

Iowa Department of Administrative Services – Human Resources Enterprise
Classification Series Guidelines

Information Technology Specialist Series

Classes in the Series

<u>Class Code</u>	<u>Class Title</u>
00118/90118	Information Technology Specialist 1
00119/90119	Information Technology Specialist 2
00120/90120	Information Technology Specialist 3
00121/90121	Information Technology Specialist 4
00122/90122	Information Technology Specialist 5

Series Concept

To provide professional level information systems and information technology functions. Develops computer systems, application programs and/or operates information processing systems. Generates, tests and maintains software. Performs database construction, hardware evaluation and selection, and special studies (such as timing, access, etc. considerations).

When using these guidelines, one should first determine the primary area of work from the following:

1. Database/Data Access
2. Business Application Processes
3. Systems Programming/Systems Management
4. Education
5. Network Coordination and Personal Computer/Local Area Network/Servers
6. Operations
7. Internet/Intranet

Once this is determined, the class distinctions and the charts that follow should determine the level of the classification within the Information Technology Specialist series.

Exclusions

The following are excluded from classification within this series:

1. Any positions that include full supervisory functions.
2. Those positions that provide support type functions in the information technology area (i.e., Information Technology Support Worker series).
3. Positions whose primary purpose is not in the information technology area.

Class Distinctions

The following terminology and descriptions are applicable to the class distinctions:

1. Database/Data Access
 - Install and maintain database management systems.
 - Performance tuning, database and system maintenance.
 - Work in conjunction with the business application process staff to develop specific database applications (assure that data can be loaded into storage and that data can be accessed as intended).

- Develop and enforce data definition standards to ensure data can be used across work units.
 - Design process to move data from mainframe master file to a sub file that users can access without going into the mainframe master file. This is often called "Data Access/Warehousing" and is considered an intermediate place between the mainframe file and Internet.
2. Business Application Processes
 - Design, develop, and implement computer programs for business applications; completes design of computer systems applications, performs technical analytical assignments in the development of computer systems.
 - Work closely with users to analyze and prototype automated systems.
 - Performs programming/systems maintenance and enhancements.
 3. Systems Programming/Systems Management
 - Install and configure, tests, and maintains computer operating system software on a mainframe or a large server that impacts the entire or a significant part of an agency.
 - Install and use systems specifically designed for functions related to problem management, change management, assets management, and network security on a mainframe or a large server that impacts the entire or a significant part of an agency.
 4. Education
 - Develop and conducts information management related training classes.
 - Schedule and coordinate vendor classes for users.
 - Schedule and manage training facilities.
 5. Network Coordination and Personal Computer/Local Area Network/Servers
 - Install and configure, test, and maintain LAN/server system software; maintain security and establish operating standards and perform technical support for networks.
 - Develop and administer user and resource definitions and system availability.
 - Install and maintain PC hardware and software.
 - Server maintains data files and sophisticated software for programming and sending of messages.
 - Control unit is used only for routing messages.
 - LAN (Local Area Network) requires the use of at least one server and may have one or more remote control units, routers, hubs or switches
 - WAN (Wide Area Network) links several LANs together.
 6. Operations
 - Operate and schedule a computer system hardware installation and related peripheral equipment.
 - Coordinate production workflow scheduling and distribution in a mainframe operations room environment.
 - Serve as a contact point for resolution of customer problems involved with system operation (Help Desk).

7. Internet/Intranet

- Design specialized interactive systems to allow agreed upon data to be accessible to the intended public.
- Write programs using such languages as JAVA, PEARL, Visual Basic, or C++. This does not include HTML language which permits script to be added on a web page.
- Write programs to manipulate accessible data for specified reports.
- The term "Web Master" originally was used for the person controlling the server for the internet. Today the term is used loosely for anyone working on the internet and, thus, "Web Master" does not necessarily indicate the person should be in the Information Technology Specialist series.

