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FUNDAMENTALS OF PROCUREMENT CONTRACTS

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Procurement Specification

- **Specification**:
- A precise description of the physical characteristics, quality, or desired outcomes of a commodity to be procured, which a supplier must be able to produce or deliver to be considered for award of a contract.
- Specifications define precise requirements of commodities (i.e., goods and services) sought through a solicitation process.
- The commodity will be used and with clear knowledge of statutes, regulations, policies, market availability, budget, and the strategic plan of the entity, procurement professionals collaborate with end users to translate a particular need into detailed requirements
- There are two types of **specifications**,
  1. Design specifications 2. Performance specification

- **Specifications should be written using attributes of design and performance, as required by the procurement.**
  - A design specification details physical characteristics, materials, and product features, as well as details of the manufacturing methodology for the commodity.
  - A performance specification describes the desired end result or outcome for the commodity.
  - A specification may incorporate features of both design and performance.
  - Specifications may be viewed on a continuum with pure performance on one end and pure design on the other.
  - Each requirement in a specification falls somewhere on this continue.

- **Design specification**

- A design specification establishes the characteristics a commodity must possess, including details of how the commodity will be manufactured; engineering plans, drawings, or blueprints may be included.
- The design specification states in prescriptive terms what the potential offeror must provide to the buyer.
- The objective of a design specification is to meet a custom or unique requirement.
- A design specification is complete and limits the options of the contractor or manufacturer, placing high risk on the buying entity for design errors or omissions within the specification.
- For example, if the desired outcomes from a solicitation are not achieved, the supplier may argue that any poor performance is due to the design that was specified and not the supplier's assembly

- Design specifications may include any or all of the following:
  - Drawings (e.g., engineering plans, blueprints)
  - Dimensions that allow for tolerance levels and ranges
  - Definition of terms
  - Description of materials for cost determination, process of construction, delivery, and implementation of requirements by supplier
  - Minimum requirements
  - Detailed test, sample, and inspection methods to ensure compliance with the specification
  - Industry standards
  - Alternatives that may be considered
- Technical specifications are a subset of design specifications, often used when precise shapes, dimensions, close tolerances, and a high degree of

- **Advantages of design specifications**
  - Provide the end user with increased certainty about the commodity
  - Allow for objective evaluation of offers
  - Award is based on compliance with the specification and made to the lowest responsive offer and responsible offeror
- **Disadvantage of design specifications**
  - Prescriptive, may limit competition
  - Increased risk to entity
  - Loss of innovation
  - Expensive and time consuming to prepare, may require the services of engineers, architects, and other technical resources, as well as multiple levels of review and approval
  - Implementation may be expensive and time consuming. The entity is responsible for inspections, testing

- **Performance specification**
  - A performance specification describes the desired outcome or intended use of a commodity and how the commodity will perform (e.g., number of items, distance to travel, time required). Performance metrics
  - 1 are essential to define acceptance testing and successful
- achievement of outcomes.
  - The metrics may be linked to incentives or disincentives.
- **Performance specifications**
  - Allow offerors to use their expertise, creativity, and innovation to provide a solution. The offeror chooses the method of achieving the outcome.
  - Are used when the method and means of achieving the outcome are unknown.
  - Place a higher degree of risk on the awarded supplier, who is responsible for achievement of the outcome and will be evaluated based on defined criteria.
  - May describe a commodity that will be integrated into existing

- **Advantages of performance specifications**
  - Provide opportunity for innovation; allow offeror to put forth unique solutions to defined needs
  - Allow end user to benefit from the latest products and technologies
  - Corrective action may be applied if service levels are not achieved
- **Disadvantages of performance specifications**
  - Well-defined performance metrics are needed to ensure that the specified performance will achieve the desired outcome
  - Require reliable, practical, economical tests of performance
  - Evaluations are subjective and require additional time and effort to complete

- **Functional descriptions**

- A performance specification may utilize a functional description to define the task or desired result of the commodity.
- Functional descriptions are commonly used for technology-related commodities, and focus on observations or experiences during system usage (e.g., the program, computer peripherals, or other computers).
- **Example**: Upon landing on the website home page, the user is prompted to enter their password and confirm their status using Captcha

- **Advantages of functional descriptions**

- Well suited for information technology products
- Well suited when the options available in the marketplace are unknown

