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STANDARD

Procuring IT requires "the involvement of all key stakeholders at an early stage (procurement, legal, budget/finance, security, IT, and business leadership)." (Kelly et al., 2015). Knowledge of the specific IT area for the commodity being procured, including terminology and attributes, is essential. Procurement must also be familiar with laws and entity policies, processes, and procedures that guide the procurement.

Definition

IT Procurement refers to the procedures and processes to acquire hardware and software products and services, including professional assistance and operations and maintenance.

Element 1: Procurement must be familiar with IT terminology and collaborate with the end user and supplier to collect the needed information for writing specifications.

IT procurement includes four types of commodities, procured individually or in combination (e.g., library self-checkout hardware with installed software, telecommunications systems, fleet management systems).

The four types of IT commodities include:
- Software
- Hardware
- Services
- Support and maintenance

When preparing to write specifications for IT procurements, the procurement professional should ascertain which commodity type of IT is being procured and gather relevant information. Procurement must recognize the difference in complexity between buying a tool or small specialized software and buying an integrated system.

Software refers to the programs used on devices to perform specific functions. When procuring software, determine:
- If commercial off-the-shelf (COTS) software should be considered and if the COTS software package can be customized.
  - Determine what kind and how many software licenses are needed, desired, and/or currently in place. Examples of software licenses include:
    - Seat license
    - User license
    - Enterprise license
    - Subscription

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- If the proposed software solution is Software as a Service (SaaS). If so, consider:
  - How the software will be hosted (onshore or offshore, remotely hosted, cloud hosted, locally hosted, web hosted, or local client solution)
  - Which local statutes, rules, and policies allow for hosting
  - Availability of security patches
  - How often updates are provided
  - Provisions for data and network security
  - Maintenance provided for the software
  - Scheduled updates
  - Service Level Agreements (SLA)
- The type of end user support and training to be provided.
  - Help desk/Help ticket support
  - Online help files/Training files
  - Onsite/Offsite training
- What other programs the software will need to interact with and how the software and programs will interact.
  - Data integration and mapping
  - Performance enhancements
  - Reporting
  - Data security and integrity
- Which parts of the system and the system work flow can be tailored to meet the needs of the procurement.
  - Labels
  - Fields
  - Data Tables
  - Reports
- How the ownership of customized code or solutions will be addressed.
- Where the resultant data will be housed and who will have ownership (Digital Communities, 2014).
- Data privacy concerns or specialty requirements (e.g., Health Insurance Portability and Accountability Act of 1996 (HIPAA), Federal Tax Information (FTI)) (DSPI, 2014).
- If additional third party applications will be needed to meet the needs of the procurement. (If yes, refer to licensing and hosting bullets above.)
- What type of support is provided for customized portions of the software.
- If the software is unique and specialized, requiring custom software development. If custom development is needed, then determine:
  - The type of software development process being used (e.g., waterfall, agile, interactive development)
  - How the software will be hosted and where the data will be retained (e.g., locally, third party, cloud-based)
  - The type of software needed for integration and the platform for data storage being used
  - The responsibility for data entry or migration of existing data to the new software
  - The type of maintenance and support provided or needed (e.g., User Acceptance Testing (UAT), software bugs, missing functionality, documentation)
  - The type and length of warranty granted on the customized software

Hardware refers to the physical parts of a computer and related devices. When procuring hardware, considerations include:
- The purpose of the hardware (e.g., entity-wide, individual).
- The type of hardware being procured.
  - Enterprise support equipment (e.g., servers, network hardware, workgroup printer)
  - End user equipment (e.g., workstation, laptop, desktop, monitors, tablets, desktop printer)

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- The hardware currently being used by the entity (e.g., brand specific/standardized workstations or printers).
- Issues of infrastructure compatibility.
- The anticipated lifespan of the hardware and warranty.
- Device disposal for either current hardware or new purchases (e.g., recycle, trade-in).
- An option for leasing the desired equipment.
- Other options (e.g., data center services: hosted server services, virtual server services, cloud storage, specialized computing equipment: medical testing equipment).
- Any needed installation or configuration services.
- The regular and/or specialized maintenance requirements and who can provide the service. (May require a service level agreement)

Services (e.g., consulting, programming, data processing) refer to professional assistance provided to a client by a supplier for a fee. In the IT sector, such suppliers assess needs, weaknesses, ways to improve systems, write software code, process data, implement new or updated systems, and migrate old systems to new. Entities should consider a variety of factors when procuring IT services, including:

- The focus area of the consulting engagement (e.g., network topography, system integration, system migration, system or program review).
- The identification of the required programing and data processing skills.
- The implementation or migration background assessment.
- The verification of supplier qualifications (e.g., consulting experience, programming experience).