Information Technology Specialist 1

This is the trainee professional level which works under close supervision assisting higher level Information Technology Specialists. The work performed is frequently reviewed for developing computer programming codes using a limited number of programming languages (i.e., COBAL, SAS, PL1, "C", etc.) or for PC/LANS Server hardware/software configuration installation and maintenance. Impact of errors is limited to delay in the completion of assignments and the cost associated with correcting the problem. Positions at this level work primarily in the area of business application processes and support of PC/LAN requirements.

Information Technology Specialist 2

Employees work in the following areas:

- Personal Computers/LAN/Server. Employees function at an entry level applying basic analytical skills to solve problems and design systems related to PC/LAN/server configurations.
- System Management. Employees function at an entry level primarily limited to production functions.
- Operations/Help Desk. Employees function at a journey level system or network operator as a single shift coordinator. Serves as a first point of contact applying basic analytical skills to solve customer problems.
- Business Application Process. Employees function at a journey level focused on application computer programming.
- Internet/Intranet. Employees function at an entry level assisting others in the development of basic programming for the internet/intranet.

Information Technology Specialist 3

Employees work in the following areas:

- Database/Data Access. Employees work under close supervision assisting higher level Information Technology Specialists in systems programming for database or systems analysis for application development.
- Business Application Process. Employees work under general supervision on multiple application programming and/or basic system design assignments.
- Systems Programming/Systems Management. Employees work under close to general supervision in system programming and routine production functions including some systems management process analysis.
- Operations/Help Desk. Employees function at a journey level system or network operator coordinating multiple shifts. Serves as a first point contact applying analytical skills to solve

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customers' problems. Assist Information Technology Administrator 2 in determining detailed communication technology problems in conjunction with U.S. West and ICN.

- Education. Employees assist higher level specialists in developing and delivering information management courses in limited applications and systems areas.
- Personal Computer/LAN/Server. Employees work under general supervision focused on PC configuration and implementation, problem isolation and determination for PCs to be established on large, multiple LANs. Employees are starting to use Managewise or similar software. Employees need to be knowledgeable with remote LAN to LAN control units and routers in a communication environment. Normally the agency's central office is in control to outlying locations of the agency.
- Internet/Intranet. Employees are involved in full web site development and basic programming interfaces for the web server.
- Leadworker duties may be performed at this level.

Information Technology Specialist 4

Employees work in the following areas:

- Network Coordination and Personal Computers/LAN/Server. Employees are focused on network functions and implementing, monitoring, and problem isolation and determination for large multiple LANS and/or WAN connected to LANs. Employees manage remote locations that have standalone computer to LAN for purposes of information processing. Employees set policy and procedures for LAN administration in organizations that have 50 to 99 personal computers and/or terminals in the LAN. Managewise or similar software is used.
- Database/Data Access. Employees work under general supervision focused on database management systems software related to multiple systems management technologies and processes.
- Systems Programming/Systems Management. Employees work under general supervision performing systems programming, systems management process analysis and modification to multiple systems management technologies and processes. Part of the work includes systems programming related to system management software.
- Education. Employees independently develop, modify and deliver information technology courses for a wide variety of applications and systems areas for both the mainframe and personal computer.
- Business Application Processes. Employees are responsible for complete systems analysis assignments and may serve as a project leader on large programming assignments. Employees use current operating technologies and processes to analyze and design business application processes.
- Internet/Intranet. Employees are the internet/intranet specialist using advanced programming tools and languages or are involved in programming for the internet/intranet server, security, network specialties, or is involved with web server hardware, software, security as a programming engineer.
- Lead worker duties may be performed at this level.