- **Disadvantages of functional descriptions**
  - May result in a wide range of offers that are not necessarily comparable
  - Take more time and effort to develop and to evaluate
- **Brand name description**
  - A brand name description is a title, term, symbol, design, or any combination thereof used to describe a product by a unique identifier and its producer.
  - Performance specifications may use brand names to describe the desired output and quality levels of a commodity.
- **Advantages of brand name descriptions**
  - Allow for agency standardization (e.g., fleet standardization for purposes of training and maintenance)
  - Meet the expectations of the end user by providing the exact commodity needed

- Very restrictive; limit competition
  - Potentially equivalent products are not considered for award; alternative brands would be excluded from consideration
  - May result in increased price
  - May lead to a sole source procurement and create dependency on a
  - specific supplier
- Requires significant justification (e.g., maintenance, compatibility of parts)
- **Brand name or equivalent descriptions (also referred to as "brand name or equal")**
  - A brand name or equivalent description provides one or more
  - manufacturers' brand names with identifying model numbers.
- In a performance specification, a brand name or equivalent description states the standards of quality, performance, and characteristics needed to meet the requirements of the end user.
- To meet the standard of performance of "or equivalent," the commodity must be functionally equivalent to the brand name product but not necessarily the same in every detail.
- A checklist may be included for suppliers to identify how their commodity meets or could be modified to meet the specification requirements.
- When appropriate, the description should include at least two

- **Example**: Comparable pickup trucks might be the Ford F150, Chevrolet Silverado, Ram 1500, or Toyota Tundra.
- **Advantages of brand name or equivalent descriptions**
  - Aid in communicating the desired quality and performance levels to potential offerors
  - Reduce the time required to develop the specifications **Disadvantages of brand name or equivalent descriptions**
  - Considered to be restrictive
  - Require justification
  - May deter competition, which may increase price
  - Must define criteria to determine responsiveness to “or equivalent”
  - Risk of litigation by brand name manufacturer
  - Brand name must be well known throughout a particular

- **When procuring commodities, procurement professionals must provide the needed context to achieve the expected and desired outcomes of the end user.**
- Context refers to how the commodity will be used and conform to an existing environment. Providing context should result in:
  - Specification requirements that will accurately define, represent, and fully expressend user needs.
  - Potential offerors who can provide responsive solutions.
  - Full and open competition, which allows for unbiased decision-making.
  - The ability of the purchasing entity to monitor the procurement and achievethe desired end results.

- Well-written specifications allow potential suppliers to easily read and understand the requirements.
- Well-written specifications encourage suppliers to make offers, thereby maximizing competition and increasing the likelihood of receiving a commodity that achieves the objectives of the procurement.
  - Use language that is consistent, concise, plain, and precise.
    - Avoid ambiguous language
    - Choose simple words over complex ones
    - Avoid use of acronyms and clichés
  - Use proper grammar and punctuation.
  - Use consistent style and formatting.
  - Categorize or group similar items for ease of readability.
  - Organize specification content with a consistent numbering system.
  - Maximize full and open competition.
    - Provide allowable variation in measurement or other characteristics of
      - the commodity

- Ensure specifications are current and relevant.
- Identify physical, functional, environmental, and quality characteristics of the commodity (e.g., design, size, weight, power capacity, output, grade).
- Identify minimum requirements.
- State the required/optional outcomes.
- Clearly convey to potential offerors and other relevant stakeholders the application or intended use of the commodity.
- Identify acceptable commercial standards (e.g., Underwriters Laboratory (UL), Military Specifications (MILSPEC), National Electrical Manufacturers Association (NEMA), International Organization for Standardization (ISO), British Pharmacopoeia (BPUK), United States Pharmacopoeia (USP)).
- Include acceptance criteria.
- Detail how the commodity will be tested or evaluated for

- Provide reproducible test methods.
- Include performance metrics for assessing the achievement of performance outcomes.
- Include a mechanism allowing for specification revision during the course of the contract.
- If using a brand name or equivalent, cite the specific brand name of the manufacturer to establish the standards of quality and required performance.
  - Include details on how the comparison of an “equivalent” or better is to be manufactured
  - When possible, specify at least two acceptable brand name
  - products

- **Poorly written specifications may result In:**
- Less competition; potential offerors may choose not to submit offers.
- A commodity that does not meet expectations.
- Additional costs due to subsequent changes made to the specification.
- Poor relationships with the supplier, end user, and others involved.