Support and Maintenance Services refer to preventive and remedial assistance to physically repair or optimize hardware, including basic installation, contract maintenance, and per-incident repair both on-site and at a centralized repair depot. Support may also entail the issuance of any new releases of the software to existing clients. Considerations when procuring support or maintenance services may include:

- The process the supplier implements for handling technical support requests.
- The supplier's assessment of the existing systems and software.
- The supplier's cyber-security expertise and remediation and restoration plans.
- The supplier's backup plans and disaster recovery capabilities.
- IT infrastructure setup and/or support by the supplier.
- The response and resolution times for repair and the hours of support provided by the supplier.
- The capacity of the supplier's support department to handle, respond to, and resolve issues.

Element 2: The procurement professional must consider the potential impacts, including disruptions to current business rules and procurement processes, of the IT to be purchased.

IT acquisition often requires long-term relationships with consultants and suppliers working in close proximity with entity staff. The transparency and integrity of contractual relationships with suppliers and consultants must be maintained. Best practice prohibits the consultant who helps draft specifications for software and hardware from responding to the resulting solicitation. This preserves ethics, impartiality, and transparency and maximizes competition.

Automation that results from the addition of IT may adversely affect existing procurement checks and balances. The entity must examine the consequence of automation of specific steps on the oversight of procurement processes.

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Element 3: The procurement professional must be familiar with the unique terminology of IT, the unique attributes of IT commodities, and the unique aspects of the IT industry that impact the procurement.

As with any specialized field of knowledge, technology and technology procurement use a unique vocabulary and acronyms. In order to work effectively with the IT industry, the public procurement professional must be familiar with and possess a working knowledge of technology terms.

Unique attributes of the IT industry may include:
- A high level of complexity (e.g., interdependencies, compatibility, obsolescence issues).
- A high level of risk (e.g., continuity of operations, insurance, indemnification, bonding).
- The economic and legal consequences of stored data.
- Continual and rapid change.
- Distinct terms and definitions.

These unique attributes often result in:
- A long procurement cycle.
- The need for legal review of agreements.
- The need for dedicated teams to manage the procurement and deployment.
- The requirement for increased flexibility and agility to accommodate changes in IT during the RFP process and throughout the length of the contract.
- An awareness of how bonding and insurance are affected by off-site technology and support staff.
- The need for intellectual property protection by the entity and supplier.
- A determination of indemnification.
- Utilization of specialized knowledge and expertise by external consultants.
- End users that may not know what requirements to specify.

The attributes of complexity, risk, and continual and rapid change are intrinsic to the IT industry. Procurement must understand and plan for the considerations that result from these attributes.

IT procurement is characterized by a high level of complexity (Virginia, 2016) due to:
- Training required.
- The need for integration and compatibility with the existing systems.
- Legal issues (e.g., data, software ownership).
- Negotiations with single or multiple suppliers.

IT procurement is characterized by a high level of risk (Public CIO, 2014) due to:
- Maintenance of the current system while the new system is implemented.
- High cost of IT.
- Legal requirements for the retention, security, and privacy of data.
- Security and vulnerability issues (e.g., access, location, and integrity of data).
- Significant consequences for the disruption, breach, failure, and/or loss of current data.
- The likelihood of software being breached.
- Possible reductions in force.
- Incompatibility with existing infrastructure.
- Required support of organizational management to ensure appropriations.
- The stability of the supplier and supplier's ability to provide support.
- The rapid rate of obsolescence.
- Difficulty in achieving efficient and appropriate use of the technology.
- Impacts of technology on organizational culture.

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Continual and rapid change of IT requires the procurement professional to consider, determine, and plan for:
- Standardization versus customization.
- Agility.
- Frequency (e.g., annually) of reopening the award process to add new providers.
- Increased cost of any change.
- Compliance with current laws.
- The gap between current procurement processes and procedures and rapid and continual advances in IT (e.g., obsolescence).

Element 4: Knowledge of the IT market is essential.

Because high-powered companies (e.g., Microsoft, Google) often supply IT, knowledge of the market is crucial to "leveling the playing field" for negotiations. Knowledge can be gained through:
- Attending trade shows and industry days.
- Consulting with end users and suppliers.
- Subscribing to resources (e.g., white papers and research).
- Joining independent trade groups.
- Networking with colleagues.
- Conducting Requests for Information (RFIs).

Element 5: When procuring IT, the procurement plan should consider including additional steps and initiatives.