Information Technology Specialist 5

Employees at this level have the following characteristics that are common to all regardless of the area of assignment:

- Work at this level is broad in scope and impact is on several areas of service normally affecting everyone in the agency and outside users.
- Employees work with new or emerging technologies that are core to the present and future delivery of services crucial to the department or state.
- Employees must recognize underlying causes and issues that relate to problem solving and identify inter-relationships in key projects and systems elements.
- Employees use input from a variety of sources to solve issues critical to projects impacting total missions of departments or the state.
- Errors will impact the total mission of the department or state and can be extremely costly, running from hundreds of thousands to millions of dollars.
- Employees are considered the agency expert in extremely complex technical areas.
- Lead worker duties are normally performed at this level.

Employees work in the following areas:

- Network Coordination and Personal Computer/LAN/Server. An employee researches, recommends, plans, and coordinates functions for large, multiple LANS and/or WAN connected LANs. Employees set policy and procedures for LAN administration in one or more agencies that have 100 or more personal computers and/or terminals in the LAN. Employees are the driving force to correct problems on the LAN by programming and using a "sniffer" and by involving two or more outside agents such as U.S. West, ICN, private contractors, or Bay Network to solve network problems.
- Database/Data Access. Employees research, recommend, and plan the design of the database architectures necessary to support applications systems for a single large database management system or for multiple (differing architectures/products) or interacting database management systems.
- Business Application Processes/Systems Programming/Systems Management. An employee researches, recommends, and develops plans and coordinates functions for overall systems management technologies and processes or business applications process.
- Education. Employees research, plan, and develop long-range training plans and training in new and complex technologies, serving as the state's training expert in these areas.
- Internet/Intranet. Employees are involved in the research of website applications and development of policies, security, hardware, or programming.

Guideline Charts

1. Database/Data Access

Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 3	Entry level assists higher level ITS specializing in DBMS.	Some delay, rework cost minimal, some delay in completion of assignments. Impacts a specific area of service or a number of smaller systems.	Close supervision with frequent review of work for systems programming. In systems mgmt. work receives general supervision of work in progress.	Limited by assignments supportive in nature. Impact is only on a specific area of service while other operations are still operable or a number of smaller systems.	Uses current operating technologies and processes established by others. Learns and assists higher level ITS in sys. prog. for DBMS's or syst. analysis for application development.
ITS 4	Journey level focused on Database Management Systems software.	Impact a specific area of service or a number of smaller systems. Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope but impact is only on a specific area of service while other operations are still operable or a number of smaller systems with same impact as above.	Systems programming & sys. mgmt. process analysis and modification related to multiple systems mgmt. technologies and processes. Implementation, monitoring, problem isolation and determination for a single lang DBMS or for multiple (differing architecture/ products), or interacting DBMS's.
ITS 5	Identifies inter-relationships (personnel, other systems and other functional areas) in key projects and is the individual expected to initiate and manage a plan to complete the project. Coordinates work with other functional areas such as Database/Data Access, Systems Programming/ Systems Management, Business Applications Process, etc., to accomplish major revisions or installations of new systems. Uses input from a variety of sources to solve issues critical to projects with relative independence. Uses considerable initiative in solving problems. Must recognize underlying causes and issues that relate to problem solving.	Errors will impact department or state total missions. Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope and impact is on several areas of service normally affecting everyone in the agency and outside users.	Researches, recommends and develops plans and coordinates functions for overall systems management technologies and processes or business applications processes. Planning and design of the DBUS architectures necessary to support applications systems for a single large DBMS or for multiple (differing architectures/ products), or interacting DBMS's.

