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Evaluator's Handbook Information Technology

WASHINGTON STATE
Office of Financial Management
State Human Resources

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Document Revision History

Version	Date	Description	Reviser
1	June 2017	Initial Handbook	Angie Hogenson, OFM/SHR
2	April 2018	Update	Tina Cooley, OFM/SHR
3	March 2019	Updated	Tricia Mackin, OFM/SHR
4	May 2020	Updated	Tricia Mackin, OFM/SHR
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Overview

The Information Technology classification and compensation structure was created in response to the state's need to have a flexible and adaptable structure to keep pace with the rate of change in the technology industry.

Ultimately, this new structure fosters recruitment, retention, and workforce management flexibility — all necessary to compete in the expanding technology marketplace. The Puget Sound region is one of the top technical hubs in the nation with talent feeder schools like the University of Washington and global tech companies such as Amazon and Microsoft who attract top talent from around the world. Competing for talent is an ongoing challenge for state organizations.

Human Resources and IT Managers are challenged by the pace and magnitude of IT workforce changes. Managers are confronted daily with questions about how to manage employees to support the rapid rate of change in technology, organization structures, and business strategy.

Employees themselves are changing, including their values and expectations, their demographic diversity, their education, their work environment needs, and their willingness to accept change.

The Information Technology Position Evaluation process sets the framework for the state to enhance its competitiveness in managing an evolving the IT workforce. **Evaluators are the cornerstone in the foundation.** This role requires the ability to apply human resource best practices and understand the technology workforce to ensure ethical, consistent, and credible evaluations.

The evaluators' challenge

The work of job evaluators is very important to assure fairness when determining whether positions should be included in the IT Professional Structure and to properly evaluate positions. Evaluators' work not only carries a large responsibility for accuracy in measuring job values, but is also complex work. The definitions and examples provided in this handbook will help evaluators achieve accuracy and consistency.

Accurate and consistent job evaluation is dependent on current, accurate and complete job information. It is impossible to measure something that is not well defined. Evaluators must obtain relevant and accurate job content information from position descriptions and supporting documentation (e.g., organization charts), to assess and measure these very important compensation decisions.

The challenge for the evaluator is to extract from the position descriptions (PDs) and supportive documentation exactly what a position requires of an incumbent. Things to look for:

- What does it take to do this job?
- What is the scope of the position's impact on program, service delivery and financial viability?
- What must an incumbent know or be able to do to perform all the job's requirements?
- What specialized skills must the incumbent possess?

All statements in position descriptions must be scrutinized for logic, accuracy, and reasonableness. PDs are often written to present the work performed in the best possible light. There is a tendency to misuse words such as manages, develops, oversees, etc. as well as using technical jargon and acronyms that are not easily understood or well defined. Thus, evaluators become investigators striving for substantiation and logic regarding the actual content of jobs. They are always searching for information that will assure fairness in alignment of positions on an enterprise-wide basis.

Getting started

Use the guidelines in the order listed below to determine whether a position meets the inclusion criteria and to decide if the position is an IT worker — or to exclude the position. Once the position is identified as a professional IT worker or supervisor, follow the instructions to evaluate and rate the level of professional IT work performed using the IT Position Evaluation Tool.

If the position is identified as a manager, use the IT Manager and IT Senior Manager inclusion criteria and descriptions in this handbook to determine the appropriate level. Enter your selection and the position's appropriate job family into the tool. This will complete the evaluation process for IT Manager or Senior IT Manager positions.

Prior to starting your evaluation, you will want to ensure you have all the documentation and resources necessary to complete your evaluation. The following recommended steps clarify specific roles and team interactions and are a best practice for conducting an evaluation:

1. **Read all the resource documents** to familiarize yourself with the content before using the IT Position Evaluation Tool.
2. **If reviewing a team, start with the supervisor/manager PD** and then work from the highest-level classification down.
3. **If reviewing/evaluating an individual position,** you will still need to review the supervisor's PD and other like positions within the unit.
4. **Review the most current organization chart** showing the positions' relationship within the unit and the organization. This provides understanding of duties, job family, level of authority, reporting relationships, and internal/external interactions.
5. **Research unknown terminology** to have a basic understanding of what it is before moving forward with the review process.
6. **Re-read the position descriptions and compare** like duties, position objectives, decision-making, and qualifications.

Note: Refer to the resource documents provided included in this handbook in the Guidance section for additional information and context.

Ask the following core questions as you are evaluating positions for inclusion into the IT Professional Structure:

- Is there alignment between the sections in the PD — Assigned Work Activities, Level of Supervision, Decision-Making, and Problem Solving?
- Does the PD section of Qualifications and Competencies support and align with Assigned Work Activities section?

As an evaluator, you must first understand:

- ✓ Why does the position exist?
- ✓ What is the position's primary IT job family?
- ✓ What are the services this position provides?
- ✓ How does it support the organization?

You need to determine whether the position should be included or excluded. To do this, you will want to review the inclusion/exclusion criteria and decision tree located within this handbook and then ask yourself the following questions:

- ✓ Is the position an IT Worker or an IT User?
- ✓ Is the position an IT Professional or an IT Paraprofessional?
- ✓ Is the position a Staff, Supervisor, or Manager?

These questions are important to ask and answer, as they will be the basis of whether the position should be included in the IT structure or not.

In other words, what is the reason for the position's existence? Evaluators must consider the primary purpose of the position or management's intent in establishing the position when determining allocation.

Further, what essential knowledge is required? Although there may be several different types of work required of the position, most positions will have an **essential knowledge requirement**. This is the most important component required to do the work.

Determining inclusion and exclusion

Following the review and understanding of the work as described in the PD and supporting documentation, the first step is determining whether the position requires professional level IT work.

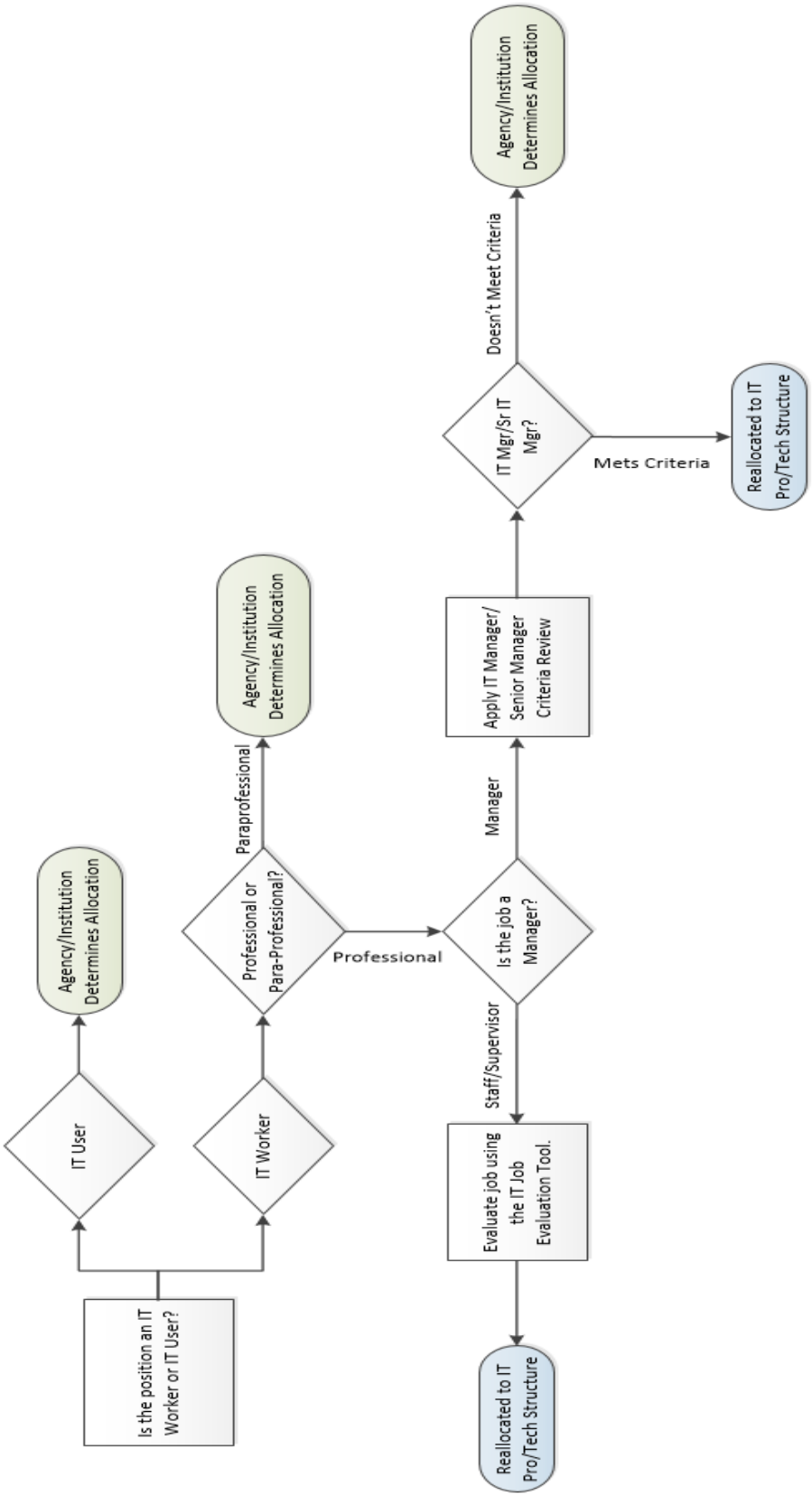
What is the focus or the reason for the position's existence? Prior to assessment for placement in the structure, the work of the position must first meet the inclusion criteria:

1. Review inclusion/exclusion and paraprofessional model criteria in this handbook.
2. Refer to the inclusion/exclusion criteria to determine what criteria they meet for inclusion.
3. Once you determine inclusion/exclusion, go to the IT Position Evaluation Tool and complete the "Inclusion/Exclusion" Section.
4. If the determination is to exclude, provide a brief rationale in the "Exclusion Rationale" field within the tool.

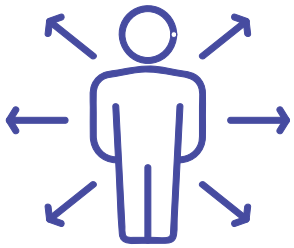
Inclusion/Exclusion Chart

Include	Exclude
IT Workers Require knowledge of IT systems, concepts, and methods as the paramount requirement of the position and are directly involved in developing, implementing, and/or maintaining IT systems and services.	**IT Users and Super Users** It is common for employees to use computers in performing assigned duties and responsibilities. Activities vary and may range from IT User to IT Super User.
Professional Positions included in this category perform professional level work concerned with the creative, technical, and conceptual design; calculate application of theoretical and practical aspects of such fields included within the job families. Decision-making is related to the subject matter.	**IT Paraprofessional** An IT worker who performs some of the duties of an IT professional or technician in a supportive role, which usually require less formal training, education, and/or relevant experience normally required for professional or technical status. Typically performs operational tasks according to prescribed procedures and under the general supervision of an IT professional.
Supervisors Position that does professional/technical IT work as described above and functions as a supervisor for one or more permanent, full-time or equivalent staff.	**Managers** Positions whose primary function is to act as a manager with limited professional/technical duties.

Inclusion/Exclusion Decision Tree



Identifying professional IT work



The ongoing challenge will be identifying what is IT professional work. Most of the work performed by state government requires the use of technology. Evaluators must be able to identify when the work of the position "uses" technology versus having the responsibility for developing or maintaining the technology so that others can perform their w8ork.

Use the following information to distinguish between an IT User and IT Worker.

IT User

It is common for employees to use computers in performing assigned duties and responsibilities. Activities vary and may range from IT User to IT Super User. For example:

- IT User — Daily use of word processing programs and using the internet for job-related information.
- IT Super User — Extensive use of IT tools in the development of spreadsheets (Excel, Access, SAS, etc.), databases and graphic-intensive publications.

For the IT User, the work of some positions may include work requiring information technology knowledge and skills. The work may also involve applying related knowledge and skills. In most situations, IT systems are used as a **tool** that enhances the accomplishment of the assignment where the assignment itself is the work product or service.

These positions may require technical knowledge and skill in the use of IT software and hardware systems. They may possess detailed knowledge, skills, and abilities in the use of computing hardware and/or software to perform business specific activities. However, the position is not directly involved in developing, implementing, configuring, delivering, and/or supporting IT systems and services, which is a requirement of positions within the professional IT structure.

For the IT Super User (also known as power users), the work is highly dependent upon, or facilitated by, the use of computers and computer software programs, but the focus of the

work is not primarily engaged in computer systems analysis and programming or other similarly skilled computer-related occupations.

For Super Users, the work involves using computers for various processes that may include the development or analysis of extensive spreadsheets, the creation of graphic intensive publications, or other instances where Information Technology is used as a tool that enhances the accomplishment of the assignment or service.

This includes an employee with advanced knowledge and skill in the use of IT systems who is relied upon by coworkers for **limited** technical advice and assistance in the application of IT systems to the assignment area. It is the work of the position that is evaluated, not the incumbent's technical aptitude.

A position incumbent may be a sophisticated or advanced IT user. However, the position must be classified to the appropriate class series associated with the primary purpose of the position rather than to the IT Professional/Technical structure.

In some cases, the additional knowledge of IT may be identified as a required qualification, but this requirement does not justify assignment of the position to the IT Professional/Technical structure.

IT Para-Professional

IT Para-Professionals support the work of IT professionals. Their positions require less formal training, education and/or relevant experience required of professional positions.

IT Para-Professionals support IT services across several job families such as Customer Support, Network and Telecommunications, Systems Administration, or Quality Assurance. They apply practical knowledge of IT systems and operations gained through hands-on learning and experience in addition to varying levels of IT-related coursework or study.

The IT Support Technician class series was created for IT Para-Professional work. Positions are not evaluated for inclusion; agencies/institutions allocate positions to this class series.

The classes are:

IT Support Technician 1 – Positions at this level of the series perform entry-level paraprofessional IT support work. They serve as the first point of contact for customers and have primary responsibility for providing nontechnical IT support and/or limited first level technical IT support to end users for the resolution of basic IT-related issues. Higher-level IT technical staff review work performed for completeness and accuracy.

They use their basic understanding of IT operational processes and follow prescribed procedures to complete assigned tasks. They follow specific, detailed desk manual instructions or follow other documented work procedures for all aspects of their work.

IT Support Technician 2 – Positions at this level of the series perform experienced paraprofessional IT support work. They often serve as the second point of contact for customers. They independently complete a variety of routine technical IT paraprofessional assignments.

They have primary responsibility for providing support to individuals and small work groups. Their work usually affects individuals but may routinely affect other individuals in the organizational unit for unit-wide problems or issues. Organization-wide issues or issues affecting larger business units are referred to a higher-level technician for resolution.

System-wide or critical problems are referred to higher-level IT technical staff for resolution. They may assist higher-level IT technical staff with projects. Any nontechnical work performed is done to support the completion of their technical IT work assignments.

Excluded positions

For positions that do not meet the criteria for inclusion, the agency's/higher education (HE) institution's Human Resource (HR) Office will conduct a position review to allocate the positions. The HR Office will work with managers to identify the appropriate occupational group, job class, and level that aligns with the work described in the position description.

IT Professional

Professional IT work requires advanced knowledge and experience of IT systems, concepts, and methods as the paramount requirement of the position. Work is directly involved in developing, implementing, and/or maintaining IT systems and services. The work requires the consistent exercise of discretion and judgment in the field of expertise. A professional employee generally uses the advanced knowledge to analyze, interpret, or make deductions from varying facts or circumstances.

Incumbents in professional positions must have demonstrated advanced experience, knowledge, skills, and abilities performing the work at a professional level. Experience is gained through actual practice over time.

IT Supervisors

Positions in this category perform professional IT work and have the additional responsibility of supervising one or more permanent, full-time, or equivalent staff.

To be included as a supervisor, the position must perform the full scope of supervisory functions. Please refer to the Glossary of Classification Terms.

IT supervisors direct daily operations. This includes prioritizing, scheduling, and reviewing work to ensure that employees complete work assignments and projects accurately and on time. These positions are task-focused and provide direct technical guidance, direction, and advice to lower-level staff to resolve complex IT issues within an IT work unit or function.

IT supervisory positions are evaluated and rated using the IT Position Evaluation Tool based on the level of professional IT work performed and are given additional pay differential for added supervisory responsibility.

Please refer to the Guidance section of the handbook for the “Clarification IT Support Technician 2” document which provides additional clarification between the paraprofessional levels and the entry professional level.

Managers

Compared to lower-level supervisory positions, management positions have the added responsibility of applying management principles to the delivery of services or functions. Management positions place greater emphasis on determining longer-term technical work or services, including the development of goals, objectives, and needed resources.

IT Manager positions must have technical subject matter expertise in one or more job families to be included in this category. Exclude manager positions not requiring professional technical competence in an IT job family.

IT Manager

IT Managers are responsible for designated IT activities within an assigned area involving one or more specialized IT job families. Positions at this level serve as professional IT Managers performing a combination of staff supervision and management functions. Typically, positions at this level supervise professional IT staff. They have the delegated authority to:

- Develop goals and objectives.
- Develop timetables and work plans to achieve targeted goals and objectives.
- Control allocation of resources.
- Set and adjust priorities.
- Evaluate unit effectiveness.
- Supervise assigned staff.