- **Avoid the following when writing specifications:**
  - Conjunctions (e.g., and, or, also, with)
  - Escape clauses (e.g., if, when, but, except, unless, although)
  - Mixing different types of requirements (e.g., combining system, business, and design requirements in the same section of a specification)
  - Run-on sentences
  - Speculative language (e.g., usually, generally, often, normally, and typically)
  - Unverifiable or vague terms (e.g., flexible, proper, suitable, reasonable, appropriately, userfriendly, approximately, as possible)
  - Absolute terminology (e.g., 100% safe, totally reliable, runs on all platforms, functioning 100% of time, fully compatible)
  - Ambiguous punctuation (e.g., use of slash “/”)
  - Assumptions n Over or understating the desired quality,

- **Steps for developing specifications**

1. Meet with end users, clients, other stakeholders, and the evaluation committee to understand needs.
2. Seek external assistance, when needed, to provide expertise to clearly and correctly state what is required in terms of capability and capacity.
3. Conduct thorough research of market and trends.
4. Understand the capability and capacity of the supply chain, as well as potential influences (e.g., energy availability, storage for contaminated material).
5. Choose the type of specification based on the identified needs.
6. Conduct analyses (e.g. life cycle cost (LCC), value analysis, value engineering, best value).
7. Clearly identify the supplier's obligations (e.g., risk and responsibility) according to the type of specification chosen.
8. Explain, clarify, and define all compliance obligations.
9. Include essential characteristics and a clear statement of intended use.
10. Include a clear and consistent methodology for determining if all the requirements have been met by offerors.
11. Ensure there is an internal review process by members of the

    - solicitation team to help identify inconsistencies and ambiguities.

- **Output or Outcome based Specifications**

- Output-based specifications define the client's functional requirements for the proposed development.
- The output-based specification is particularly important on public projects as the government preferred procurement routes (design and build, prime contract and private finance initiative) all involve appointing an integrated supply team (including designers, contractors and suppliers) under a single contract to design and construct (and sometimes to finance, operate and maintain) the development.
- The integrated supply team is appointed with no design information, but with just the output-based specification to set out the client's requirements.
- Once the integrated supply team has been appointed, the client may find that changing their requirements can prove expensive.
- See Government Construction Strategy for more information.
- The output-based specification may be a development of the project brief, but it is separate from it as it defines only the outputs that are required from the project (that is, what it will enable the client to do), it does not attempt to address how those outputs might be achieved.
- It is considered by government that this will get best value from the

- integrated supply team by allowing them to adopt innovative

- **Key Performance Indicators**

- A Key Performance Indicator (**KPI**) is a measurable value that demonstrates how effectively a company is achieving key business objectives.
- A performance indicator or key performance indicator (KPI) is a
- type of performance measurement.
- KPIs evaluate the success of an organization or of a particular activity (such as projects, programs, products and other initiatives) in which it engages.
- Key performance indicators (KPIs) refer to a set of quantifiable measurements used to gauge a company's overall long-term performance.
- KPIs specifically help determine a company's strategic, financial, and operational achievements, especially compared to those of other businesses within the same sector.
- Key performance indicators (KPIs) measure a company's success versus a set of targets, objectives, or industry peers.
- KPIs can be financial, including net profit (or the bottom line, gross profit margin), revenues minus certain expenses, or the current ratio (liquidity and cash availability).

- *Performance* focuses on measuring a particular *element* of
- an *activity*.
- An activity can have four elements: input, output, control, and mechanism.
- At a minimum, an activity is required to have at least an input and an output. Something goes into the activity as an *input*; the activity transforms the input by making a change to
- its *state*; and the activity produces an *output*.
- An activity can also have to enable *mechanisms* that are typically separated into *human* and *system* mechanisms.
- It can also be constrained in some way by a *control*.
- Lastly, its actions can have a temporal construct of *time*.
- ***Input*** indicates the inputs required of an activity to produce an output.
- ***Output*** captures the outcome or results of an activity or group
- of activities.
- ***Activity*** indicates the transformation produced by an activity (i.e., some form of work).
- ***Mechanism*** is something that enables an activity to work (a performer), either human or system.