2. Business Application Processes

Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 1	Trainee level assists higher level ITS individuals.	Some delay, rework cost minimal, some delay in completion of assignments.	Close supervision with frequent review of work for developing computer programming code.	Limited by training assignments.	Training in a limited number of programming languages (i.e., COBOL, SAS, PL1, or "C", etc.)
ITS 2	Full journey level focused on application computer programming.	Impacts a specific area of services or a number of smaller systems.	General supervision of work in progress.	Impact is only on a specific area of service.	Learns and works with current operating technologies and processes established by others.
ITS 3	Full journey level focused on multiple application programming and/or basic system design assignments. First point of contact.	Impacts a specific area of service or a number of smaller systems.	General supervision of work in progress.	Impact is only on a specific area of service while other operations are still operable or a number of smaller systems.	Uses current operating technologies and processes established by others. Learns and assists higher level ITS in business application analysis system design and construction.
ITS 4	Responsible for complete system analysis assignments or could serve as a project leader on large programming assignments.	Impacts a specific area of service or a number of smaller systems. Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope but impact is only on a specific area of service while other operations are still operable or a number of smaller systems with same impact as above.	Uses current operating technologies and processes established by others to analyze and design business application processes.
ITS 5	Identifies inter-relationships (personnel, other systems and other functional areas) in key projects and is the individual expected to initiate and manage a plan to complete the project. Coordinates work with other functional areas such as Database/Data Access, Systems Programming/ Systems Management, Business Applications Process, etc., to accomplish major revisions or installations of new systems. Uses input from a variety of sources to solve issues critical to projects with relative independence. Uses considerable initiative in solving problems. Must recognize underlying causes and issues that relate to problem solving.	Errors will impact department or state total missions. Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope and impact is on several areas of service normally affecting everyone in the agency and outside users.	Researches, recommends and develops plans and coordinates functions for overall systems management technologies and processes or business applications processes.

3. Systems Programming/Systems Management

Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 2	Entry in systems management-limited routine production functions. Not involved in systems programming	Some delay, rework cost minimal, some delay in completion of assignments, but on system mgmt. only.	Closely supervised with frequent review of work in progress as necessary for systems mgmt. only.	Limited routine production support.	Learns and works with current operating technologies and processes established by others.
ITS 3	Entry level assists higher level ITS specializing in system programming and routine production functions including some systems mgmt. Process analysis.	Some delay, rework cost minimal, some delay in completion of assignments.	Close supervision with frequent review of work for systems programming. In systems mgmt. work receives general supervision of work in progress.	Limited by assignments supportive in nature.	Uses current operating technologies and processes established by others. Learns and assists higher level ITS in sys. prog. for sys. mgmt. syst. software. Learns and assists higher level ITS in system programming for system software and system mgmt. Uses current operating technologies and processes established by others.
ITS 4	Journey level system prog. S.M. journey level admin. process analysis and modification. Part of work includes journey level syst. prog. Related to syst. mgmt. Software.	Impact a specific area of service or a number of smaller systems. Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope but impact is only on a specific area of service while other operations are still operable or a number of smaller systems with same impact as above.	Systems programming & sys. mgmt. process analysis and modification related to multiple systems mgmt. technologies and processes.
ITS 5	Identifies inter-relationships (personnel, other systems and other functional areas) in key projects and is the individual expected to initiate and manage a plan to complete the project. Coordinates work with other functional areas such as Database/Data Access, Systems Programming/ Systems Management, Business Applications Process, etc., to accomplish major revisions or installations of new systems. Uses input from a variety of sources to solve issues critical to projects with relative independence. Uses considerable initiative in solving problems. Must recognize underlying causes and issues that relate to problem solving.	Errors will impact department or state total missions. Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope and impact is on several areas of service normally affecting everyone in the agency and outside users.	Researches, recommends and develops plans and coordinates functions for overall systems management technologies and processes or business applications processes.