These positions manage operations of assigned IT systems, services, or functions. This requires the ability to apply technical detail and to use IT profession-based knowledge and skills. They plan, coordinate, and manage work efforts. They have the authority to prioritize and manage operations and all technical IT issues under their scope of responsibility.

IT Managers focus on tactical issues with an appropriate consideration of the strategic implications of decisions. They manage daily operations and workflow through supervisors or leads and their work supports and guides the technical work performed by IT staff. They make decisions concerning unresolved technical IT issues or problems affecting unit-level operations.

IT Senior Manager

IT Senior Managers direct a broad scope of IT functions, specialty areas, services, or activities within an organization. Their duties include managing IT services across multiple IT functions and/or job families or across an entire IT services organization. Exclude senior-level administrative managers who manage only nontechnical functions such as human resources, budget, or procurement, as well as nontechnical sponsors of IT Project teams within an IT services department.

IT Senior Managers focus on long-term and strategic planning with an appropriate level of tactical involvement regarding daily operations across the IT services organization. The work of the IT Senior Manager is broad:

- Managing IT services through IT Managers and/or IT supervisors and providing technical and administrative oversight of multiple IT services and/or several IT functional teams.
- Developing the vision and designing, deploying, and enhancing IT services support for the organization.
- Approving large, complex, organization-wide IT projects involving multiple job families or IT specialty areas.
- Making strategic decisions including implementing initiatives across multiple divisions or across the organization.
- Providing the highest level of technical IT expertise to manage a broad scope of IT functions, services, or activities.
- Conducting capacity planning and making technical recommendations to executive management to address changes in technology or IT services for an IT organization.
- Working primarily with senior managers or administrators including internal executive management.
- Providing technical expertise, advice, and counsel to executive management regarding IT technology matters.
- Serving as the organization representatives for multi-organization or statewide technology projects.

IT Senior Managers also have designated authority for:

- Planning and setting IT organization direction and resource management.
- Serving as technical executive sponsors for medium to large IT projects.
- Speaking on behalf of and making binding decisions for the organization.
- Managing and monitoring IT services budgets.

IT job family selection

A job family is defined as a functional discipline involving similar types of work requiring similar training, skills, knowledge, and expertise. The job families are defined in the IT Job Descriptor's section that cover work performed by the state's IT workforce.

A position's manager is required to identify the primary job family and, if applicable, the secondary job family on the IT PDs. All positions have a core work focus and a central knowledge requirement that comprise the reason for its existence. If there are more than two job families identified in the work of the position, those additional job families would be reflected in the actual work activities section of the position description.

Primary job family review and recommendation

Once the position is designated as a professional level IT worker, review the primary job family indicated on the PD to ensure the position is placed in the appropriate job family.

Although the PD may have a primary job family as well as a secondary job family listed, it is your job as the evaluator to review the position's specific information and provide a recommendation of the primary job family. To do this, you will need to:

1. Review "Assigned Work Activities" and the "Qualification - Knowledge, Skills, and Abilities" sections of the IT PD to determine recommended job family.
2. When identifying job family, check the IT Job Family Descriptor section of the handbook, then cross check with the job family listed on the PD. If it meets the definition in more than one job family, you should determine what the core work focus and central knowledge requirement are that comprise the reason for the position's existence.
3. If the recommended job family is different, enter your rationale in the comment section.

Information Technology Position Evaluation Tool

The IT Professional/Technical structure uses a factor comparison methodology to evaluate positions. The factor comparison method is a quantitative job evaluation method that employs a series of rankings on separate compensable factors to identify which jobs contain more of a factor than other evaluated jobs. The position evaluation score is the combined numerical values derived from the factor rankings.

The advantages of this method are that it is relatively reliable, the compensable factors are tailored to the unique characteristics of government jobs and values, and it allows for the integration of market data into the system.

Tool factors

The IT Position Evaluation Tool rates compensable job factors that are most important for differentiating levels of the state's information technology work. Industry best practices and existing state compensation factors inform the tool rating factors.

The factors in the IT Position Evaluation Tool are:

1. Technical Know-How
2. Scope of Responsibilities
3. Impact (multidimensional factor dependent on sub-factors)
    - Organizational Size
    - Scope
    - Accountability
4. Problem Solving

Rating the position

The IT Position Evaluation Tool (PET) evaluates and rates the level of professional IT work performed for staff or supervisory positions identified as an IT worker.

As a reminder, the IT Manager and IT Senior Manager positions are not taken through the IT PET ratings. Each agency/HE Institution will determine allocation of these positions by applying the IT Manager/IT Senior Manager criteria described previously in the "Managers" section of the handbook, as illustrated in the Inclusion/Exclusion Decision Tree within the "Determining Inclusion and Exclusion" section of the handbook. This is different than the IT staff/supervisor positions taken through the IT PET ratings.

As you are rating the position and filling out the IT Position Evaluation Tool, record any discrepancies within the PD that affects the final evaluation score within the appropriate comments section of the tool.

For example, within the first rating section, "Technical Know-How," the PD may identify the position as a subject matter expert but the decision-making and required qualifications may not rise to the expert-level requirements.

1. Technical Know-How: What level of Technical Know-How is required to perform this job?

The areas on the PD you would review to determine the technical know-how are:

- Position Objective
- Assigned Work Activities
  - Qualifications (KSAs)

Refer to "Demonstrated Proficiency Levels" section and "Levels of Supervision" definition in the Glossary of Classification Terminology to get additional guidance for your determination.

Identify level of technical knowledge required by reviewing:

- Required Qualifications
- Level of Supervision
  - Assigned Work Activities

Consider how those sections are impacted by:

- Problem Solving
- Decision-Making
- Potential Impact of Results

Sections in the PD that should contain the necessary information are:

Position Objective

Describe the main purpose of the position and the type and nature of the work performed:

Assigned Work Activities (Duties and Tasks)

Describe the duties and tasks and underline the essential functions. Task statements should describe the action performed; to **whom** or **what**; using what **tools, equipment, methods, and/or processes; and the final product or outcome**.

For more guidance, see Essential Functions Guide and Examples of Work Statements.

List the assigned work in order of importance including the final product or outcome for each, with essential functions underlined:

Qualification – Knowledge, Skills and Abilities

Required Education, Experience or Certifications	**Application** (why each qualification exists)

Desirable/Preferred Education, Experience or Certifications	**Application** (why each qualification exists)

Technical know-how notes: These notes are intended to provide consistent guidance on understanding and applying the rating criteria. They are not intended to be required qualifications. Required qualifications are identified on a position-by-position basis and are determined by the agency/HE institution hiring authorities.

Baseline understanding of principles and theory within area(s) of responsibility (gained through multiple years of progressive experience, training, or formal education in area of assignment) and developing of depth of knowledge and practical applications.

Notes: Incumbent is expected to know what they should do but is learning the practical application. Typically requires a bachelor's degree or equivalent and 1–3 years of progressive professional experience.

Fully competent, professional working knowledge of the principles, concepts, and methodology at a proficient level in area(s) of assignment, which has been gained by job experience or relevant advanced education (graduate degree or certifications above what is necessary for know-how level 1).

Notes: Uses best practice — fully functional in all but the most complex areas. Typically requires a bachelor's degree or equivalent and at least four (4) years of professional experience. Additional relevant work experience may be a substitute for the educational requirement.

Competent to work on the majority of assignments independently with the exception of the most complex cases.

Work is primarily focused on the modification, development, and/or maintenance of existing technology.

Advanced knowledge of a wide range of principles, concepts, and practices in the assigned area(s), which would be gained through extensive experience and skill in applying this knowledge to complex work assignments.

Requires competence to independently work on all levels of assignment (including the most complex cases) and provide guidance to lower-level staff on complex issues.

New technology (as applicable): Integration of new technology, setting up/transitioning to new systems, and/or dealing with the complex issues related to new technology.

Notes: Leader in the knowledge base, technical resource for information because they are well versed in all areas of "doing" yet not designing/creating. Typically requires a bachelor's degree or equivalent and seven or more (7+) years of progressive professional IT Experience (i.e., continuing to grow professionally). Additional relevant work experience may be a substitute for the educational requirement.

Independently works on all levels of assignment (including the most complex cases) and provides guidance to lower-level staff on complex issues.

Integrates new technology and/or deals with the complex problems related to integrating existing systems with new technology.

Mastery of a professional field. Consistently applies strategic expertise with comprehensive knowledge and understanding of assigned area(s). Understands full business processes (including anticipation of future needs), strategic direction, impacts on internal/external stakeholders, and internal organizations.

Notes: Typically requires a bachelor's degree or equivalent and at least 10 years of professional IT Experience. Advanced education may be a substitute for three (3) years of service. These positions are often difficult to find candidates for because of the level of skill required and the availability of qualified candidates.

2. Scope: Assessing level of responsibilities (how much and how wide?)

You will need to identify the scope of responsibility by reviewing the duties and decision-making. Identify the various job families (if more than one), whether the position supervises or leads, and to what level this position is involved in each of the activities.

Review the Organizational Structure and Position Objective; also consider how Assigned Work Activities and Level of Supervision impacts those sections.

The areas on the PD you would review to determine the level of Responsibility are:

- Position Objective
- Assigned Work Activities
- Qualifications (for diversity of the experience required)

Sections in the PD that should contain the necessary information are:

Position Objective

Describe the main purpose of the position and the type and nature of the work performed:

Assigned Work Activities (Duties and Tasks)

Describe the duties and tasks and underline the essential functions. Task statements should describe the action performed; to **whom** or **what**; using what **tools, equipment, methods, and/or processes; and the final product or outcome**.

For more guidance, see Essential Functions Guide and Examples of Work Statements.

List the assigned work in order of importance including the final product or outcome for each, with essential functions underlined:

Qualification – Knowledge, Skills and Abilities

Required Education, Experience or Certifications	**Application** (why each qualification exists)

Desirable/Preferred Education, Experience or Certifications	**Application** (why each qualification exists)

This component has two major factors that must be reviewed and considered together. The first factor involves the level of technical work performed within the number of IT job families involved. This includes the scope of work performed within the IT specialty area to complete the assignment. The second factor involves determining the impact to the organization. Consider the level of work involved with staff within the organization and the overall impact of the work to the organization.

When reviewing this section, you will need to consider both factors together and decide as a whole what the overall scope of responsibility is for the position.

Scope notes: These notes are intended to provide consistent guidance on understanding and applying the rating criteria. They are not intended to be required qualifications. Required qualifications are identified on a position-by-position basis and are determined by the agency/HE institution hiring authorities.

Singular: This is where a position is assigned work primarily in one specialty area, a single-area specialist.

Notes: Within a specific discipline or job family, the position uses judgment to resolve individual issues or problems and makes recommendations to deviate from standard practices when necessary. Independently uses a wide variety of rules, processes, materials, and equipment to complete work assignments requiring specialized knowledge or skills.

Technical Work			Organization Impact	
Level	Job Family	Scope	Staff	Level
Singular	One Job Family (Specialty Area)	Individual Issues	Primarily Internal End Users	Individuals, work groups, or units

Examples: Provides technical support to defined end user groups. Performs issue resolution for help requests from end users, including installing and upgrading software, installing hardware, and configuring systems and applications. Specializes in a particular software or business application within an end-user environment.

Multiple components: This is where a position is assigned work that involves cross-divisional, regional, or agency integration.

Notes: Requires working with multiple clients, staff, or other stakeholders to complete the assignment, but may not require a complete understanding of business processes, strategic direction, impact on internal/external stakeholders, and the organization(s) involved.

Technical Work			Organization Impact	
Level	Job Family	Scope	Staff	Level
Multiple	One Job Family (may apply others)	One or more systems	More than one stakeholder group, mainly internal, limited external	Across regions or divisions up to full agency integration

Examples: Working on organization-specific applications or online systems, working in multiple platforms and/or operating systems, setting up and transitioning to new systems, or dealing with issues related to implementing new technology. Works with multiple user groups to solve business problems using available technology including hardware, software, databases, and peripherals. Serves as a technical IT specialist for application development, systems administration, or other technical and business staff for IT systems under development.

Multifaceted:

- Required to perform organization-wide work in several different job families, or
- A position in a large organization required to perform inter-departmental (across regions, administrations) or multi-organization work in several different related and/or unrelated job families.

Notes: Requires highly specialized technical skills and expert knowledge over a wide range of job specialty areas and work practices to complete broad, multifaceted assignments.

Technical Work			Organization Impact	
Level	Job Family	Scope	Staff	Level
Multifaceted	Multiple Job Families	Multiple systems	Multiple stakeholder groups or larger, internal and external	Organization-wide up to multi-organization

Examples: Coordinates technical IT development team activities to develop, implement, test, and maintain a large organization-level system or several smaller systems combined within a single project. Integrates data from multiple systems such as payroll, personnel, and training data. Works with IT application development and testing, network services, web services, and production teams to develop, publish, and implement a multi- organization online licensing registration system.

3. Impact: organizational size, scope, and accountability

The areas on the PD you would review to determine scope and accountability are:

- Organizational Structure
- Position Objective
- Potential Impact of Results

This multidimensional rating section aligns with the state's Priorities of Government.

Impact scope – What area does this position's work directly impact?

Identify the impact to the organization by reviewing potential impact of results and financial dimensions and match these to the stated duties and organizational goals. Also, consider how those sections are impacted by Organizational Structure, Position Objective, and Problem Solving.

Organizational size is a factor used to evaluate the scope of impact. The tool auto fills the appropriate rating based on the identified employing organization. This rating is based on the number of permanent and nonpermanent employees in the selected organization.

The weighting applies only to the following "Impact" selection:

> "Organization-wide (impacts an entire agency/higher-ed institution) or multiple agencies/higher-ed institutions."

No other rating is weighted by the organization size. The weighting recognizes the additional responsibility of having "organization-wide" impact.

Sections in the PD that should contain the necessary information are:

Organizational Structure (Attach an organizational chart.)

Summarize the functions of the position's division/unit and how this position fits into the organizational structure:

Position Objective

Describe the main purpose of the position and the type and nature of the work performed:

Potential Impact of Results

Describe the potential impact of error (What potentially could happen in the event that the individual was to fail to perform their job correctly?)

List who (citizens, other department/unit personnel, statewide personnel, etc.) would be impacted and the degree of impact.

List what (dollars, larger systems, processes, other resources, etc.) would be impacted and the degree of impact.

Impact Scope notes: These notes are intended to provide consistent guidance on understanding and applying the rating criteria. They are not intended to be required qualifications. Required qualifications are identified on a position-by-position basis and are determined by the agency/HE institution hiring authorities.

Single user impact (at a time)

Notes: This includes positions working at a service or help desk helping to resolve one user's issue at a time.

Single or multiple department(s) (multiple users at once)

Notes: This is a position whose work impacts a full department, programs that impact just a single department or program, or a program or system that would impact several departments within an organization.

Organization-wide (impacts an entire agency/institution) or multiple agencies/institutions

Notes: This includes positions whose work impacts an entire agency or several agencies. This excludes those positions that are limited to the individual sub-division/program or multiple sub-divisions/programs but do not have agency-wide impacts.

Impact is via systems that *collect* state revenue (e.g., tax collection systems), fishing licenses, (excludes public health, safety, or benefit delivery systems). Systems the state relies on to collect revenue or in higher education tuition collection systems.

Notes: Work has a direct impact on a system or program that directly serves the public in terms of payment collection/or other public facing systems (excise tax, licensing fees).

Impact is via systems that distribute funds (e.g., eligibility benefits, child support payments, or systems with direct impact to public health and safety). Systems that beneficiaries rely on for cash benefits, health, and/or safety needs.

Notes: Work has a direct impact on a system that directly affects public safety systems (911 call center system), systems that impact the disbursement of funds (child support payments), or, regardless of monetary impact, would have a resulting impact on the health and safety of the public.

Impact Accountability – What level of accountability does the position have?

If the position is a supervisor, refer to the supervisory responsibilities section of the PD and "Levels of Supervision" definition in the Glossary of Classification Terms. Identify the accountability and skills by reviewing working relationships for the level of supervision required, the complexity of duties assigned, and supervisory responsibilities.

For nonsupervisory positions, areas on the PD you would review are:

- Decision-Making
- Financial Dimensions
- Working Relationships
- Continuity of Operations Plans (COOP)

Decision Making

What duties are performed that require the position to make choices, determinations or judgments?

Which decisions are sent to the next level of supervisor/manager or technical authority for recommendation/decision?

Financial Dimensions (if applicable)

Describe the type and annual amount of all monies that the position directly controls, administers or manages (excluding employee salary and benefits). For example: *delegated signature authority amount, invoice approval for contract expenditures*.

Working Relationships

Level of Supervision received. For more guidance see Glossary of Classification Terms.

☒ Direct/Close Supervision: Most work is reviewed in progress and upon completion.

☐ General Supervision: Completed work is spot checked.

☐ General Direction: Completed work is reviewed for effectiveness and expected results.

☐ Administrative Direction: Completed work is reviewed for compliance with budget, policies, laws and program goals.

Add information that clarifies this position's interactions with others to accomplish work:

Continuity of Operations Plans (COOP) Designation – For Disaster or Emergency Recovery

For more information see COOP and Critical Positions. For higher education, refer to your list of essential personnel.