- With both these measures some are more important so we use the extra word “key.” Thus we now have two measures for each measure type:
  1. Key result indicators (KRIs) give the board an overall summary of how the organization is performing.
  2. Result indicators (RIs) tell management how teams are combining to produce results.
  3. Performance indicators (PIs) tell management what teams are delivering.
  4. Key performance indicators (KPIs) tell management how the organization is performing in their critical success factors and, by monitoring them, management is able to increase performance dramatically.
- Many performance measures used by organizations are, therefore, an inappropriate mix of these four types. First I describe each type of measure.

Seven Characteristics of KPIs

1. Non Financial
2. Timely
3. CEO focus
4. Simple
5. Team based
6. Significant impact
7. Limited dark side

- **Non Financial:**

- When you put a dollar sign on a measure, you have already converted it into a result indicator (e.g., daily sales are a result of activities that have taken place to create the sales).
- The KPI lies deeper down. It may be the number of visits to contacts with the key customers who make up most of the profitable business.
- It is a myth of performance measurement that KPIs can be financial and nonfinancial indicators.

- **Timely**:
  - KPIs should be monitored 24/7, daily, or perhaps weekly for some.
  - It is a myth that monitoring monthly performance measures will improve performance.
  - A monthly, quarterly, or annual measure cannot be a KPI, as it cannot be key to your business if you are monitoring it well after the horse has bolted.
- **CEO focus:**
  - All KPIs make a difference; they have the CEO's constant attention due to daily calls to the relevant staff.
  - Having a career-limiting discussion with the CEO is not something staff members want to repeat, and in the airline example innovative and productive processes were put in place to prevent a recurrence.
- **Simple**:
  - A KPI should tell you what action needs to be taken.
  - The British Airways late-planes KPI communicated immediately to everyone that there needed to be a focus on recovering the lost time.
  - Cleaners, caterers, baggage handlers, flight attendants, and front desk staff would all work some magic to save a minute here and a minute there while maintaining or improving service standards

- **Team based**:
  - A KPI is deep enough in the organization that it can be tied to a team.
  - In other words, the CEO can call someone and ask, "Why?" Return on capital employed has never been a KPI, because it cannot be tied to a manager—it is a result of many activities under different managers.
  - Can you imagine the reaction if a GM was told one morning by the British Airways official "Pat, I want you to increase the return on capital employed today."
- **Significant impact**:
  - A KPI will affect one or more of the critical success factors and more than one balanced-scorecard perspective.
  - In other words, when the CEO, management, and staff focus on the KPI,
- the organization scores goals in many directions.
  - In the airline example, the late-planes KPI affected all six balanced- scorecard perspectives.
  - Again, it is a myth to believe that a measure fits neatly into one balanced- scorecard perspective
- **Limited dark side**:
  - Before becoming a KPI, a performance measure needs to be tested to ensure that it creates the desired behavioral outcome (e.g., helping teams to align their behavior in a coherent way to the benefit of the organization).
  - There are many examples where performance measures have led to

- These are the four categories under which you should be thinking about your project management KPIs.
- We have listed the categories and a simple definition below:
  1. **Timeliness:** This is making sure your project is done on time—and if it's not, tracking where it's off-target is important so you can always have an estimated completion date.
  2. **Budget:** Are you going to stay under the budget you've allocated, or is the project exceeding costs?
  3. **Quality:** How well has the project progressed? Are those working on it or benefitting from it satisfied?
  4. **Effectiveness:** Are you spending your time and money appropriately, or could you be managing the project more effectively?

- **Timeliness KPIs**

- **Cycle Time:** The time needed to complete a certain task or activity. This is
- helpful for repeated tasks in a project.
- **On-Time Completion Percentage:** Whether or not an assignment or task is completed by a given deadline.
- **Time Spent:** The amount of time that is spent on the project by all team members—or, if you like, by each team member individually.
- **Number Of Adjustments To The Schedule:** How many times your team has made adjustments to the completion date of the project as a whole.
- **FTE Days Vs. Calendar Days:** How much time your team is spending on a project by calendar days, hours, and/or full-time equivalent work days.
- **Planned Hours Vs. Time Spent:** How much time you estimated a project would take versus actual hours. If the time spent differs from the amount of time anticipated, it's a flag that you underestimated the resource allocation or budget, and your timeline may be affected.
- **Resource Capacity:** The number of individuals working on a project multiplied by the percent of time they have available to work on it. This project KPI helps to properly allocate resources (and determine any hiring needs) and set an accurate project completion timeline.
- **Resource Conflict YOY:** Comparing the number of projects with resource conflicts year over year (YOY). Not having the resources to complete projects or having employees assigned to several projects at a time can lower efficacy. KPIs that compare these conflicts will show whether the situation is a persistent problem or one-off situation that needs to be addressed.