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4. Education

Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 3	Entry level assists higher level training specialists in developing and delivering information management courses. Learns adult educational skills.	Impact is limited to a single class.	Receives direct oversight from a higher level ITS.	Limited by training assignments.	Trains in limited applications and systems areas.
ITS 4	Journey level, expected to independently develop, modify, and deliver routine to complex subject matter courses. Applies adult educational skills in delivering both mainframe and personal computer based courses.	Impact is indirect on delivery of information management services in many state agencies.	Receives general supervision primarily with review of final work product.	Impacts the implementation and successful use of a variety of information management technologies and related skills for numerous state agencies.	Trains in a wide variety of applications and systems areas.
ITS 5	<p>Identifies inter-relationships (personnel, other systems and other functional areas) in key projects and is the individual expected to initiate and manage a plan to complete the project. Coordinates work with other functional areas such as Database/Data Access, Systems Programming/ Systems Management, Business Applications Process, etc., to accomplish major revisions or installations of new systems.</p> <p>Uses input from a variety of sources to solve issues critical to projects with relative independence.</p> <p>Uses considerable initiative in solving problems.</p> <p>Applies fully developed adult educational skills in a variety of areas/topics also requiring technical knowledge. Expected to independently learn, develop, apply and market courses in new areas of technology and that are interrelated programs.</p> <p>Expected to develop long term training plans for major areas of training.</p> <p>Functions as an expert trainer.</p> <p>Focus on customer service emphasized as programs developed.</p>	Errors indirectly impact many state departments missions or total state and can cause costly errors or failures in service delivery.	Receives general supervision primarily with review of final work product.	Impacts the implementation and successful use of new technology and a variety of other major areas of technical service capability of state departments.	Trains in new and complex technologies, serves as state training expert in these areas.

5. Network Coordination and Personal Computers/LAN/Server

Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 1	Trainee level assists higher level ITS individuals.	Some delay, rework cost minimal, some delay in completion of assignments.	Close supervision with frequent review of work.	Limited by training assignments.	Basic P.C. configuration setup at a trainee level.
ITS 2	Applies basic analytical skills to solving problems and designing systems related to PC configurations.	Some delay, rework cost minimal, some delay in completion of assignments.	Close supervision with frequent review of work in progress as necessary.	Limited routine production support.	PC configuration planning and implementation for complex PC configs, e.g., work groups LAN PCs or voice response, or newer technology.
ITS 3	Work focused on PC systems configuration applying knowledge of PC and LAN network operating systems.	Impacts a specific area of service or a number of smaller systems.	Receives general supervision primarily with review of final work products.	Impact is only on a specific area of service while other operations are still operable or a number of smaller systems.	PC configuration and implementation, problem isolation and determination, etc., for PCs to be established on large, multiple, or WAN connected LANs.
ITS 4	Work focused on design and revision of network functions. Uses considerable initiative in solving problems.	Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope but impact is only on a specific area of service while other operations are still operable or a number of smaller systems with same impact as above.	Implementation, monitoring, problem isolation and determination for large, multiple or WAN connected LANs. LAN administrators will have 50 to 99 personal computers and/or terminals. Managewise or similar software is used.
ITS 5	Identifies inter-relationships (personnel, other systems and other functional areas) in key projects and is the individual expected to initiate and manage a plan to complete the project. Coordinates work with other functional areas such as Database/Data Access, Systems Programming/ Systems Management, Business Applications Process, etc., to accomplish major revisions or installations of new systems. Uses input from a variety of sources to solve issues critical to projects with relative independence. Uses considerable initiative in solving problems. Must recognize underlying causes and issues that relate to problem solving.	Errors will impact department or state total missions. Errors can be extremely costly. Service outages can be lengthy and delay the delivery of services of the agency or state. System outages for hours to days.	Receives general supervision primarily with review of final work products.	Broad in scope and impact is on several areas of service normally affecting everyone in the agency and outside users.	Researches, recommends and develops plans and coordinates functions for large, multiple or WAN connected LANs. LAN administrators will have 100 or more personal computers and/or terminals. Corrects problems on the LAN by using a "sniffer" and involving 2 or more outside agents such as U.S. West, ICN or Bay Network to solve problems.