Is this position designated critical based on agency COOP? ☐ Yes ☐ No

If **Yes**, describe how this position supports the agency *COOP Critical Functions*:

Impact Accountability notes: These notes are intended to provide consistent guidance on understanding and applying the rating criteria. They are not intended to be required qualifications. Required qualifications are identified on a position-by-position basis and are determined by the agency/HE institution hiring authorities**.**

Minor (indirect impact) – Work is reviewed to minimize impact. **Notes:** This may be a position which impacts a single user's work or is responsible for quality of data input.
Contributory – Position is advisory, or impact is shared with supervisor or part of a team. **Notes:** This is any position that is part of a team in which the position works with a supervisor or team on their processes.
Independent – Position has decision-making authority for area of responsibility within established limits. **Notes:** This would *not* include positions that are limited in scope and complexity in which decision-making is prescribed and routine in nature.
Single Point of Failure – Position with singular responsibility or unique knowledge and no redundancies (no other positions can perform the work). **Notes:** This would usually include supervisors, managers, or experts who are the only ones working on a given system; some consideration of this measure will have to be given to the PDs of others if it is an individual whose organizational chart shows that others work in their unit.

4. Problem Solving: level of analysis or evaluation applied to resolve problems

Identify the problem solving done by the position by reviewing:

- Assigned Work Activities
- Decision Making
- Problem Solving

Consider how a problem is solved and the level of complexity of the problems being solved. Even when the problem is sent to higher-level technicians for resolution, consider how the work activities, supervision, and application of knowledge, skills, and abilities are used in problem solving.

Sections in the PD that should contain the necessary information are:

Assigned Work Activities (Duties and Tasks)

Describe the duties and tasks and underline the essential functions. Task statements should describe the action performed; to **whom** or **what**; using what **tools, equipment, methods, and/or processes; and the final product or outcome**.

For more guidance, see Essential Functions Guide and Examples of Work Statements.

List the assigned work in order of importance including the final product or outcome for each, with essential functions underlined:

Problem Solving

What are the most complex and/or challenging issues addressed by this position? Give 3 to 4 examples and how each is resolved.

Complex/Challenging Issue	How Resolved	Frequency

Decision Making

What duties are performed that require the position to make choices, determinations or judgments?

Which decisions are sent to the next level of supervisor/manager or technical authority for recommendation/decision?

Problem Solving notes: These notes are intended to provide consistent guidance on understanding and applying the rating criteria. They are not intended to be required qualifications. Required qualifications are identified on a position-by-position basis and are determined by the agency/HE institution hiring authorities.

Resolves problems requiring standard analysis and the application of established or routine solutions. **Notes:** Positions at this level are told where the answer is. A set process and/or procedure outlines each step to follow.
Resolves problems requiring analysis and the discernment of the most suitable solution(s)/processes(s) available. Selects from "in-the-box"/best-practice models and strategies to resolve problems. **Notes:** Positions are given multiple choices to find the answer.
Devises methods and processes to analyze/evaluate problems. Problems require deviation from routine or available solutions for resolution. **Notes:** Researches the answer using multiple sources (out-of-the-box thinking).
Problems require the development of creative/innovative solutions, including new methods/procedures/approaches. (Note that few positions within state government rise to this level). **Notes:** Starts with research but then uses experience and knowledge to design a new or innovative solution (creating a new box).

IT professional competency descriptions

Entry Level

- Has baseline understanding of principles and theory within area(s) of responsibility (gained through multiple years of progressive experience, training, and/or formal education in area of assignment) and is developing depth of knowledge and practical application.
- Is skilled in the diagnosis, troubleshooting, and/or maintenance of IT systems.
- New technology (as applicable): Learns to operate and maintain new technology; assists in transitions.
- Resolves problems requiring analysis and the discernment of the most suitable solution(s)/processes(s) available. Selects from "in-the-box"/best-practice models and strategies to resolve problems.
- Uses skills and abilities to complete routine tasks at the beginning, while growing toward completing tasks of increasing complexity.
- Uses basic understanding of the field to perform job duties; may need some guidance on job duties; applies learning to recommend options to address unusual situations.
- Recognizes basic knowledge and skills and the ability to apply learning in everyday situations under direct guidance or supervision.
- Is competent to work on several phases of computer operations but still needs instruction and guidance for other (more complex) phases.

Skilled in performing one or more of the following activities:

- Completes routine work assignments as an "Individual Contributor."
- Participates in specialized projects under direction of a higher-level IT professional.

Journey Level

- Has fully competent, professional working knowledge of the principles, concepts, and methodology at a proficient level in area(s) of assignment, gained by job experience or relevant advanced education.
- Requires competence to work on the majority of assignments independently with the exception of the most complex cases.
- Has work that is primarily focused on the modification, development, and/or maintenance of existing technology.
- Resolves problems requiring analysis and the discernment of the most suitable solution(s)/processes(s) available. Selects from “in-the-box”/best-practice models and strategies to resolve problems.
- Successfully completes tasks as requested. Help from senior staff may be required from time to time, but can usually perform the skill independently.
- Is able to apply and enhance knowledge and skill to both usual and unusual issues.
- Needs minimal guidance in addressing unusual situations.
- Perceives actions needed in relation to obtaining goals.
- Understands and can discuss the application and implications of changes to processes, policies, and procedures in the assigned area of responsibility.
- Successfully completes diverse tasks of the job.

Skilled in performing one or more of the following activities:

- Applies new technology (as applicable): Learns to operate and maintain new technology; assists in transitions.
- Formulates routines and standards of practice to complete assigned tasks.

Senior/Specialist Level

- Is able to apply advanced knowledge of a wide range of principles, concepts, and practices in the assigned area(s) gained through extensive experience and skill in applying this knowledge to complex work assignments.
- Independently works on all levels of an assignment (including the most complex cases) and provides guidance to lower-level staff on complex issues.
- Devises methods and processes to analyze/evaluate problems. Problems require deviation from routine or available solutions for resolution.
- Is able to translate complex nuances to others.
- Is able to complete complex tasks using advanced knowledge and skill (including developing new processes) and work with internal and external customers and stakeholders.
- Is able to improve processes; focus on broader issues.
- Is able to see the holistic view of situations to complete tasks.
- Provides practical, relevant ideas and perspectives on process or practice improvements that may be easily implemented.
- Is able to employ maxims (i.e., applied theory) for guidance that adapt to the situation at hand.
- Is recognized as a resource to others.
- Is recognized within the immediate organization as “a person to ask” when difficult questions arise regarding this skill.

Skilled in performing one or more of the following activities:

- Applies new technology (as applicable): Integrates new technology, sets up and transitions to new systems, and/or deals with the complex issues related to new technology.
- Assists in developing reference and resource materials.
- Participates in senior-level discussions.

Expert Level

- Demonstrates mastery of a professional field. Consistently applies strategic expertise with comprehensive knowledge and understanding of assigned area(s).
- New technology (as applicable): Researches, recommends, and guides the integration of new technology.
- Addresses problems requiring the development of creative/innovative solutions, including new methods/procedures/approaches.
- Demonstrates knowledge of trends in their field.
- Takes the lead in developing new processes to address business needs.
- Has an intuitive grasp of situations based on deep, tacit understanding.
- Uses analytical approaches in new situations or in case of problems.
- Is considered the “go to” person in area of expertise inside and outside the organization .
- Is able to diagram or explain the relevant process elements and issues in relation to organizational issues and trends in sufficient detail during discussions and presentations to foster a greater understanding among internal and external colleagues and constituents.
- Understands the full business process (including anticipation of future needs), strategic direction, impact on internal/external stakeholders, and internal organizations.

Skilled in performing one or more of the following activities:

- Provides technical consulting and oversight on complex projects.
- Troubleshoots highly complex technical IT issues with significant levels of risk and/or high levels of visibility to the organization.
- Creates new applications for, leads the development of, and/or approves reference and resource materials.

Supervisor

- Supervises the day-to-day activities of one or more permanent, full-time or equivalent staff within an assigned area of responsibility.
- Prioritizes and assigns tasks to ensure work schedules and performance targets are met.
- Ensures work assignments and projects are completed on time.
- Follows established procedures and agency standards and provides technical advice to lower-level staff to help resolve complex IT issues.
- Communicates with users to identify and resolve issues.
- Refers unresolved critical or complex problems to higher-level management for resolution.

Skilled in performing one or more of the following activities:

- Leads IT projects in accordance with project plans and budgets.
- Implements new procedures, standards, and techniques.
- Prepares technical IT recommendations and reports for higher-level management.

IT Manager

- Manages designated IT activities involving one or more specialized IT job families within an assigned area of responsibility.
- Typically, supervises professional IT staff.
- Applies and manages IT resources effectively to meet client's business needs.
- Consults and provides expert technical guidance and advice to assigned IT staff.
- Applies new technology, makes recommendations, and works with IT staff to resolve complex technical IT issues.
- Applies project management principles, methods, and practices to assigned projects or initiatives.

Skilled in one or more of the following activities:

- Manages team activities such as developing, implementing, testing, and maintaining a large system or project or several smaller systems or projects.
- Confers with and advises supervisors and employees on administrative policies and procedures, technical issues, priorities, and methods.
- Approves specifications and design requirements for applications and systems.
- Reviews budget allotments and expenditures.
- Reviews, analyzes, and approves IT projects. Prepares, recommends, and/or approves cost estimates.
- Conducts analysis and prepares short-range and long-range plans for assigned area of responsibility.
- Evaluates and approves purchases of hardware, software, or vendor-supplied services. Monitors vendor performance and ensures completion and compliance of contract requirements.
- Conducts annual reviews of assigned services or functions and initiates new or revised IT policies, procedures, or methods as needed.
- Establishes tactical and operational priorities.

IT Senior Manager

- Provides senior management involvement for IT services, involving multiple IT job family specialties and integrating new technology.
- Supervises IT Managers or IT supervisors.
- Analyzes practical situations and applies knowledge of the IT job family disciplines to meet the specialized needs of the organization.
- Provides the highest level of technical IT expertise and guidance to organization administrators. Communicates using nontechnical terms to administrators regarding IT services and functions.
- Develops, interprets, and applies policies and procedures governing the overall delivery of IT services.
- Mentors and coaches managers, supervisors, and employees in best practices and standards.

Skilled in one or more of the following activities:

- Serves as the most senior technical position and represents the highest-level of professional expertise in consulting and advisory work across multiple job families.
- May serve as a technical advisor to other senior-level management positions across the organization's IT operations.
- Provides overall strategic direction and highest-level technical guidance to assigned project or other personnel.
- Prepares activity and progress reports.
- Responsible for developing the vision and designing, deploying, and enhancing IT services support for the organization.
- Makes strategic decisions including implementing initiatives across multiple divisions or across the agency/HE institution.
- Approves large, complex organization-wide IT projects involving multiple job families or IT specialty areas.
- May direct the operation and maintenance of agency/HE institution-level system platforms.
- Serves as a technical executive sponsor of large-scale IT projects.
- Manages and monitors IT services budgets.
- Serves as the agency/HE institution representative for multi-agency or statewide technology projects.
- May direct IT services management teams.
- Identifies technical IT training gaps and develops skills development plans.

IT job family descriptors

IT Application Development

Definition: Work that involves the design, documentation, development, modification, testing, installation, implementation, maintenance, and support of new or existing applications software.

Common positions

- Applications developer
- Software developer
- GIS developer
- Mobile app developer
- Low Code/No Code configurator

IT WORKER	IT USER
Using software development methods and tools to develop applications and databases for staff and/or the public to consume to perform their daily work.	Uses specialized software to perform their work (modeling tools, Excel macros, PowerPoint, etc.).
Web development: Develops user-interface (UI) design, coding, testing, and implementation of application components and web services; writes re-usable code using industry and organization standard development tools and framework.	Updates organization website content, links documents, posts pictures, monitors analytics.
Design and develop SQL databases systems for large scale data tracking, reporting, and multi-user access.	Creates an Access database to track data specific to them.
Using software development methods and tools to integrate and support Commercial-Off-the-Shelf (COTS) software and services. Coordinates with vendor technical staff on implementing and coordinating system upgrades and enhancements.	Utilizes “off-the-shelf” tools to perform individual tasks and functions to perform work.
Develop, test, implement, and support custom developed business application or development of custom features within a COTS system or proprietary application.	Implement and test configurable functionality in a business application.
Uses a combination of Geographic Information System (GIS), web programming skills, and development tools to build GIS map and data services that are created in a web map format. The web maps are combined with other web tools that allow the user to dynamically interact with the map to search for and display the information.	Uses GIS as one of the tools in their toolbox to conduct the scientific or engineering investigation.
Develop mockup/prototype interaction designs, including users’ interaction models, information architecture, wire frames, and screen flows.	Participate as a subject matter expert in functional and user acceptance testing.

IT Application Development – Functional Competencies

Knowledge, Skills, and Abilities:

- Understands existing and emerging technologies and their applicability in the software implementation environment (e.g., vendor or open source, Service Oriented Architectures [SOA]).
- Knows and considers available COTS software to make "build or buy" decisions.
- Knows internet standards relative to web technology development.
- Considers web technology in relation to privacy standards and federal regulations.
- Identifies and uses tools for information management and technology product design and development.
- Is able to analyze and refine systems requirements.
- Analyzes and resolves complex problems, such as multiple product problems, dump analysis, or major conflicts caused by new software version.
- Applies expert system analysis skills to maintain, monitor, and troubleshoot system performance and environment.

Skilled in performing one or more of the following activities:

- Determines overall technical design and structure of internet services.
- Identifies and uses modeling and simulation approaches/tools (e.g., dynamics modeling, cost benefit analysis, costing, forecasting, sourcing models — build or buy) to make decisions.
- Identifies criteria and integrates "go/no go" consideration stages into development life cycle.
- Compares benefits and limitations of open-source software with vendor-developed software.
- Adopts and applies systems engineering perspectives and processes to software development.
- Evaluates software quality and applicability in testing software capabilities.
- Monitors software configuration changes to anticipate and address the impact of data reliability and customer satisfaction issues.
- Tests, debugs, and maintains detailed instructions (programs) for computers to follow and ensure performance of their intended functions.
- Conceives, designs, and tests logical structures for solving problems by computer.
- Evaluates current collaborative web technologies and the benefits/risks associated with them.
- Assesses delivery strategies, web technologies, oversight, and organizational implications for web-based development.
- Monitors functionality, security, and integrity of internet services.

- Troubleshoots and resolves technical problems with the design and delivery of internet services.
- Translates systems requirements into applications prototypes; plans and designs systems architecture; writes, debugs, and maintains code; determines and designs application architecture.
- Designs user interfaces.
- Works with customers to test applications.
- Writes and maintains program documentation.
- Designs user interfaces.
- Conducts unit testing on code changes prior to release.
- Develops and maintains functionality used by software applications, including change management, security and authentication, application distribution, disaster recovery planning, support for data access, email connections, search routines, system-wide configurations, and reports.
- Writes and maintains computer code programs using any one of several languages to fulfill a particular business function.
- Assist Scrum/Agile teams as a participant in improving application development practices within the Scrum/Agile framework.
- Considers complex aspects of coding, uses visual interfaces and pre-configured templates and/or tools, allowing for integration with other applications and external API's connecting to multiple data sources.

IT Architecture

Definition: Work that involves the analysis, planning, design, implementation, documentation, assessment, governance, and management of the structural and decision-making framework to align IT strategy, plans, and systems with the mission, goals, structure, and processes of the organization.

Common positions

- Chief or senior enterprise architect
- Enterprise architect
- IT architect
- Solutions architect
- Cloud architect

IT WORKER	IT USER
Designs and develops a solution approach to: (1) integrating with other systems, (2) securing user interactions with data, and (3) executing workflow and triggers for a technology area based on federal, state, and organization requirements.	Performs "super user" support and training functions for an organization line of business area. This could be in the form of SharePoint "super user," Office Products "super user," specialized software "super user," etc.

IT Architecture – Functional Competencies

Knowledge, Skills, and Abilities:

- Demonstrates understanding of basic architecture documentation (i.e., work product) methodologies at each level of a commonly used framework.
- Is able to identify opportunities for improving systems that support business processes.
- Is able to provide guidance and support to customers and stakeholders on the use of the enterprise system.
- Is able to identify opportunities to improve enterprise-level systems to support business processes and utilize emerging technologies.
- Ensures rigorous application of information security/assurance policies, principles, and practices to all components of the enterprise architecture.
- Has knowledge of key regulatory requirements and guidance relating to enterprise architecture.
- Is able to apply architecture patterns and designs to emerging and evolving technologies for current and future business needs at the enterprise, operational, and tactical levels.