- **Budget KPIs**

- **Budget Variance:** How much the actual budget varies from the projected budget. To track this KPI, measure how close the baseline amount of expenses or revenue is to the expected value.
- **Budget Creation (Or Revision) Cycle Time:** The time needed to formulate an organization's budget. This includes the total duration of research, planning, and coming to a final agreement.
- **Line Items In Budget:** Line items helps owners and managers keep track of individual expenditures—and provide a more detailed way to see how the budget was spent.
- **Number Of Budget Iterations:** The number of budget versions produced before its final approval. A higher number of budget iterations means more time is being spent planning and finalizing a budget.
- **Planned Value:** The value of what's left to complete in a project— in other words, the planned cost of what still needs to be done. For example, if you have a $20K budget and 30 percent of the project remaining, the planned value of the remaining work is $6K. Use this project KPI to compare against the actual cost and adjust the budget if needed.
- **Cost Performance Index:** Compares the budgeted cost of the work you've accomplished so far to the actual amount spent. This is a ratio to measure the expense efficiency of a project—earned

- **Quality KPIs**

- **Customer Satisfaction/Loyalty:** Whether or not someone is satisfied and would come back again. This can be measured effectively by a survey. This comes more into play when the project deals directly with a client or customer.
- **Net Promoter Score:** Similar to customer satisfaction and loyalty, NPS (or **Net Promoter Score**) is a user satisfaction KPI measured by a one-question survey whose purpose is to gauge brand loyalty.
- **Number Of Errors:** How often things need to be redone during the project. This is the number of times you have to redo and rework something, which affects budget revisions and calendar revisions as well.
- **Customer Complaints:** Keep in mind that the "customer" of a project could be someone internal—does someone from your organization complain because someone else isn't getting things done?
- **Employee turn Rate:** The number or percentage of team members who have left the company. If your project teams have high turnover, it might indicate the need to improve management and the work environment. Churn ultimately

- **Effectiveness KPIs**

- **Number Of Project Milestones Completed On Time With Sign Off:** There are different parts within a project—are they being completed in a timely manner? Additionally, were the milestones completed and approved by the owner or buyer?
- **Number Of Returns:** If you have a capital project that requires many parts, you may track the return rate of those parts; this helps you see if you did a good job planning or adjusting to the project during implementation.
- **Training/Research Needed For Project:** You may track this in hours, number of courses, or something similar. If you need to do a lot of this, your project might get started later than you hope. Another way of looking at this is asking, “What percent of resources did you have at the beginning of the project that were qualified to immediately begin working on the project?”
- **Number Of Cancelled Projects:** Tracking how many projects have been paused or eliminated. A high number of cancelled projects could indicate a lack of planning, lack of goal alignment, or an inability to take on new projects.
- **Number Of Change Requests:** The number and frequency of changes requested by a client to an established scope of work. Too many changes can negatively affect budgets, resources, timelines, and overall quality.

- **Return On Investment (ROI):** Encompassing all of the previous four KPI categories, ROI calculations measure the financial worth of a project in relation to its cost. Will the project result in a positive payback for the company or client? What is its financial potential or value? Are there other projects or investments that would yield a higher ROI? This KPI is often used when determining whether to initiate a project, or to compare the value of two different projects.

- **What makes a good KPI?**

- Choosing which project management KPIs to track and measure is only the first step. Next, you have to define your KPIs in a manner that gives them clarity and focus.
- There are project management KPI templates you can use to help, but it's most important to remember to be S.M.A.R.T. With this acronym as your guide, you'll be able to create effective project measures that are:
  1. Specific
  2. Measurable
  3. Attainable
  4. Realistic
  5. Time-Bound

- Your KPIs should be agreed upon by all involved parties before
- initiating a project, and then measured and monitored as a tool for

THANK YOU