this world can take the place of persistence. Talent will not; nothing is more common than unsuccessful people with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated failures. Persistence and determination alone are omnipotent." - Calvin Coolidge

47 Processes and 10 Knowledge Areas

Knowledge Areas	Process Groups				
	Initiating - 2	Planning - 24	Executing - 8	M&C - 11	Closing - 2
Project Integration Management	Develop project charter	Develop project management plan	Direct and manage project work	Monitor and control project work Integrated change control	Close project or phase
Project Scope Management		Plan scope management Collect requirements Define scope Create WBS		Validate scope Control scope	
Project Time Management		Plan schedule management Define activities Sequence activities Estimate activity resources Estimate activity durations Develop schedule		Control schedule	
Project Cost Management		Plan cost management Estimate costs Determine budget		Control costs	
Project Quality Management		Plan quality management	Quality assurance	Control quality	
Project HR Management		Plan HR management	Acquire team Develop team Manage team		
Project Communication Management		Communications planning	Manage communications	Control communications	
Project Risk Management		Plan risk management Identify risk Perform qualitative risk analysis Perform quantitative risk analysis Plan risk responses		Control risks	
Project Procurement Management		Plan procurement management	Conduct procurements	Control procurements	Close procurements
Project Stakeholder Management	Identify stakeholders	Plan stakeholder management	Manage stakeholder engagement	Control stakeholder engagement	

Spend time on Initiating, Executing, and Closing. There are few processes, but many questions. Work smart, not hard.