Skilled in performing one or more of the following activities:

- Provides enterprise architecture guidance, support, and coordination to customers and IT project teams.
- Documents the enterprise architecture infrastructure, including the business units and key processes, using modeling techniques.
- Ensures technical integration is achieved across the enterprise by participating in test planning, validation, and reviews.
- Evaluates the impact of enterprise architecture products and services on IT investments, business operations, stakeholder satisfaction, and other outcomes.
- Defines the policies and principles to guide technology decisions for the enterprise architecture.
- Coordinates and conducts governance and portfolio management activities associated with ensuring compliance with the enterprise architecture.
- Analyzes, designs, and implements enterprise-wide IT solutions (e.g., applications, platforms, security) that align with the organization's structure, goals, and systems.
- Identifies and uses various criteria (e.g., time, budget) to determine IT success and ensure alignment with stakeholder needs.
- Follows the enterprise architecture transition plan for moving from baseline business and technology operating environment to the target environment.
- Works closely with Cloud engineers to identify, architect, and design optimal cloud-based solutions.
- Provides strategic consultation and direction for Cloud platform architecture and design.

IT Business Analysis

Definition: Work that involves applying analytical processes to the planning, design, and implementation of IT systems to meet the business requirements of customer organizations. Also includes the work of translating business needs to technical requirements. These activities apply to establishing new IT systems as well as improving existing IT systems.

Common positions

- Systems analyst
- Business analyst

IT WORKER	IT USER
Elicit business requirement from business stakeholders and business subject matter experts. Translate business requirements and function specs into technical requirements; review functional specifications and design documents for technical compliance against business requirements; identify gaps between functional specs and the capabilities of the technology; manage small IT business project deliverables coordinating IT resources with resource managers.	As a subject matter expert, provides business requirements, approves functional specifications and design documents, and accepts deliverables for business applications.
Work with product specialists, usability specialists, and interaction designers to develop and iterate user interface designs based on research and usability test results.	Participates as a business user or subject matter expert on agency business projects involving the use of technology to represent the business needs of the organization. May have technical knowledge regarding the specific system or business requirement but the focus of the job is representing the business as the subject matter expert.
Assist in defining functional interaction requirements specifications. Also, nonfunctional requirements (performance, availability, etc.).	
Surveys applicable technologies and reports on the strengths and weaknesses of those technologies to address the business process. Makes recommendations on the technology approach to use and identifies where new technology customizations are necessary to adapt the technology to the business needs of the organization.	

IT Business Analysis – Functional Competencies

Knowledge, Skills, and Abilities:

- Is able to identify stakeholders and select appropriate business analysis techniques to manage requirements and assess the progress of the work.
- Is able to ensure stakeholder's actual underlying needs are understood and captured.
- Is able to understand and apply the usability engineering life cycle, particularly user-centered analysis and usability testing techniques.
- Is able to assess proposed solutions to determine the best solution to meet business needs.
- Is able to identify gaps and shortcomings in solutions and determine necessary workarounds or changes to the solution.
- Is able to work with stakeholders to identify and understand their needs, concerns, and working environment.

Skilled in performing one or more of the following activities:

- Identifies business needs, refines and clarifies the definition of that need, and defines a solution scope that can be feasibly implemented by the business.
- Prioritizes and progressively clarifies and validates stakeholder and solution requirements to enable the project team to implement a solution that meets the needs of the sponsoring organization and stakeholders.
- Analyzes stakeholder needs to define solutions, assesses the current state of the business to identify and recommend improvements, and conducts the verification and validation of the resulting requirements.
- Manages conflicts, issues, and changes to ensure that stakeholders and the project team remain in agreement on the solution scope, how requirements are communicated to stakeholders, and how knowledge gained by the business analyst is maintained for future use.
- Ensures the solution delivered to stakeholders meets the business need(s) for which the project was undertaken by planning and facilitating user acceptance testing.
- Uses Business Process Modeling (BPM) techniques for analyzing the "as-is" business processes and rules in scope and then the "to-be" processes.
- Works with the organization's approved Software Development Life Cycle (SDLC) methodology (waterfall, iterative, Agile, scrum, etc.) that is applied to the project.
- Converts requirements into different types of 'models' or 'diagrams', uses Unified Modeling Language (UML), each of which describes a particular aspect of the requirements.
- Assesses deployed solutions to see how well they met the original need so the sponsoring organization can assess the performance and effectiveness of the solution.

IT Customer Support

Definition: Work that involves the planning and delivery of customer support services, including installation, configuration, troubleshooting, and customer assistance for customer technology. For example: desktop computers, phones, laptops, email accounts, and video conferencing.

Common positions

- Technical support specialist
- Customer support specialist
- Help Desk representative
- Applications administrator

IT WORKER	IT USER
Provide technical support for business applications using IT tools such as remote desktop, configuring automated systems to deploy software updates/installations, troubleshoot application connectivity issues, create and maintain technical documentation of desktop management, create an organization standard PC image.	Provide training and business process support on business applications.
Provide technical advice and guidance relative to problems involving user interface, browser, hardware, and supporting software. Troubleshoots and restores technical service and equipment troubles by analyzing, identifying, and diagnosing faults and symptoms.	Initial point of contact for customers regarding IT issues. Responsible for triaging (help tickets/requests) and — based upon specific criteria, processes, and procedures — forwards to the appropriate technical expert.
Coordinate efforts with the Help Desk to ensure all calls outside the customer environment are effectively resolved. This is similar to experienced Help Desk professional, with the added responsibility of interfacing directly with external customers to the business.	

IT Customer Support – Functional Competencies

Knowledge, Skills, and Abilities:

- Uses knowledge of IT principles in the practical application of methods and practices to plan, implement, and coordinate services to diagnose and resolve problems and ensure continuous service.

Skilled in performing one or more of the following activities:

- Performs Tier 2 or higher (complex) issue resolution for incoming help requests from end users, including installing and upgrading software, installing hardware, and configuring systems and applications.
- Serves as designated application or system lead for complex problem resolution and vendor interactions.
- Creates standard PC imaging for installation on computer workstations.
- Resolves application software issues within critical systems.
- Develops metrics, critical success factors, and key indicators to monitor and assess results.
- Ensures continuous customer support and contact with customer.
- Provides guidance to, and monitors customer support services provided by, paraprofessionals and/or professional staff.
- Tests and executes bug fixes in applications.
- Consults with vendors on resolutions to identified issues.
- Evaluates unusual circumstances, considers different approaches, and deals with incomplete and conflicting data.
- Plans the work and refines the methods and techniques used.
- Researches and evaluates new customer service management systems.
- Recommends purchase of systems where it is determined they would enhance the quality and effectiveness of the customer support program.
- Oversees implementation of new systems and services and develops training guides for customer support employees.
- Develops performance metrics to evaluate the efficiency and effectiveness of the customer support center and apply results in increasing productivity, professionalism, and the improvement of service quality.

- Integrates metrics within existing performance measurement systems and guides customer support supervisors and managers in their application.
- Develops resource reference materials for system users (user manuals, online help pages, tutorial videos, and web page content).
- Monitors system environment to identify availability and functionality issues.
- Provides system outage and status communication to users and escalates according to established procedures.
- Develops system release documentation and communication.
- Performs End User application security access maintenance.

IT Data Management

Definition: Work that involves the planning, development, implementation, designing, and administration of IT systems for the acquisition, storage, and retrieval of data. This does not include business users such as research and business analyst that use data systems to compile data for analysis.

Common positions

- Database developer
- Database administrator
- Business intelligence specialist
- Data architect
- Data warehouse specialist

IT WORKER	IT USER
Take business requirements and design, develop, test, implement organization databases. Administer organization databases to include schema development, performance tuning, and integration between different business applications.	Using standard or Commercial Off-the-Shelf (COTS) or SaaS data query tools, writes data query scripts to extract business data from the data warehouse. Uses ad hoc data query tools to extract business data from the data warehouse.
Practice architectural techniques and tools for achieving consistent access to and delivery of data across the spectrum of data subject areas and data structure types in the enterprise to meet the data consumption requirements of all applications and business processes.	Uses options presented by the application to make configuration changes to user-oriented application behaviors.
Design, test, and implement data retrieval methods (including exports, proprietary reports, and database views).	Uses MS Access, Excel, or other standard database tool to manage data.
	Interacts with applications through the user interface to accomplish business tasks.

IT Data Management – Functional Competencies

Knowledge, Skills, and Abilities:

- Ensures rigorous application of information security/assurance policies, principles, and practices in the delivery of data management services.
- Ensures data recovery, maintenance, data integrity, and space requirements are met for physical database through formulations of policies, procedures, and standards to ensure effective data management enterprise wide.

Skilled in performing one or more of the following activities:

- Analyzes and defines data requirements and specifications to design, normalize, develop, install, and implement databases and data warehouses.
- Maintains, monitors, and conducts performance tuning and backup and recovery of databases.
- Installs, configures, and maintains database management systems software.
- Analyzes and plans for anticipated changes in data capacity requirements.
- Develops and administers data standards, policies, and procedures.
- Develops and implements data mining and data warehousing programs.
- Evaluates and provides recommendations on new database technologies and architectures.
- Conducts data modeling techniques and methodology development.
- Conducts physical schema design of table spaces, rollback segments, and data files.
- Provides applications support, performance monitoring, maintaining database backup and recovery environment.
- Performs capacity planning and reporting, configures and manages cloud data services for data management and analytics.
- Provides tools and develops policies and procedures for creating and maintaining the data enterprise model.
- Produces entity relationship diagrams, data flow diagrams, database normalization schemata, logical to physical database mapping, data table parameters, etc.
- Supports the maintenance of metadata infrastructure.
- Coordinates database performance monitoring and tuning tasks, including the design of optimization and indexing schemes.
- Designs; creates; tests; performance tunes; maintains; and monitors data extract, transform, and load jobs (ETL).
- Designs and documents ETL data structures, metadata, and ETL routines.

- Reviews, tests, and provides feedback to proposed data models and architecture relating to ETL requirements.
- Creates, tests, and maintains conceptual, logical, and physical models for business intelligence.
- Defines and implements enterprise information management strategy.
- Manages and maintains data model repository.
- Creates and maintains Data Definition Language used to create physical data objects.

IT Network and Telecommunications

Definition: Work that involves the planning, analysis, design, development, testing, configuration, installation, implementation, integration, maintenance, and/or management of networked systems used for the transmission of information in voice, data, and/or video formats.

Common positions

- Network administrator
- Network analyst
- Network architect
- Telecommunications specialist
- Remote access administrator

IT WORKER	IT USER
Using network engineering methods, work with consultants and WaTech to design and support agency LAN/WAN infrastructure.	Performs end-user acceptance testing for telecommunication projects, demonstrates new products to customers, and gathers new requirements for customers.
Use structured language and command line interfaces to navigate, evaluate, and design the state network.	Calls vendors to do cabling for networks and phones. Ordering and tracking vendor circuits based on predesigned network requirements.
Design and represent physical and logical network topologies within a database.	Manages warranty and maintenance contracts. Maintains historical records, system support documents and technical diagrams.
Install and configure physical and virtual network components to implement a network design.	Performs data entry of predesigned network topologies using predefined network elements. Maintains historical records, system support documents, and technical diagrams.
Research and evaluate emerging network equipment, technologies, and trends for continual re-alignment and improvement of state network.	
Engineer and design new telecommunications systems.	

IT Network and Telecommunications – Functional Competencies

Knowledge, Skills, and Abilities:

- Has knowledge of capabilities and limitations of data transmission modes and media.
- Has knowledge of data transmission concepts, functions, and mechanisms.
- Applies network systems knowledge to plan, design, and develop systems, and properly deploy systems to support the organization.
- Uses network engineering knowledge in design, operations, and security activities.
- Is skilled in the acquisition, technical acceptance, installation, testing, modification, or replacement of telecommunications equipment, services, and systems.
- Is able to analyze missions, plans, organization structure, current and planned infrastructures, and other related factors affecting enterprise network requirements.

Skilled in performing one or more of the following activities:

- Evaluates the benefits and limitations of commonly used local wired and wireless voice and data communication architectures, devices, and protocols, as well as wide-area voice and data architectures, devices, and protocols.
- Coordinates installation, maintenance, troubleshooting, and fine-tuning of the LAN and WAN including all hardware, software, security, telecommunications, and networking components.
- Develops, plans, and designs for network modifications and enhancements.
- Reviews proposed applications for compatibility and interoperability.
- Analyzes LAN and WAN utilization statistics, performance measures, and system profiles to ensure network effectiveness and robustness.
- Identifies potential performance or capacity problems and plans for changes to avert problems.
- Evaluates available enterprise network systems including performance, security, capacity, scalability, cost, and other relevant factors; and recommends optimal network solutions.
- Identifies and controls all LAN and WAN hardware and software configuration.
- Develops technical standards and procedures for LAN and WAN development, implementation, and management.
- Evaluates overall LAN and WAN performance against relevant standards.
- Identifies and implements required corrective actions; devises solutions to prevent future interruptions.

IT Policy and Planning

Definition: Work that involves a wide range of IT management activities that typically extend and apply to an entire organization or major components of an organization. This includes strategic planning, capital planning and investment control, workforce planning, policy and standards development, resource management, knowledge management, and auditing.

Common positions

- Enterprise resource planner
- IT policy and planning analyst
- IT auditor
- Technology portfolio manager

IT WORKER	IT USER
Plan, analyze, and lead strategic business initiatives and legislative mandates that require the development, implementation, and integration of technology.	Support for executive IT staff in researching, compiling data, and drafting documents for developing strategies for the use of available resources, defining departmental needs and priorities, long-range planning, and setting goals and objectives.
Work with service owners and business owners to develop approaches in network design, secure data access, and data management to ensure operational resilience and availability.	
Recommend implementing new technology solution to improve a business system; provide recommendations for IT funding priorities based on organizational goals; participate in an IT system audit and provide recommendations for improvement; develop and implement a new policy to mitigate system risks.	Participates as a business user or subject matter expert on agency business projects involving the use of technology to represent the business needs of the organization.

IT Policy and Planning – Functional Competencies

Knowledge, Skills, and Abilities:

- Is able to align IT investments with the organization's mission (e.g., capital planning and investment control, Enterprise Performance Life Cycle).
- Is able to use established analysis, business cases, and decision-making processes to evaluate capital investments in IT and IT-alternative investments.
- Is able to consider organizational strategic and performance plans to identify specific requirements and capital planning processes to drive the acquisition strategy (e.g., Enterprise Performance Life Cycle).
- Applies knowledge of organization's IT acquisition approach to compare, contrast, and evaluate acquisitions.
- Oversees foundational IT elements of the technology application portfolio, projects, contracts, and policy alignment. Makes informed recommendations about technology investments, prioritization and direction that are in alignment with the strategic priorities of IT and the organization.

Skilled in performing one or more of the following activities:

- Evaluates current and emerging best practices in IT relative to the enterprise's strategic plan.
- Acquires feedback from external organizations and end users.
- Establishes and utilizes methodologies to compare and contrast cost, benefits, and risks.
- Analyzes cost and economic data to assess quality and communicate meaning to others.
- Evaluates needs and a variety of potential IT based solutions.
- Identifies and designs shared solutions between organizations to leverage technology investments.
- Develops metrics, critical success factors, and key indicators to monitor and assess results.
- Develops security plans to protect the confidentiality, integrity, and availability of the organization's information, information systems, and networks in accordance with policies, procedures, and control techniques and organization and federal regulations.
- Documents the current allocation of IT resources supporting the organization's mission, programs, and business objectives to effectively manage its IT investments and resources.

IT Project Management

Definition: Work that involves the monitoring or management of technology projects using standard project management techniques. Includes creating projects estimates, reporting, and resource and capacity planning.

Common positions

- IT project manager
- IT program manager
- IT project analyst
- IT program analyst
- Product manager
- IT release manager

IT WORKER	IT USER
Lead in the development of strategic vision, roadmaps, and release plans for technology projects. Coordinate releases and sprints across different technology work streams and identify potential technology gaps or collisions.	Supports IT project in drafting reports, communications, and other documentation for project manager approval. Maintains status reports and ensures timely distribution.
Report directly to executive sponsor/CIO on project deliverables, resources, budget, and overall performance.	Is a member of a project team participating as a business subject matter expert.
Manage the work of technical teams including project and product backlogs, the tracking and resolution of impediments, development of the key metrics required to monitor implementation success, and triage of issues in team velocity. Work with business and product owners to reprioritize backlog work items and adjustments in scope, schedule, and budgets.	Compiles, monitors, and analyzes budget data for IT Project. Reports regular status and escalates identified issues. Coordinates contracts and purchasing.

IT Project Management – Functional Competencies

Knowledge, Skills, and Abilities:

- Is able to empower and inspire others to deliver successful change initiatives.
- Is able to identify, address, and resolve differences between individuals and/or interest groups.
- Is able to identify and/or develop frameworks and methodologies to ensure management of change initiatives will be comprehensive and consistent across different initiatives. In this context, "framework" means the parameters, constraints, or rules established to standardize delivery.

Skilled in performing one or more of the following activities:

- Selects, develops, and manages IT teams.
- Secures necessary resources for change initiatives from internal and/or external providers.
- Manages contracts for the provision of goods and/or services to monitor compliance and manage variances.
- Prepares and maintains change initiative definitions and requirements.
- Determines the best means of satisfying requirements within the context of the change initiative's objectives and constraints.
- Prepares and maintains schedules for activities and events for change initiatives, accounting for dependencies and resource requirements.
- Develops, implements, and updates resource allocation plans (other than for finance) for change initiatives, accounting for availabilities and scheduling.
- Develops budgets for change initiatives, control forecast and actual costs against the budgets.
- Identifies and monitors risks (threats and opportunities), plans and implements responses to risks, and responds to other issues affecting change initiatives.
- Develops, maintains, and applies quality management processes for change initiative activities and outputs.
- Consolidates and documents the fundamental components, schedules, resource requirements, budgets, risks, opportunities and issues, and quality requirements of change initiatives.
- Integrates change initiative outputs into business operations and addresses readiness of users, compatibility of work systems, and the realization of benefits.