The unique attributes and complexity of IT procurement often necessitate additional solicitation steps and initiatives. Procurement must determine which methods, processes, steps, and initiatives are appropriate for each IT procurement. Examples include:

Requests for Information (RFI)
Entities may issue an RFI before writing a scope of work and specifications to gather supplier information in a systematic, transparent, and impartial manner. The information can help determine the need and lead to a scope of work and specifications that are more likely to achieve the desired outcomes.

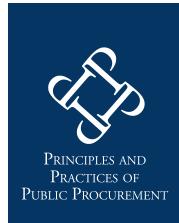*Re-Designing Business Processes*
Governments should examine existing business processes (e.g., for archaic, ineffective, or inefficient processes) before asking IT suppliers to provide a solution. Prior to developing a solicitation, the entity should:
- Eliminate and combine steps whenever possible.
- Examine the necessity of each step.
- Examine the timing of each step.
- Allow for flexibility in the RFP process.
- Familiarize suppliers with the entity's processes.
- Encourage suppliers to suggest process improvements.
- Regard suppliers as valuable resources during and after the RFP award.

Strategic Sourcing
To employ strategic sourcing, the cumulative value of IT procurements to the government must be known by all parties. Grouping like purchases together is critically important to reduce the purchase and processing costs associated with IT procurement. Use of strategic sourcing may:
- Reduce purchase and processing costs.
- Reduce ordering redundancy.
- Reduce staff time.
- Support standardization (e.g., compatibility or volume procurements).

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Pilot Programs
Pilot programs allow small, innovative start-up IT businesses to offer real, cost effective solutions and still compete in the formal solicitation for the project. Micro-sized businesses may be able to develop an IT solution that can potentially address a specific issue in the government. By requiring the suppliers to create a working pilot model of the proposed software, the entity will benefit by knowing that the proposed solution is functional before an award is made. This practice also may avoid delays due to flawed solutions and enable participation by small innovative firms.

Negotiation
Before starting the procurement process, the entity must determine whether or not prices and terms can be negotiated. When possible, negotiation of terms and conditions should be conducted at the beginning of the process, allowing a shared understanding by suppliers and staff. Some governments are revising the rules for IT procurement to allow for increased flexibility and more realistic terms and conditions. While the standardization of goods, processes, procedures, and terms may lead to improved efficiencies and cost effectiveness, many standard governmental terms and conditions conflict with the current standard terms and conditions in the IT marketplace. The process may suffer if there is no ability to negotiate the terms and conditions, resulting in highly qualified suppliers choosing not to participate (NIGP, 2013). The entity must also determine if federal, state, and local laws apply that would limit the entity's ability to conduct negotiations.

Product Demonstrations
Supplier demonstrations benefit the procurement process and often lead to better outcomes. Demo scripts should be written to reflect the real world environment and/or situations in which the technology will be used. These scripts should be used to "break" or test the system. The entity will determine who writes the script for the demonstration.

Established Timelines
The entity must determine an estimated, but realistic, procurement timeline that allows for additional steps and initiatives, and ensure that all interested parties comply with the timeline. Entity policies and procedures that impact the processes allowed must be reviewed prior to the procurement process and should be considered when developing the timelines.

Background

IT procurement typically is complex and involves significant risk (Virginia, 2016), but need not be overwhelming. Proper planning, policy and procedural adjustments, market research, and other efforts described in this document will help guide the procurement professional through some of the complexity and risk inherent in IT procurement.

In the 20th century, IT procurement often referred to on-premises software and infrastructure installations. In the 21st century, IT likely refers to a range of cloud-based and as-a-service solutions. During the transition from the 19th to the 20th centuries, the procurement process transitioned from a focus on delivering goods for the least cost (achieved through an Invitation for Bids (IFB)) to the consideration of a range of factors and a focus on best value (achieved through an RFP). With best value being considered, subjectivity entered into the evaluation process, allowing the government to award contracts to favored suppliers. As a result, entities imposed oversight requirements to ensure accountability and transparency.

The RFP process, as it has evolved, does not always allow enough creativity and flexibility for the effective procurement of IT. Rigid terms and conditions directed toward the purchase of traditional products inhibit IT procurement, now more of a service than a product. Among others, the National Association of State Chief Information Officers (NASCIO) and the National Association of State Procurement Officials (NASPO, 2016) recommend changes in procurement process and policy to better integrate the flexibility and agility necessary to align with the rate of innovation and the services aspect of IT. At the same time, Procurement must safeguard transparent and ethical processes. The guidelines provided in this document address the multiple needs and issues of ethical and agile IT procurement.

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