- Plans and controls the finances of programs or portfolios and their related change initiatives as a means of driving performance and as part of the organization's overall financial management.
- Prepares and maintains overall schedules for resource use in related change initiatives to avoid bottlenecks and conflicting demands and determines sequences of outcomes to enable efficient realization of benefits.
- Establishes and maintains governance structures that define clear roles, responsibilities, and accountabilities for governance and delivery of change initiatives that align with organization practice.
- Manages stakeholders, taking into account their levels of influence and particular interests.
- Establishes and manages reviews at appropriate points, during and after change initiatives, to inform governance and provide evaluations of progress, methodologies, and continuing relevance.
- Establishes protocols to alter the scope of change initiatives, implementing the protocols when necessary and updating configuration documentation including contracts.
- Gathers independent evidence and validates whether change initiative is achieving its aims.
- Prepares, gains approval of, refines, and updates business cases that justify the initiation and/or continuation of change initiatives in terms of benefits, costs, and risks.
- Coaches and mentors members of the Scrum team and others in the organization on understanding Scrum theory and practice.

IT Quality Assurance

Definition: Work that involves monitoring the software engineering processes and methods used to ensure quality. Quality assurance (QA) is a supporting process that has to provide the independent assurance in which all the work products, activities, and processes comply with the predefined plans. The methods by which this is accomplished are varied and may include ensuring conformance to one or more standards, such as ISO 9000 or a model like CMMI. QA encompasses the entire software development process, which includes requirements definition, software design, coding, source code control, code reviews, software configuration management, testing, release management, and product integration.

Common positions

- Application testing analyst
- Software quality assurance tester
- Software quality assurance specialist
- IT project quality assurance specialist
- Quality assurance manager
- Quality assurance analyst
- Testing analyst (Development Unit testing); functional, nonfunctional, integration, destructive, test automation
- Test manager
- Configuration manager
- Release manager
- Information assurance analyst/specialist

IT WORKER	IT USER
Analyze business requirements, design documents for completeness and testability. Develop test plans, test scenarios, test cases, test data, and test scripts for different types of testing activities.	Performs end-user acceptance testing.
Develop quality assurance plans by conducting hazard analyses; identify critical control points and preventive measures; establish critical limits, monitoring procedures, corrective actions, and verification procedures; monitor inventories.	Submits work requests for bug fixes or system enhancements.
Manage source code control and stored procedures between development life cycles utilizing team foundation service (TFS). Manage application control through whitelisting, system center configuration manager (SCCM) packages, updates, and version control. Partner with test leads and architects to develop and establish quality assurance standards and best practices.	Provides business user requirements for new or enhanced applications.

IT Quality Assurance – Functional Competencies

Knowledge, Skills, and Abilities:

- Is able to apply various assurance assessment methods (such as validation of security requirements, risk analysis, threat analysis, vulnerability assessments and scans, and assurance evidence) to determine if the software/system being assessed is sufficiently secure within tolerances.
- Is able to execute multiple phases of test, including system, regression, and user acceptance testing.
- Is able to establish and specify the required or desired level of assurance for a specific software application, set of applications, or software-reliant system.

Skilled in performing one or more of the following activities:

- Provides quality assurance support to the development, maintenance, or enhancement of systems through testing, problem reporting and analysis, and participation in system implementation.
- Analyzes system requirements and creates test data and test plans to ensure that new and revised systems meet the customers' needs.
- Works with users, system analysts, designers, and programmers to create and analyze various required project documents.
- Participates in production implementation verification and validation of system quality.
- Plans, documents, evaluates, and tracks testing results to ensure system applications are free from defects.
- Communicates and interacts with appropriate areas on problems, changes, and enhancements that may affect data, workflow, and/or functionality within IT software.
- Complies with standards of the software development life cycle and follows strategies, plans, and procedures within IT software.
- Plans and prioritizes all test-related tasks.
- Writes test strategies and scripts.
- Reviews test plans against business requirements.
- Reviews code.
- Uses tools such as bug-tracking databases or versioning systems.
- Provides tool and documentation support for assurance assessment activities.
- Researches, analyzes, and recommends best practices for assurance assessment methods and techniques.
- Maintains a test documentation library.
- Uses automated test tools to assess quality of software.
- Uses technical tools (such as SQL queries, file managers) to create and manage test data and analyzes test results.

IT Security

Definition: Work that involves ensuring the confidentiality, integrity, and availability of systems, networks, and data through the planning, analysis, development, implementation, maintenance, and enhancement of information systems security programs, policies, procedures, and tools.

Common positions

- Information systems security analyst/specialist
- Information systems security officer
- Network security officer

IT WORKER	IT USER
Evaluate proposed system changes to maintain security and data protection policies.	Has administrative rights to grant access to SharePoint, websites, Outlook groups, and distribution lists.
Is responsible for conducting security audits and implementing corrective actions.	Resets passwords, manages credentials, and reports suspected security compromise.
Develop and execute security policies, plans, and procedures; design and implement data network security measures; operate network intrusion detection and forensics; conduct performance analysis of information systems security incidents; develop COOP/DR plans and support certification of information systems and networks.	Programs SME assigned to work with IT staff to ensure program requests/requirements can be developed/designed and implemented within IT security and data protection parameters.
Operate and manage all aspects of information systems, data availability, integrity, authentication, confidentiality, and nonrepudiation. Implement and monitor security measures for communication systems/networks and provide advice that systems and personnel adhere to established security standards and governmental requirements for security on these systems.	Performs “super user” functions for an organization line of business area. Ensures data being utilized and shared complies with security programs, policies, procedures, and tools.

IT Security – Functional Competencies

Knowledge, Skills, and Abilities:

- Is able to promote awareness of security issues among management and ensuring sound security principles are reflected in organizations' visions and goals.
- Is skilled in the development and implementation of programs to ensure that systems, network, and data users are aware of, understand, and adhere to systems security policies and procedures.

Skilled in performing one or more of the following activities:

- Develops policies and procedures to ensure information systems' reliability and accessibility and to prevent and defend against unauthorized access to systems, networks, and data.
- Conducts risk and vulnerability assessments of planned and installed information systems to identify vulnerabilities, risks, and protection needs.
- Conducts systems security evaluations, audits, and reviews.
- Develops systems security contingency plans and disaster recovery procedures.
- Participates in network and systems design to ensure implementation of appropriate systems security policies.
- Facilitates the gathering, analysis, and preservation of evidence used in the prosecution of computer crimes.
- Assesses security events to determine impact, implements corrective actions, and/or ensures rigorous application of information security/information assurance policies, principles, and practices in the delivery of all IT services.
- Performs penetration testing exercises.

IT Systems Administration

Definition: Work that involves planning and coordinating the installation, testing, operation, troubleshooting, and maintenance of hardware, software systems, and systems environment. Includes defining or coordinating common processes or procedures to support IT operations.

Common positions

- Systems administrator
- Operating system administrator
- Storage administrator
- Email administrator
- Enterprise document management administrator
- Identity/Access management administrator
- Data center operations
- Print manager
- Batch scheduler

IT WORKER	IT USER
Customize, configure, and extend content management tools used by web content producers.	Develops, publishes, and updates web content using content publishing tools, templates, and organization standards and best practices for content publishing.
Analyze, plan, test, and implement application configuration changes that include system control data affecting application behaviors, including behaviors that affect integration with other systems.	Participates in testing: as a subject matter expert, for functional testing, and for user acceptance testing.
Design and prototype application. Create, maintain, and implement source code for application or program.	Serves as business area point of contact for any upgrades or changes made and works with IT technical experts to evaluate potential impacts.
Conduct testing: unit testing of application modules and their changes, integration testing of interaction of application modules and changes, and testing the interfaces between systems. Conduct load testing and regression tests. Respond to findings of tests (i.e., troubleshooting and repairing bugs).	Provides technical training to end users.
Develop, prepare, and deploy system changes into technology environments (development, test, pre-production, production).	As a SharePoint site owner, maintains and administers the SharePoint site assigned.
Develop system administration automation, monitoring, and event handling to identify and rapidly resolve faults in systems.	

IT Systems Administration – Functional Competencies

Knowledge, Skills, and Abilities:

- Ensures information security/assurance policies, principles, and practices are an integral element of the operating environment.
- Is able to anticipate and forecast hardware requirements when software needs change.
- Supports decisions to determine when hardware upgrades are required based on emerging software requirements.
- Ensures system availability, functionality, integrity, and efficiency and maintains system configuration.
- Ensures customers receive current versions of supported software as they become available.

Skilled in performing one or more of the following activities:

- Evaluates, selects, and installs compilers, assemblers, and utilities.
- Integrates hardware and software components within the systems environment.
- Evaluates new systems engineering technologies and their effect on the operating environment.
- Monitors the systems environment to ensure effective performance.
- Manages hardware and software obsolescence.
- Plans and schedules the installation of new or modified hardware, operating systems, and software.
- Addresses opportunities and challenges of implementing transformational technology (e.g., virtualization, cloud computing) into the federal environment.
- Manages accounts, network rights, and access to systems and equipment.
- Implements security procedures and tools to ensure rigorous security measures are in place.
- Plans and schedules the installation of new or modified hardware and operating systems and applications software.
- Manages accounts, network rights, and access to systems and equipment.
- Manages systems resources including performance, capacity, availability, serviceability, and recoverability.
- Develops and documents systems administration standard operating procedures.
- Resolves hardware/software interface and interoperability problems.
- Maintains systems configuration.
- Monitors and troubleshoots systems availability.
- Recovers data in the event of hardware or software failure.

IT Vendor Management

Definition: Work that manages IT vendors and ensures that all service level agreements (SLAs) or underpinning contracts for IT services across the organization are delivered according to specifications. Work also includes working with IT, business units, and contract managers in identifying and evaluating technology services providers that are consistent with the organization's business strategy and architecture.

Common positions

- IT vendor manager
- SLA manager
- Vendor management analysis

IT WORKER	IT USER
Research, assess, and identify different technology for fit within the existing environment and proper technical criteria and requirements for selection.	As a contracts specialist, executes contracts in support of IT procurement and purchasing functions for a specialized area (IT) for an organization or an area of an organization. To include analysis of bids for multi-commodity purchase contracts and/or procurement of products, development of specifications, and analysis of bids for products and services.
Serve as internal and external contact regarding system and service requirements, coordinate issues across multiple technology disciplines, and serve as the domain expert and an information manager.	Submits standard maintenance and operations work orders to vendors via established procedures, participates in user acceptance testing and/or verifies completion of work with technical staff.
Develop and lead the implementation of all vendor management strategic planning. Oversee contracts, contract management, procurement, vendor relationships, and asset management for the IT function. Establishes the standards, procedures, and guidelines that direct all aspects of IT vendor management, consistent with procurement and financial policies and controls.	

IT Vendor Management – Functional Competencies

Knowledge, Skills, and Abilities:

- Establishes and formalize vendor relationship to create mutually beneficial partnerships.
- Ensures vendor performance and client expectations.
- Recognizes, monitors, and manages vendor risk to the organization.
- Coordinates and oversees vendor relationships, contracts, performance, and risks.
- Balances contractual requirements against expectations to ensure both stakeholders and vendors work toward a common understanding of outcomes.
- Partners in the evaluation and negotiation of vendor contracts.
- Understand the current market offerings and the organization's needs to provide informed recommendations that lead to the procurement of products.

Skilled in performing one or more of the following activities:

- Monitors and maintains vendor contracts and outcomes.
- Measures and reports vendor progress on deliverables to senior/executive staff or project manager.
- Mediates disputes and differences of opinion.
- Leverages metrics, dashboards, and scorecards; extracts data from each quadrant of the life cycle; analyzes and uses data to oversee vendor performance.
- Establishes rules of engagement, guidelines, and principles by which actions can be taken.
- Establishes the appropriate governance structures to drive vendors to deliver the appropriate products and services to the required level of quality and risk, at the required time and place, at the right price.
- Is responsible for vendor performance, monitors and mitigates vendor risks, and maintains vendor relationships.

Guidance

Online technical definitions

The Gartner Information Technology (IT) Glossary may be used to clarify technical terms.

IT Position Evaluation Tool and inclusion criteria terms

Definitions for the terms below are found in the Glossary of Classification Terms.

- Complexity of Work
- Coordinate
- Direct the Work of Others
- Independent
- Judgment
- Lead
- Professional
- Supervision Required, Levels of

Definitions for terms used in the ITPS not in the Glossary of Classification Terms:

Individual Contributor – Nonmanagement; does not work as a formal lead or supervisor.

Paramount (Principal) Requirement – The requirement for a job that has chief importance above other requirements; the skills that are paramount to a given job the prospective incumbent must have in order to successfully fill the job. Example: "The job requires customer service skills but the paramount requirement of the job (the need the incumbent is primarily hired for) has to do with their level of knowledge in Information Security."

Problem – A cause of one or more Incidents. An Incident is defined as an unplanned interruption or reduction in quality of an IT service (Source: Information Technology Infrastructure Library).

IT Paraprofessional – An IT worker who performs some of the duties of an IT professional or technician in a supportive role, which usually require less formal training, education, and/or relevant experience normally required for professional or technical status. Typically performs operational tasks according to prescribed procedures and under the general supervision of an IT professional.

Public – Citizens, students, and/or other non-employee individuals served by a given system.

Public Health, Safety, and/or Benefit Delivery Systems – State systems that impact the health, safety, and/or delivery of benefits (distribution of funds) to the public.

Public Impact – Includes revenue or payment collection systems/systems that collect funds (excluding public health, safety, or benefit delivery systems).

Single Point of Failure – Position with singular responsibility or unique knowledge and no redundancies (no other positions that can perform work).

Standard Analysis – Analysis of problems that do not deviate from established routines/protocols for the given area of assignment.

Subject Matter Expert (SME) – A subject matter expert provides the knowledge and expertise in a specific subject. A SME has proficiency in his or her subject and guides other professionals to ensure the content is accurate. The proficiency generally comes from education and experience. SMEs come from academic, technical, and vocational fields. They may work on different types of projects and have slightly different duties, but their role is essentially to ensure the facts and technical details are correct.

IT industry descriptions of work

This section is designed to give evaluators a sense of what many of the IT terms or fields of study may entail. It was collected from various industry sources and reviewed by the Office of the Chief Information Officer (OCIO).

Applications Programming – Writing of computer programs to perform a specific task or purpose.

Applications Systems Analysis – Involves analyzing, designing, and implementing information systems.

Build/Release Engineering – A sub-discipline in software engineering concerned with the compilation, assembly, and delivery of source code into finished products or other software components. Associated with the software release life cycle. Modern release engineering is concerned with several aspects of software production:

- Identifiability — Being able to identify all of the source, tools, environment, and other components that make up a particular release.
- Reproducibility — The ability to integrate source, third-party components, data, and deployment externals of a software system in order to guarantee operational stability.
- Consistency — The mission to provide a stable framework for development, deployment, audit, and accountability for software components.

- Agility — The ongoing research into what the repercussions of modern software engineering practices on the productivity in the software cycle are, that is, continuous integration and “push on green” initiatives.

Business Intelligence (BI) – A set of theories, methodologies, architectures, and technologies that transform raw data into meaningful and useful information for business purposes. BI can handle enormous amounts of unstructured data to help identify, develop, and otherwise create new opportunities. BI, in simple words, makes interpreting voluminous data friendly. Generally, BI is made up of an increasing number of components. These include denormalization, tagging and standardization, real-time reporting with analytical alert, interface with unstructured data source, group consolidation, budgeting and rolling forecast, statistical inference and probabilistic simulation, key performance indicators optimization, version control and process management, and open item management. BI technologies provide historical, current, and predictive views of business operations. Common functions of business intelligence technologies are reporting, online analytical processing, analytics, data mining, process mining, complex event processing, business performance management, benchmarking, text mining, predictive analytics, and prescriptive analytics.

Cloud Computing – A model of IT deployment whereby a provider delivers an IT solution as platform virtualization (Platform as a Service, PaaS); or as an application to customers for use as a service on demand (Software as a Service, SaaS); or infrastructure/resources (Infrastructure as a Service, IaaS).

Cloud Computing Architecture – The planning, design, and engineering of enterprise-level infrastructure and platforms related to cloud computing. Cloud computing is a model of IT deployment whereby a provider delivers an IT solution as platform virtualization (Platform as a Service, PaaS); or as an application to customers for use as a service on demand (Software as a Service, SaaS); or infrastructure/resources (Infrastructure as a Service, IaaS).

Computer Network or Data Network – A telecommunications network that allows computers to exchange data. In computer networks, networked computing devices pass data to each other along data connections. The connections (network links) between nodes are established using either cable media or wireless media. The best-known computer network is the internet. Network computer devices that originate, route, and terminate the data are called network nodes. Nodes can include hosts such as personal computers, phones, and servers as well as networking hardware. Two such devices are said to be networked together when one device is able to exchange information with the other device, whether or not they have a direct connection to each other. Computer networks support applications such as access to the World Wide Web, shared use of application and storage servers, printers and fax machines, and use of email and instant messaging applications. Computer networks differ in

the physical media used to transmit their signals, the communications protocols to organize network traffic, the network's size, topology, and organizational intent.

Computer Programming – A process that leads from an original formulation of a computing problem to executable programs. It involves activities such as analysis, understanding, and generically solving such problems. The results of these activities are an algorithm, verification of requirements of the algorithm including its correctness and its resource consumption, implementation (commonly referred to as coding) of the algorithm in a target programming language, testing, debugging and maintaining the source code, implementation of the build system and management of derived artifacts such as machine code of computer programs. The algorithm is often only represented in human-parsable form and reasoned about using logic. Source code is written in one or more programming languages (such as C, C++, C#, Java, Python, Smalltalk, JavaScript, etc.). The purpose of programming is to find a sequence of instructions that will automate performing a specific task or solve a given problem. The process of programming often requires expertise in many different subjects, including knowledge of the application domain, specialized algorithms, and formal logic.

Computer Security (also known as cyber security or IT security) – Information security as applied to computing devices such as computers and smartphones, as well as computer networks such as private and public networks, including the internet as a whole. The field covers all the processes and mechanisms by which computer-based equipment, information and services are protected from unintended or unauthorized access, change or destruction. Computer security also includes protection from unplanned events and natural disasters.

Configuration Management (CM) – A systems engineering process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design, and operational information throughout its life. The CM process is widely used by organizations to manage complex information systems, IT service management, and with other domain models.

Data Architecture – Sets data standards for all its data systems as a vision or a model of the eventual interactions between those data systems. Data architecture, in part, describes the data structures used by a business and its computer applications software. Data architectures address data in storage and data in motion; descriptions of data stores, data groups, and data items; and mappings of those data artifacts to data qualities, applications, locations, etc.

Data Center Operations – Work in supporting a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communications connections,

environmental controls (e.g., air conditioning, fire suppression) and various security devices. Large data centers are industrial-scale operations.

Data Management – The development and execution of architectures, policies, practices, and procedures that properly manage the full data life cycle needs of an enterprise.

Data Modeling – Used in software engineering in two related senses: (1) It is a description of the objects represented by a computer system together with their properties and relationships; these are typically "real world" objects such as products, suppliers, customers, etc., and (2) It means a collection of concepts and rules used in defining data models (for example, the network model uses records, sets, and fields). Data models are often used as an aid to communication between the businesspersons defining the requirements for a computer system and the technical people defining the design in response to those requirements. They are used to show the data needed and created by business processes. Uses a set of symbols and text to precisely explain a subset of real information to improve communication within the organization and thereby lead to a more flexible and stable application environment. A data model explicitly determines the structure of data. Data models are specified in a data modeling notation, which is often graphical in form. A data model can be sometimes referred to as a data structure, especially in the context of programming languages. Data models are often complemented by function models, especially in the context of enterprise models.

Data Stewardship – Involves the development of processes, policies, guidelines, and responsibilities for administering organizations' entire data in compliance with business and/or regulatory obligations. A data steward ensures that there are documented procedures and guidelines for data access and use. A data steward's responsibility stems from an understanding of the business domain and the interaction of business processes with data entities/elements. May share some responsibilities with a data custodian, as well as work with database/warehouse administrators and other related staff to plan and execute an enterprise-wide data governance, control, and compliance policy. Serves as the primary point of responsibility, accountability, and activity for the assessment, improvement, and governance of quality and ongoing fitness-for-purpose of an organization's critical data assets.

Data Warehousing – The application of a database for reporting and data analysis. It is the process of gathering, cleaning, and integrating data from various sources, usually from long-term existing operational systems. A data warehouse maintains a copy of information from the source transaction systems. This architectural complexity provides the opportunity to congregate data from multiple sources into a single database so a single query engine can be used to present data. Mitigates the problem of database isolation level lock contention in transaction processing systems caused by attempts to run large, long running analysis

queries in transaction processing databases. Maintains data history, even if the source transaction systems do not. Improves data quality by providing consistent codes and descriptions, flagging, or even fixing bad data. Presents the organization's information consistently. Restructures the data so that it makes sense to the business users. Restructures the data so that it delivers excellent query performance, even for complex analytic queries without impacting the operational systems.

Database – A collection of data or information organized for rapid search and retrieval, especially by a computer. Databases are structured to facilitate storage, retrieval, modification, and deletion of data in conjunction with various data-processing operations. A database consists of a file or set of files that can be broken down into records, each of which consists of one or more fields. Fields are the basic units of data storage. Users retrieve database information primarily through queries. Using keywords and sorting commands, users can rapidly search, rearrange, group, and select the field in many records to retrieve or create reports on particular aggregates of data according to the rules of the database management system being used.

Database Administration – The whole set of activities performed by a database administrator (DBA) to ensure that a database is always available as needed. Other closely related tasks and roles are database security, database monitoring and troubleshooting, and planning for future growth. Ensuring that only authorized users have access to the database and fortifying it against any external, unauthorized access. Involves tweaking any of several parameters to optimize performance, such as server memory allocation, file fragmentation, and disk usage. Ensures the database has adequate backup and recovery procedures in place to recover from any accidental or deliberate loss of data. DBAs are frequently called upon to generate reports by writing queries, which are then run against the database.

Database Engineering – A systematized collection of data that can be accessed immediately and manipulated by a data-processing system for a specific purpose.

Database Management – Involves defining new data structures for a database; removing data structures from the database; modifying the structure of existing data; updating the database, which may include inserting, modifying, and deleting data; data retrieval, which includes obtaining information either for end-user queries and reports or for processing by applications; registering and monitoring users; enforcing data security; monitoring performance; maintaining data integrity; dealing with concurrency control; and recovering information if the system fails.

Database Programming – The design, implementation, access, and maintenance of complex data. Includes maintenance of database dictionaries, overall monitoring of standards and procedures, and integration of systems through database design.

Enterprise Architecture (EA) – A well-defined practice for conducting enterprise analysis, design, planning, and implementation — using a holistic approach at all times — for the successful development and execution of strategy. Enterprise architecture applies architecture principles and practices to guide organizations through the business, information, process, and technology changes necessary to execute their strategies.

Enterprise Process Architecture – Enterprise-wide data/information architecture, which maps to the enterprise architecture and balances the need for access against security and performance requirements.

Geographic Information System (GIS) – A computer system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

GIS Data Architecture – The development and implementation of geographic information system GIS solutions and standards.

GIS Software Development – Involves the design development, coding, testing, and debugging of new GIS software or significant enhancements to existing software.

Hardware Design Engineering – The research, design, development, and testing of computer hardware.

Information Systems Administration and Planning – A term commonly used to refer to the study of how individuals, groups, and organizations evaluate, design, implement, manage, and utilize systems to generate information to improve efficiency and effectiveness of decision-making, including systems termed decision support systems, expert systems, and executive information systems. It is concerned with making the planning process for IT investments and decision-making a quicker, more flexible, and more thoroughly aligned process. IT planning has become an overarching discipline within the strategic planning domain in which enterprise architecture is one of several capabilities.

Information Systems Auditing – An examination of the management controls within an IT infrastructure. The evaluation of obtained evidence determines if the information systems are safeguarding assets, maintaining data integrity, and operating effectively to achieve the organization's goals or objectives.

Information Technology Maintenance – The preventative, diagnostic, updating, replacement, and repair procedures performed to information technology systems as assigned.

Information Technology Architecture – The process of development of methodical information technology specifications, models, and guidelines using a variety of information technology notations, for example UML, within a coherent information technology

architecture framework, following formal and informal information technology solution, enterprise and infrastructure architecture processes. It is the practice for conducting enterprise analysis, design, planning, and implementation — using a holistic approach at all times — for the successful development and execution of strategy.

Information Technology Infrastructure Development – Consists of the design, acquisition, and/or deployment of equipment, systems, software, and services used in common across an organization, regardless of mission, program, or project. IT Infrastructure also serves as the foundation upon which mission-, program-, or project-specific systems and capabilities are built.

Infrastructure Development – Work involving the physical hardware used to interconnect computers and users. Infrastructure includes transmission media that refers to telephone lines, cable television lines, and satellites and antennas, and the routers, aggregators, repeaters, and other devices that control transmission paths. Infrastructure also includes the software used to send, receive, and manage the signals transmitted over those paths.

Internet Engineering – A discipline where individuals “build” the internet. Since the internet represents a decentralized network of computers and servers, where an engineer works and in what capacity depends on the demands of the internet, which can change rapidly as technology and user interest change. Work includes the development of protocol standards for communications, while at the same time working on a more local level to enact technologies and protocols on particular hardware configurations. Engineers work to build hardware structures to make sure the internet functions as a decentralized network in which people can communicate at any time. This requires planning and laying out physical internet connections that serve as the “backbone” of the internet. This also requires maintaining local network servers, planning wireless network hotspots, and designing high-volume data centers.

IT Asset Administration or IT Asset Management (ITAM) – The set of business practices that join financial, contractual, and inventory functions to support life cycle management and strategic decision-making for the IT environment. Assets include all elements of software and hardware that are found in the business environment.

IT Inventory Management – An important part of an organization's strategy. It usually involves gathering detailed hardware and software inventory information that is used to make decisions about hardware and software purchases and redistribution. IT inventory management helps organizations manage their systems more effectively and saves time and money by avoiding unnecessary asset purchases, promoting the harvesting of existing resources. Organizations that develop and maintain an effective IT inventory management

program further minimize the incremental risks and related costs of advancing IT portfolio infrastructure projects based on old, incomplete, and/or less accurate information.

IT Change Management Analysis – The process of planning for an IT investment. This typically includes a detailed review of the cost, benefits, and training impacts of new automation. Most technology investments take several years to return value to an organization. This time frame is known as a return on investment (ROI) calculation. Technology change management uses ROI algorithms to determine the benefits of new technology.

IT Quality Assurance (QA) – The processes and procedures that systematically monitor different aspects of a service, process, or facility to detect, correct, and ensure that quality standards are being met. QA is applied to software to verify that features and functionality meet business objectives and that code is relatively bug free. QA refers to administrative and procedural activities implemented in a quality system so that requirements, service, or activity standards will be met. It is the systematic measurement, comparison with a standard, monitoring of processes, and an associated feedback loop that confers error prevention.

IT Service Performance Management – A concept employed within the discipline of IT service management. In practice, it generally refers to the monitoring and measurement of relevant performance metrics to assess the performance of IT resources. It can be used in both a business or IT management context, and an IT operations context. Companies who offer IT performance management tools include Xangati, TeamQuest, IBM, CA, BMC, Sightline Systems, SevOne, and HP Software Division.

IT Systems Programming – The development and management of programs (codes) that are a part of an operating system.

Middleware – The software, tools, and technologies which sit “in the middle” between two or more systems used by middleware analysts; the purpose being to enable two systems to communicate and share information. Middleware analysts are computer software engineers with a specialization in products that connect two different computer systems together.

Middleware Architecture – Can be described as “software glue.” Middleware makes it easier for software developers to perform communication and input/output, so they can focus on the specific purpose of their application. It is computer software that provides services to software applications beyond those available from the operating system.

Mobile Application Development – The process by which application software is developed for low-power handheld devices, such as personal digital assistants, enterprise digital assistants, or mobile devices.

Network Administration – Keeping track of resources in the network and how they are assigned. It includes all the "housekeeping" that is necessary to keep the network under control. Includes design, installation, and evaluation of the network; execution and administration of regular backups; creation of precise technical documentation, such as network diagrams, network cabling documents, etc.; provision for precise authentication to access network resources; provision for troubleshooting assistance; administration of network security, including intrusion detection.

Network Architecture – The design of a communications network. It is a framework for the specification of a network's physical components and their functional organization and configuration, its operational principles and procedures, as well as data formats used in its operation.

Network Engineering – The field concerned with internetworking service requirements for switched telephone networks, computer networks, or developing telecommunication network topologies and developing the required hardware and software.

Network Operations – Activities typically performed in a Network Operations Center (NOC). NOCs are implemented by organizations that oversee complex networking environments that require high availability. NOC personnel are responsible for monitoring one or many networks for certain conditions that may require special attention to avoid degraded service. Organizations may operate more than one NOC, either to manage different networks or to provide geographic redundancy in the event of one site becoming unavailable. In addition to monitoring internal and external networks of related infrastructure, NOCs can monitor social networks to get a head-start on disruptive events.

Network Planning Analysis – Planning for future acquisitions and technologies, analysis and development of resource utilization profiles, determining growth trends, making projections on future growth, and calculating computer system capacity necessary to support anticipated growth.

Operating Systems Programming – Uses a collection of software that manages computer hardware resources and provides common services for computer programs. The operating system is an essential component of the system software in a computer system. Application programs usually require an operating system to function. The primary distinguishing characteristic of systems programming when compared to application programming is that application programming aims to produce software which provides services to the user, whereas systems programming aims to produce software which provides services to the computer hardware (e.g., disk defragmenter). It requires a greater degree of hardware awareness.

Outsourcing Technical Management – In an outsourcing environment, works with service providers to ensure the in-scope technical solutions are consistent with the enterprise's business strategy and architecture. Works closely with business unit performance managers and quality assurance staff to review service provider problems, to analyze and validate the accuracy of information and the feasibility of solutions. May troubleshoot performance issues and resolve problems with service providers. Understands the value of technology in the enterprise's business processes; works with service providers to identify opportunities for innovation, cost reduction, and improved efficiencies; and reviews service provider solutions. In addition, this role provides input into the in-scope technical architecture for outsourcing projects.

Process Change Management – Provides a clearly defined procedure to submit, review, approve, and schedule requests for needed outages. The focus of this process is ensuring that changes to the IT environment are carefully considered and reviewed to minimize the impact on users and existing services. This process also provides a mechanism for communicating, scheduling, and coordinating changes. Can also be technology change management that is the process of planning for an IT investment. This typically includes a detailed review of the cost, benefits, and training impacts of new automation for the organization.

Product Engineering – Usually entails activity dealing with issues of cost, quality, performance, reliability, serviceability, and user features. These product characteristics are generally all sought in the attempt to make the resulting product attractive to its intended market. It includes design, development, and transitioning to product. The term encompasses developing the concept and the design and development of software components.

Quality Engineering – Integrates methods and tools from enterprise architecture-management, software-product management, IT service management, software engineering and systems engineering, and from software quality management and information security management. This means that quality engineering goes beyond the classic disciplines of software engineering, information security management, or software product management since it integrates management issues (e.g., business and IT strategy, risk management, business process views, knowledge and information management, operative performance management), design considerations (including the software development process, requirements analysis, software testing) and operative considerations (e.g., configuration, monitoring, IT service management).

SEA Middleware – A systems engineering and software used in the Defense, Transport, and Aerospace markets covering sensors, communications, and high-integrity systems. Middleware are software, tools, and technologies used by middleware analysts and sit “in the

middle" between two or more systems; the purpose being to enable two systems to communicate and share information.

Social Networking – Information technology involves communication tools that typically handle the capturing, storing, and presentation of communication — usually written, but increasingly including audio and video as well. Interactive tools handle mediated interactions between a pair or group of users. They focus on establishing and maintaining a connection among users, facilitating the mechanics of conversation and talk using social software. This is software that makes collaborative behavior, the organization and molding of communities, self-expression, social interaction, and feedback possible for individuals. Another important element of social software is that it allows structured mediation of opinion between people in a centralized or self-regulating manner.

Software Architecture – A term that can be defined as the set of structures needed to reason about the software system, which comprises the software elements, the relations between them, and the properties of both elements and relations. The term software architecture also denotes the set of practices used to select, define, or design software architecture and often denotes the documentation of a system's "software architecture." Documenting software architecture facilitates communication between stakeholders, captures early decisions about the high-level design, and allows reuse of design components between projects.

Software Development – The computer programming, documenting, and testing involved in creating and maintaining applications and frameworks involved in a software release life cycle and resulting in a software product. The term refers to a process of writing and maintaining the source code, but in a broader sense of the term, it includes all that is involved between the conception of the desired software through to the final manifestation of the software, ideally in a planned and structured process. Therefore, software development may include research, new development, prototyping, modification, reuse, re-engineering, maintenance, or any other activities that result in software products.

Software Engineering – The study and application of engineering to the design, development, and maintenance of software.

Storage Management Administration – Encompasses the technologies and processes organizations use to maximize or improve the performance of their data storage resources. This is a broad category that includes virtualization, replication, mirroring, security, compression, traffic analysis, process automation, storage provisioning, and related techniques.

Strategic Information Technology Consulting – A specialized field focusing on advising business partners on how best to use information technology to meet their business objectives.

Systems Administration – The activities performed by a system administrator (or "admin," "sysadmin," "site admin") such as monitoring security configuration, managing allocation of user names and passwords, monitoring disk space and other resource use, performing backups, and setting up new hardware and software.

Systems Analysis – The study of sets of interacting entities, including computer systems analysis. Systems analysis is "the process of studying a procedure or business in order to identify its goals and purposes and create systems and procedures that will achieve them in an efficient way" (source: Merriam-Webster). Analysis and synthesis, as scientific methods, always go hand in hand; they complement one another. Every synthesis is built upon the results of a preceding analysis, and every analysis requires a subsequent synthesis in order to verify and correct its results.

Systems Architecture – The establishment and implementation of standards and guidelines that guide the design of technology solutions including architecting and implementing solutions requiring integration of multiple platforms, operating systems, and applications across the enterprise.

Systems Development – Includes the initial conception, requirements definition, outline design, detailed design, programming, testing, implementation, maintenance, and modification; sometimes includes additional activities such as manual procedures design and staff training.

Systems Engineering – The process by which information systems are designed, developed, tested, and maintained.

Technical Business Process Analysis – Involves the formulating and defining of a system's scope and objectives through research and fact-finding and develops or modifies moderately complex information systems. Work includes analysis of business and user needs, documenting requirements, and revising existing system logic difficulties as necessary.

Technical Business Systems Analysis – The development of a computer-based information system includes a systems analysis phase that produces or enhances the data model, which itself is a precursor to creating or enhancing a database. There are several different approaches to system analysis. When a computer-based information system is developed, systems analysis would constitute the following steps: (1) The development of a feasibility study to determine whether a project is economically, socially, technologically, and organizationally feasible; (2) Conducting fact-finding measures, designed to ascertain the requirements of the system's end users. These typically span interviews, questionnaires, or visual observations of work on the existing system; and (3) Gauging how the end users would operate the system, what the system would be used for, and so on.

Technical Project Management – IT project management is the process of planning, organizing, and delineating responsibility for the completion of organizations' specific IT goals. Technical project management involves managing the master schedule and designing, collecting, and analyzing metrics and conducting trend analyses. Work includes assessing policy needs and developing policies for the software life cycle management process and software development strategies, establishing testing procedures, and selecting new hardware and software to be tested for the purpose of enhancing technology access, software compatibility, and effectiveness.

Telecommunication Analysis – The science of assessing, planning, and designing the networks and technology of sending and receiving information such as sound, visual images, or computer data over long distances through the use of electrical, radio, or light signals, using electronic devices to encode the information as signals and to decode the signals as information.

Telecommunications Engineering – An engineering discipline that brings together electrical engineering with computer science to enhance telecommunication systems. The work ranges from basic circuit design to strategic mass developments.

Web Administration – The back-end work of web development. Administrators keep the web servers up and running, making sure the hosting continues to work and that the servers are secure and are keeping track of the logs. Typically includes the selection, installation, configuration, and administration of core web site software (e.g., web servers, FTP servers, media servers, load balancers, DNS, etc.), tools and services (e.g., monitoring, log management, performance management, security scanning, deployment management, configuration management, disaster recovery, traffic analysis), and writing programs for automation where needed.

Web Application Development – The process and practice of developing web applications. A web application or web app is any application software that runs in a web browser or is created in a browser-supported programming language (such as the combination of JavaScript, HTML, and CSS) and relies on a common web browser to render the application.

Web Content Management – The process of researching, writing, gathering, organizing, and editing information for publication on websites. Website content may consist of prose, graphics, pictures, recordings, movies, or other digital assets that could be distributed by a hypertext transfer protocol server and viewed by a web browser.

Web Design – The planning and creation of websites. This includes the information architecture, user interface, site structure, navigation, layout, colors, fonts, and imagery. All of these are combined with the principles of design to create a website that meets the strategic needs of the organization.

Web Software Development – The programming, documenting, and testing involved in creating and maintaining web applications and frameworks involved in a software release life cycle and resulting in a web software product. The term refers to a process of writing and maintaining the source code, but in a broader sense of the term, it includes all that is involved between the conception of the desired software through to the final manifestation of the software, ideally in a planned and structured process. Therefore, software development may include research, new development, prototyping, modification, reuse, re-engineering, maintenance, or any other activities that result in software products.

Webmaster – Accountable for the design, upgrading, enhancement, maintenance, availability, and effectiveness of technical functionality and content for one or more websites of the enterprise. Coordinates the publishing of website content, user interface, look and feel, and level of specificity to suit a wide range of needs. Responsible for working closely with marketing and systems teams to coordinate content, developing ongoing site structure and updates. Primary focus is generally on gathering requirements that relate to the organization's business objectives relative to site audiences and continuous content updates and site upgrades to enhance site hits/visits.

Supervisory versus managerial tasks

Since the terms “manager” and “supervisor” are sometimes confused with each other, below is a matrix with a brief explanation of the differences.

Task	Supervisor	Manager
Planning	• Short term (less than one year). • Planning workflow, staffing, and service delivery. • Establishing staff schedules. • Day-to-day operations and assignment of work.	• Long term (typically greater than one year). • Strategic; makes senior management-level decisions or recommendations that significantly influence important organization-level policies or programs. • Identifying assets, resources, and people needed in the future.
Organizing	• Task assignment. • Daily work coordination. • Close to the work and the people; may be considered a working supervisor.	• Determining outcomes and resources needed to achieve long-term goals, while aligning and allocating them in a constructive way. • Removed from day-to-day operations.
Leading	• Training and development. • Evaluating performance. • Taking corrective action. • Making recommendations to higher-level management. • Providing guidance and approving deviation from established guidelines, policies, procedures, and work methods. • Providing information to senior managers and feedback on workload impacts, timelines, and business needs.	• Setting goals and directions. • Making sure people know what to do and how to do it. • Defining why the organization exists. • Defining the mission and purpose at a strategic level; the higher a manager is in an organization, the more involvement the position has in this task. • Encouraging and influencing people to adopt the organization’s purpose. • Participating in the grievance process or effectively recommend solutions.
Controlling	• Checking and correcting work. • Monitoring day-to-day operations. • Ensuring use of established guidelines, policies, procedures, and work methods. • Coaching, mentoring, and initial corrective action steps.	• Reviewing results compared to the business plan and mission. • Initiating and participating in corrective and/or formal disciplinary action to improve performance.

IT Manager Quick Reference Guide

Factor	IT Manager	IT Senior Manager
General Factors	Positions responsible for designated IT activities within an assigned area involving one or more specialized IT job families. Performs a combination of staff supervision and management functions including delegated authority to: Develop goals and objectives. Develop timetables and work plans to achieve targeted goals and objectives. Control allocation of resources. Adjust budget allotments and authorize expenditures. Set and adjust priorities. Evaluate unit effectiveness. Supervise assigned staff.	Senior IT Manager position responsible for directing broad scope IT functions, IT specialty areas, or activities within an organization. Duties include managing IT services across multiple IT functions and/or job families or across an entire IT services organization. Positions have delegated authority to perform such functions as: Planning and setting IT organization direction and resource management. Serving as technical executive sponsors for medium to large IT projects. Approving large, complex organization-wide IT projects involving multiple job families or IT specialty areas. Conducting capacity planning. Making technical recommendations to executive management to address changes in technology or IT services for an IT organization. Speaking on behalf of and make binding decisions for the organization. Managing and monitoring IT services budgets.
Exclusions	Manager positions not requiring professional technical competence in an IT job family.	Senior managers who manage nontechnical functions within an IT services department such as HR, budget, or procurement. Manager positions serving as nontechnical sponsors of IT project teams.

Factor	IT Manager	IT Senior Manager
Position Scope – Job Focus	Management focus primarily involves tactical issues with an appropriate consideration of the strategic implications of decisions. Manages operations of assigned IT systems, services, or functions. Requires technical detail and use of IT profession-based knowledge and skills.	Management focus primarily involves long-term and strategic planning with appropriate level of tactical involvement. Senior manager responsible for IT services across multiple job families or functions for an organization.
Level of Work	Provides management oversight of operations within an assigned area of responsibility. Typically assigned to manage a single designated specialty area such as IT Network Services. Conducts workforce analysis and prepares short- and long-range plans (typically 1–3 years) for assigned area of responsibility. Establishes tactical and operational priorities. Work generally extends beyond day-to-day operations and more towards influencing long-range outcomes. Provides expert technical guidance and advice to IT specialists and other unit personnel and approves or makes recommendations to staff to resolve issues. Prepares budget information and biennial budget requests. Reviews budget allotments and expenditures. Conducts annual reviews of assigned services or functions and initiates new or revised IT policies, procedures, or methods as needed.	Provides senior management of IT services involving extensive executive management involvement. Provides overall strategic direction and highest-level technical guidance to IT staff to resolve critical issues. Prepares decision packages. Responsible for developing the vision and designing, deploying, and enhancing IT services support for the organization. Makes strategic decisions including implementing initiatives across multiple divisions or across the agency/higher education institution. Provides the highest level of technical IT expertise to manage a broad scope of IT functions, services, or activities. Provides management oversight to multiple IT services or functional areas and functional teams. Supports agency-level applications and services. Prepares activity and progress reports.
Effect of Work	Work affects the development and implementation of IT services or functions for a business area, division, region, or academic college. Work directly affects the technical work performed by IT staff in the assigned area of responsibility.	Work affects IT services or functions across the agency/higher education institution including most, if not all, business operations or academic areas. Work often involves conducting capacity planning and making technical recommendations to executive management to address changes in technology or IT services for an IT organization.

Factor	IT Manager	IT Senior Manager
Authority Exercised	Authority to prioritize and manage operations and all technical IT issues within an assigned area of responsibility. Decisions are influenced by work priorities, balancing of work requirements, and organizational influences. Authority to approve purchases within established limits for services or equipment.	Designated authority for planning, setting IT organization direction, and resource management. Approves large, complex organization-wide IT projects involving multiple job families or IT specialty areas. Designated authority to speak on behalf of and make binding decisions for the IT services organization. Manages and monitors IT services budgets.
Level of Contacts	Works primarily with employees and managers in the assigned area of responsibility such as: Departments or field offices Divisions/Regions Other IT units at the same location Consults with internal employees and managers and external clients or the public. Maintains working relationships with outside vendors and contractors. Serves on IT services project and management teams.	Works primarily with senior managers or administrators including internal executive management. Serves as the agency/higher education institution representative for multi-agency or statewide technology projects. Serves as a technical executive sponsor for medium to large IT projects. Directs IT services management teams.
Purpose of Contacts	Plans, coordinates, and manages work efforts. Often consults and makes decisions concerning complex or unresolved technical IT issues affecting unit-level operations. Works primarily through supervisors/leads to resolve technical issues; implements policies and procedures and establish work methods and priorities.	Provides and makes strategic-level recommendations and decisions on organization-level IT services and/or operations. Provides technical expertise, advice, and counsel to executive management regarding IT technology matters.

Demonstrated Proficiency Levels – IT Professional Competency-Based Descriptions

Supervisor

- Supervises the day-to-day activities of assigned staff within an assigned area of responsibility.
- Prioritizes and assigns tasks to ensure work schedules and performance targets are met.
- Ensures work assignments and projects are completed on time.
- Follows established procedures and agency standards and provides technical advice to lower-level staff to help resolve complicated or complex IT issues.
- Communicates with users to identify and resolve issues.
- Refers unresolved critical or complex problems to higher-level management for resolution.

Skilled in performing one or more of the following activities:

- Leads IT projects in accordance with project plans and budgets.
- Implements new procedures, standards, and techniques.
- Prepares technical IT recommendations and reports for higher-level management.

IT Manager

- Manages designated IT activities involving one or more specialized IT job families within an assigned area of responsibility.
- Applies and manages IT resources effectively to meet client's business needs.
- Typically supervises professional IT staff.
- Consults and provides expert technical guidance and advice to assigned IT staff.
- Applies new technology, makes recommendations, and works with IT staff to resolve complex, technical IT issues.
- Applies project management principles, methods, and practices to assigned projects or initiatives.

Skilled in one or more of the following activities:

- Manages team activities such as developing, implementing, testing, and maintaining a large system or project or several smaller systems or projects.
- Confers with and advises supervisors and employees on administrative policies and procedures, technical issues, priorities, and methods.
- Approves specifications and design requirements for applications and systems.
- Reviews budget allotments and expenditures.
- Reviews, analyzes, and approves IT projects
- Prepares, recommends, and/or approves cost estimates.
- Conducts analyses and prepares short-term and long-term plans for assigned area of responsibility.
- Evaluates and approves purchases of hardware, software, or vendor-supplied services. Monitors vendor performance and ensures completion and compliance of contract requirements.
- Conducts annual reviews of assigned services or functions and initiates new or revised IT policies, procedures, or methods as needed.
- Establishes tactical and operational priorities.

IT Senior Manager

- Provides senior management involvement for IT services, involving multiple IT job family specialties and integrating new technology.
- Analyzes practical situations and applies knowledge of the IT job family disciplines to meet the specialized needs of the organization.
- Provides the highest level of technical IT expertise and guidance to agency administrators, communicating using nontechnical terms regarding IT services and functions.
- Develops, interprets, and applies policies and procedures governing the overall delivery of IT services.
- Mentors and coaches managers, supervisors, and employees in best practices and standards.

Skilled in one or more of the following activities:

- Serves as the most senior technical position and represents the highest level of professional expertise in consulting and advisory work across multiple job families.
- May serve as a technical advisor to other senior level management positions across the organization's IT operations.
- Provides overall strategic direction and highest-level technical guidance to assigned project or other personnel.
- Prepares activity and progress reports.
- Is responsible for developing the vision and designing, deploying, and enhancing IT services support for the organization.
- Makes strategic decisions including implementing initiatives across multiple divisions or across the agency/higher education institution.
- Approves large, complex organization-wide IT projects involving multiple job families or IT specialty areas.
- May direct the operation and maintenance of agency/higher education institution-level system platforms.
- Serves as a technical executive sponsor of large-scale IT projects.
- Manages and monitors IT services budgets.
- Serves as the agency/higher education institution representative for multi-agency or statewide technology projects.
- May direct IT services management teams.
- Identifies technical IT training gaps and develops skills development plans.

ITPS guidance: Clarification of IT Support Technician 2 class

How to differentiate IT Support Technician 2 work from entry IT Professional Structure work

To distinguish the difference between the IT Support Technician 2 and the entry-level IT professional (regardless of job family), you must understand the difference between paraprofessional and professional. The definitions of both are in the Glossary of Classification Terms.

Paraprofessional – In a supportive role, performs some of the duties of a professional or technician. These duties usually require less formal training and/or experience normally required for professional or technical status.

Professional – Performs work that requires consistent application of advanced knowledge, usually acquired through a college degree in a recognized field, work experience, or other specialized training. Exercises discretion and independent judgment when performing assignments.

The intent of the IT Support Technician 2 class is to provide support to IT professionals by independently performing routine IT tasks. As found in the Distinguishing Characteristics of the IT Support Technician 2 class, positions follow standard procedures and choose from a variety of guidelines, policies, or procedures, which aligns with the definition of paraprofessional.

The determination of professional or paraprofessional will guide you toward either the ITPS or the IT Support Technician series. It may also help to look at the differences between the IT Support Technician 2 level and the entry level of the ITPS:

The IT Support Technician 2:

- is the fully competent level of the paraprofessional series,
- has duties and responsibilities that are supportive in nature,
- has duties that are routine in nature,
- has assigned duties and tasks that are completed under general supervision/direction, and
- has qualifications that require limited IT technical experience and/or education.

Whereas the entry level of the ITPS, regardless of job family:

- performs beginning-level professional work,
- typically performs professional-level duties that are repetitive and routine,
- is provided clear work directions and parameters,
- requires outcomes to be reviewed by higher levels,
- may need close supervision upon hire (but is expected to complete their duties under general supervision within six months), and
- has qualifications requiring formal IT education and/or equivalent years of technical experience.

The working relationship (close supervision/general supervision or direction) has been an area of confusion. As stated above, the entry-level professional typically works under close or general supervision, whereas the IT Support Technician 2 works under general direction (fully independent). This by itself does not determine where to allocate a position, but it can provide a clue on whether or not the position is performing entry-level work.

Looking for the key differences between the two classifications will help you determine the appropriate allocation of the position.

ITPS guidance: Evaluating IT position descriptions – four areas

Overview

This guidance provides clarification on four areas of the evaluation rating process that evaluators may struggle with when applying the evaluation criteria in the ITPS Evaluator's Handbook. This is supplemental information and does not replace any of the content or criteria set forth in the handbook.

Topics addressed are:

- Movement between levels
- Included versus excluded
- Direct impact versus indirect impact
- Technical Know-How

1. Movement between levels

The IT evaluation process requires a holistic review of all the components of the IT position description. Each section must align with the other to tell the story of the position. As shown in the Evaluator's Handbook starting on page 20, each section of the IT PD has relevance to specific ratings. It becomes obvious when a higher rating is inappropriately used to move a position to a higher level. These are referred to as incongruent ratings — they don't make sense together.

When evaluating, committees should have access to the organizational chart and use of the IT Position Evaluation Tool to review evaluations for the entire work unit and compare IT PDs.

Example of an incongruent rating:

- A position requiring advanced knowledge to perform the work would not typically be limited to mainly dealing with established or routine problem solving. The advanced knowledge would be in support of problem solving for unique or rarely occurring complex issues instead of daily routine problems such as resolving user password lock outs that have clearly established processes for resolution.
- The level of supervision is noted as "Direct Supervision" or "General Supervision." Positions requiring advanced knowledge would be expected to have general or administrative direction.

- The position is noted as a “lead.” Lead work is a standard function of an IT professional at all levels. It is standard within the IT industry that positions take leadership roles over specific systems, lower-level staff, project teams, etc. Being a lead should not drive a higher level of scoring or be given additional consideration in scoring.
- Scoring alignment with positions in the work unit that have the same, or significantly similar, IT PDs. In looking at the organizational chart and supporting documentation, would the rating create an inversion with the supervisory position or a significantly similar position?

Incongruent Scoring:

Technical Know-How	***645***	***Advanced Knowledge***
Scope	215	Single Area Specialist
Impact Total (Impact Scope x Impact Accountability)	*113	Single or multiple department(s) Contributory
Impact Scope 225	[redacted]	
Impact Accountability 0.5		
Problem Solving	150	Established or Routine Solutions
Total	1,123	Journey level

*Rounded up

Typical Scoring:

Technical Know-How	***430***	***Fully Competent***
Scope	215	Single Area Specialist
Impact Total (Impact Scope x Impact Accountability)	*113	Single or multiple department(s) Contributory
Impact Scope 225	[redacted]	
Impact Accountability 0.5		
Problem Solving	150	Established or Routine Solutions
Total	928	Entry level

*Rounded up

State Human Resources monitors the scoring trends and workforce structure.

2. Included versus excluded

- There are two instances when a position is excluded from the IT Professional Structure:
- When a position is considered an IT user, IT tools are used to perform the job duties, but the focus of the job is not IT. Examples are positions who research and analyze data to provide reports and recommendations to stakeholders (e.g., Data Consultants, Management Analysts, etc.).
- When a position is determined to be an IT worker, the focus of the position is IT, but the position objective, duties/tasks, problem solving, and decision-making **do not rise to the level of professional** as defined in the Glossary of Classification Terms (Glossary – Classification) and the Evaluator's Handbook. Guidance document ITPS guidance: Clarification of IT Support Technician 2 class - How to differentiate IT Support Technician 2 work from Entry IT Professional Structure work is also a resource to assist with this determination.

When evaluating a position to determine whether it is an IT professional position, ask the following questions:

- What is the focus of the position (essential versus marginal functions)?
- Is it technical IT or does the position use IT tools to accomplish the job?
- What does it take to perform the work?
- What is the scope of the position's impact on program, service delivery, and financial viability?
- What must an incumbent know or be able to do to perform all the job's requirements?
- What specialized IT technical skills must the incumbent possess?
- Refer to those areas within the Evaluator's Handbook that give examples of inclusion/exclusion criteria.
- Determining Inclusion and Exclusion, pages 9–16
- IT Professional Competency Descriptions, pages 32–39
- IT Job Family Descriptors, pages 40-68, with examples of IT User versus IT Worker and examples of functional competencies you should see in the position if it is an IT professional level position.

3. Direct impact versus indirect impact

- The question to answer is does the work of the position directly impact the system's ability to collect or disburse funds?
- Impact is via systems that *collect* state revenue (e.g., tax collection systems, fishing licenses [excludes public health, safety, or benefit delivery systems]). Systems the state relies on to collect revenue or in higher education tuition collection systems.
    - **Notes:** Work has a **direct impact** on a system or program that directly serves the public in terms of payment collection or other public facing systems (e.g., excise tax, licensing fees).
- Impact is via systems that distribute funds (e.g. eligibility benefits, child support payments), **or** systems with direct impact to public health and safety. Systems that beneficiaries rely on for cash benefits, health, and/or safety needs.
    - Notes: Work has a **direct impact** on a system that directly affects public safety systems (e.g., 911 call center system), systems that impact the disbursement of funds (e.g., child support payments), or, regardless of monetary impact, would have a resulting impact to the health and safety of the public.

What does direct impact look like?

Due to industry processes such as the software development life cycle, Agile, and others, few positions have the access and/or the ability to *directly* impact systems. The checks and balances exist to specifically mitigate this type of access. The same holds true for state government.

We primarily see positions in the IT Application Development and IT System Administration job families have the access to directly impact systems. Positions can alter the calculations, functionality, interfaces, and other elements of a system and release it into production. Like a pilot, they are responsible for landing the plane. While the air traffic controller, ground crew and even flight attendants assist in the preparations and *indirectly* impact the landing, it is ultimately the pilot who directly impacts how the plane is going to land.

Of the IT positions that received the two highest impact scores, the majority were in the following job families:

- IT Application Development
- IT System Administration
- IT Data Management
- IT Architecture

Ask the following questions:

- Does the system collect revenue or distribute funds to beneficiaries?
  - There are umbrella systems such as ProviderOne that are conglomerates of multiple social service systems and programs. Some systems do distribute funds to beneficiaries, some systems do not. Just because a position may code a subsystem of ProviderOne doesn't mean they have impact in the part of the system that distributes the funding.
  - College class registration systems can be different from the system that collects the tuition payments once registration is complete. The impact would be via the tuition collection system.
- What is the accountability and decision-making authority of the position?
  - Do all like positions in the unit do the same work? Is there shared accountability?
  - Are positions doing the prep work for another position to implement (indirect impact)?
- Is the position responsible for all phases of development or just a specific role in the process?
  - Is this a stand-alone position or is it in a work unit? Do the other IT PDs have the same work listed?
  - Agency size is a factor — large agencies have specialists, small agencies have jacks-of-all-trades.
  - Is the system supported by a vendor who is accountable for the implementation of system changes?

Example of generic System Development Life Cycle (SDLC):

A generic system development lifecycle is illustrated in Exhibit 3. It consists of four main phases, each comprising certain processes, with each process producing certain System Development deliverables.

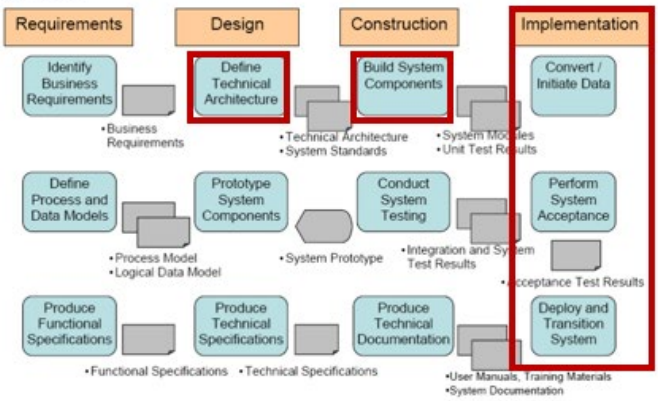


Exhibit 3 – Generic System Development Lifecycle

Direct Impact Occurs

If the work of the position falls into one of the outlined areas above for a system that collects or distributes funds, you still need to look at the **totality** of the position.

- What decision-making authority does the position have?
- What is the potential impact of results?
- Is there a shared accountability with peers or a supervisor?

4. Technical Know-How

Do qualifications identify:

- Level of experience – Professional
- Complexity of qualifications
- Progressiveness of experience – seniority (tenure in position) versus complex experience
- Type of experience – generalist versus specialized knowledge

Just because the **required qualifications** identified shows the position must have a significant number of years of experience, multiple certifications, and/or an educational requirement, that doesn't mean the position requires extensive knowledge based on research and experience. You need to look at the qualifications in conjunction with the other areas for this position.

Do the qualifications line up with the:

- Position objective
- Actual duties and tasks
- Problem solving
- Decision-making — Both the individual decision-making and decisions position must elevate to their manager are made independently

Ask the following questions:

- What kind of experience is being required? Is it IT related?
- Some PDs have qualifications that include:
    - Working knowledge of IT
    - Expert-level experience in IT
    - Ability to work at expert level

Without qualification or explanation, these types of phrases are subjective. Review the "Application" column to see if there is additional information to help explain these types of

qualifications. Further, the “ability to” do something isn’t an actual qualification as everyone has the “ability to” do something. If the required qualifications are limited to the ability to do something, then there is no actual experience, certification, or education required for the position.

Is it:

- Technical experience?
- Professional experience?
- Progressive?
- Increasingly more complex?

Example – Generic required qualifications:

“10 years of IT experience required” may on the surface seem like a significant amount of IT experience, but if the PD doesn’t qualify the experience as to the type, level, and progressive nature, you could have an incumbent qualify for this position that has 10 years’ experience processing help tickets at the help desk; or you could have an employee qualify for this position that is working in an IT unit, section, or division that provides customer support for the area.

Example – Clearly stated required qualifications:

- Three (3) years of progressive experience in/with SQL server development, writing complex stored procedures, triggers, views, etc.
- Three (3) years of progressive experience developing data solutions using Azure Data Services, including the Analytics, Database and/or Reporting services.
- Three (3) years of direct experience in management of information security programs that includes writing and implementing security policies and conducting vulnerability tests. Experience should also include managing or working with a major technology program functional area.

On the surface, you would think 10 years of experience surpasses three years of experience, however, when you look at the other components of the qualification, the clearly stated example that requires three years is significantly more advanced than the generic example requiring 10 years.

ITPS guidance – Allocation at the expert level

Overview

Whether reviewing an IT position description for allocation purposes, doing a desk audit, or a position review, there are certain components that must be included to allocate to the expert level. While this guidance is specific to the IT Professional Structure evaluations of expert level, the guidance also applies when allocating to non-ITPS classified job classes designated as the expert level.

Guidance

When allocating to the IT expert level, you must look at all the components of the definition. This should not be confused with a subject matter expert, or those positions who are looked at as the "go-to" person, the lead, or a person you can go to for help, advice, or information.

Within the context of the class series, "expert" as defined in the Glossary of Classification (Glossary – Classification) has the highest level of responsibility and extensive knowledge based on research and experience in a specific area. Experts resolve the most complex, critical, or precedent-setting issues that arise. Positions act as a resource and provide guidance on specialized technical issues. Although an employee may be considered by their peers as an expert or "go-to" person at any level, for purposes of allocation, the term is typically applied to an employee who has gained expertise through progression in the IT occupation.

Again, to meet the definition of expert the position must have **all** the components, not just one or some of the components listed below:

1. Highest level of responsibility
2. Extensive knowledge based on research and experience in a specific area
3. Resolves the most complex, critical, or precedent-setting issues that arise
4. Positions act as a resource and provide guidance on specialized technical issues
5. Typically applied to an employee in the IT occupation who has gained expertise through progression.

To answer the following questions, conduct a thorough review of the PD.

- Does the PD identify the position as an expert? If so,
  - Do the duties, problem solving, decision-making, and required qualifications substantiate the claim of expert?
  - Does position meet the definition of expert in the Glossary of Classification Terms (Glossary – Classification)?
  - Does the position align with the ITPS expert competency description found in the IT Evaluator's Handbook?

Expert-level components

1. Highest level of responsibility

A position that is designated as an "expert" would work under Administrative Direction (see definition in Glossary of Classification Terms). The expectation is that when reviewing the PD, performing a desk audit, or doing a position review, the reviewer would see all components as outlined in the definition of "Administrative Direction" and not just some of the components.

The PD would reflect this level of responsibility and supervisory direction, especially in the problem solving and decision-making authority. This may not be limited to a narrow scope of work. Positions who work under Administrative Direction will:

- Receive minimal guidance from their manager.
- Not share decision-making responsibility with other coworkers or staff, only with their supervisor/manager.
- Typically, the impact of their decisions would be organization wide.

2. Extensive knowledge based on research and experience in a specific area

Just because the required qualifications identify that the position must have a significant number of years of experience, multiple certifications, and/or an educational requirement, it doesn't mean the position requires extensive knowledge based on research and progressive professional IT experience.

Ask the following questions:

If required qualifications indicate a significant number of years of experience –

- What kind of experience is being required? Some PDs have qualifications that start out with:
    - Working knowledge of IT
    - Expert-level experience in IT
    - Ability to work at expert level
- Is it IT related?
- Is it IT technical experience?
- Is it IT professional experience?
- Is it progressive IT experience?
    - Is it increasingly more complex IT experience?

When you can have a required qualification that states "10 years of IT experience required" on the surface this may seem like a significant amount of IT experience, but if the PD doesn't qualify the experience as to the type, the level, and the progressive nature, you could have a person qualify for this position that has 10 years processing help tickets at the help desk; or you could have an employee working in an IT unit, section, or division that provides customer support for the area.

Is the focus of the work IT technical expertise or the depth of knowledge with the agency business?

- If the qualifications are limited to agency or state-government-specific business knowledge (experience with Office of the Chief Information Officer policies, agency governance procedures) or,
- If business process expertise is a more extensive requirement than the actual IT technical qualifications.

You need to consider if a technical expert or a business subject matter expert is needed. A technical expert would have transferable IT skills not limited to a specific agency or government entity. IT skills should be transferable regardless of agency, government, or private entity. For example, an application developer may be an agency system specific expert, however their application development skill set is not transferable to other applications. In this instance they would not rise to the level of an expert. The underlying technical skills should be transferable regardless of the application platform.

At the expert level, it is expected the focus is on the breadth and depth of IT knowledge, skills, and abilities. Other experience, while relevant, are not key drivers for the expert rating. When

the PD lists required certifications, it's best to research the certification and the requirements for the certification.

- What kind of certification is it?
- Does it line up with the objective, duties, problem solving and decision-making outlined in the PD or identified during the desk audit or position review?
- What is required to gain certification? This is important to know as some certifications are very simple to obtain and both IT and non-IT people can get them. Other certifications require significant time, education, and experience to obtain.

For example, Certified Information Systems Security Professional (CISSP) is a security certification which requires candidates to have a minimum of 40–70 hours of study (depending on which domains) and a minimum of five years industry specific, cumulative paid professional work experience in two or more of the eight domains:

1. Security and risk management
2. Asset security
3. Security architecture and engineering
4. Communications and network security
5. Identity and access management
6. Security assessment and testing
7. Security operations
8. Software development security

Examples of non-expert-level certifications:

Expert has been listed on PDs regarding Microsoft Office certification. There are several different certifications available through Microsoft. Additionally, none of these certifications require experience to gain certification. This might be an area where the position is considered a subject matter expert rather than an actual expert per definition.

Expert has also been listed on PDs regarding Active Directory which is a Microsoft technology product used to manage computers and other services. Active Directory allows network administrators to create and manage domains, users, and objects within a network. IT experience is not required to learn this product or gain certification in this product.

If required qualifications indicate a specific type of **education:**

- Review the required education requirements to make sure they align with the objective, duties, problem solving, and decision-making authority outlined in the PD during the desk audit or position review.
- Some educational requirements are very generic and/or vague. At first glance, this example looks impressive until you break it down:
    - A bachelor's degree in IT, communications, engineering, computer science, **or a related field** and four years of IT experience **such as** consulting, analyzing, designing, developing, installing, **and/or** maintaining computer software applications, directing projects, providing customer support, providing technical support in IT.
    - Equivalent experience **and/or** applicable certifications may substitute year for year for the educational requirements.
- The words highlighted above leave the door open for a broad interpretation of the required qualifications. It identifies the type of experience but not the level, such as supportive, paraprofessional, and professional. The requirement is diluted by the words "or," "such as," and "and/or."
    - "Or related field" – related to IT, related to communications, related to engineering, related to computer science. When considering relationship to communications or engineering, this broadens the "field" significantly.
    - "Such as" – means this is only a partial listing of the types of experience you can have to do this job. When you have such a broad list that includes areas like customer support, it makes this a generic statement of experience.
    - "And/or" – this broadens the type of experience even more because you can have:
        - this experience AND that experience, OR
        - this experience OR that experience.
    - Additionally, the statement includes "Equivalent experience and/or applicable certifications." Who determines what is equivalent? Especially when the type of experience is as broad as outlined. Remember, certifications have requirements from no experience to a significant number of years of experience.

3. Resolves the most complex, critical, or precedent-setting issues that arise

For the position to be allocated to the expert level, they must resolve the most complex, critical, or precedent-setting issues. Typically, critical and precedent-setting issues are the most complex issues that arise.

A position classified as an expert would need to meet the definition of highly complex, both the nature of the work assigned as well as the level of difficulty in identifying the work to perform. The position would need to meet all the items identified within the definition in the Glossary of Classification Terms (Glossary – Classification) to be considered an expert.

When reviewing a PD, the reviewer should be able to ascertain whether the position has the components as outlined in the definition of highly complex. If all components are not included, the position would not meet the definition of expert.

4. Positions act as a resource and provide guidance on specialized technical issues

By the very nature of an expert position, it is expected the position would act as a resource and provide guidance at all levels on specialized technical issues. Not just the go-to person or the subject matter expert, but the true expert. To do this, it would require the position to have highly specialized technical skills and knowledge over a broad range of job families and a depth of knowledge and skill in the job family in which they have expertise. The position needs to be able to make decisions with major uncertainties and determine the most effective approach or method. It would also require the position to have a complete understanding of business processes, strategic direction, impact on internal/external stakeholders, and the organization or organizations involved.

5. Is typically applied to an employee in a higher-class level who has gained expertise through progression in the series

It is important to remember allocation is about the position and the duties of the position, not the person. For a position to be considered an expert, the requirements would normally reflect requirements for an incumbent who has progressively obtained higher and more complex experience to meet the required qualifications of the expert position.

The experience should indicate:

- Depth and breadth of knowledge gained.
- Progressively more complex duties including the management of highly complex precedent- setting projects or programs.
- Consistent application of advanced knowledge.
- Discretion and independent judgement when performing assignments.

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