6. Operations/Help Desk

Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 2	Journey level system or network operator as a shift coordinator on a <u>single</u> shift or serves as first point of contact applying basic analytical skills to isolate, assign or solve basic customer problems.	Service outages can be lengthy and delay the delivery of services of the agency or state on a single shift.	General supervision of work in progress.	Impact on a specific area of service on a single shift.	Uses large mainframe multi processing equipment including disk and tape drives, high speed printers, etc.
ITS 3	Journey level system or network operator. Serves as first point of contact applying analytical skills to isolate, assign or solving basic customer problems. Assists ITA 2 in determining detailed communications technology problems in conjunction with U.S. West and ICN. Assists in planning plus coordinating <u>multiple</u> shift operation schedules. Evaluates work of support staff and makes recommendations on performance evaluations.	Service outages can be lengthy and delay the delivery of services of the agency or state on multiple shifts.	No direct supervision on 2nd & 3rd shifts and weekends. Must function independently.	Impact of multiple areas of service on multiple shifts.	Uses large mainframe multi processing equipment including disk and tape drives, high speed printers, etc.

7. Internet/Intranet

Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 2	Web developer entry level.	Some delay, rework costs minimal.	Close supervision with frequent review of work.	Limited by assignments.	Learns and works with current operating technologies and processes established by others.
ITS 3	<p>Full web site (Intranet/Internet) development/design of graphics, forms, basic programming interfaces (cgi), and document management. Includes consulting/helping with customers concerning web usage.</p> <p>Technical knowledge of HTML required. Beginning to use Java, Perl.</p> <p>Technical application programmer for web (Intranet/Internet) server, database, security, network, or programming specialties.</p>	<p>Impacts a specific area of web services or a number of smaller services.</p> <p>Old information can be made public or technology errors could make information unusable for some users (HTML not ADA compliant).</p>	<p>General Supervision of work in progress and primarily review of final products. Independent research and testing required.</p>	<p>Impact is only on a specific area of web service while other operations are still operable. 100s/day of Internet users could be impacted.</p>	<p>Use of current operating technologies and processes established by others. Learns and assists staff in web application analysis, design and construction. (Helps users create web sites using website development tools.)</p> <p>Learns and assists higher level ITS in business application analysis, design and construction.</p>
ITS 4	<p>Web application (Intranet/Internet) specialist using databases, advanced audio/video/graphics, imaging, or document management. Use of advanced web programming tools/ languages (Java, Perl). Training and site consulting with complex web sites.</p> <p>OR</p> <p>Technical application/ system (Intranet/Internet) specialist for server, database, security, network, or programming specialties. Is familiar with languages such as Java Script, Visual Basic, Perl or Java.</p> <p>OR</p> <p>Web Server (Intranet/Internet) hardware, software, security, maintenance, user support, and programming engineer.</p>	<p>Impacts a specific area of services or a number of smaller services.</p> <p>Errors will cause delay the delivery of production level Internet Production Services. (database searches, electronic commerce services, data collection training applications.)</p>	<p>Receives general supervision and primarily review of final work products.</p> <p>Independent research and testing required.</p>	<p>Production level applications requiring correct, secure data impacting a specific area of service while other operations are still operable. 100s/ day of Internet users could be impacted.</p> <p>(database searches, electronic commerce services, data collection, training applications.)</p>	<p>Uses current operating advanced technologies (listed in column one) and processes established by others to analyze and design Web application processes or design business application processes.</p>

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Level	Complexity	Impact of Errors	Supervision Received	Scope Impact	Tech./Equip.
ITS 5	<p>Coordinates/research (Intranet/Internet) Web sites/applications using database, security, documents. Development of policies, security, training in advanced topics.</p> <p style="text-align: center;">OR</p> <p>Technical network specialist (Intranet/Internet) for server, database, security, network, or programming specialties. Multiple functions carried out as a generalist.</p> <p style="text-align: center;">OR</p> <p>Web Network (Intranet/Internet) research/development, hardware, software security, and planning. Cross technology specialist/consultant. Creative development of new technologies required.</p>	<p>Errors will impact department or state total missions of delivering 24 x 7 Internet service.</p> <p>Errors can be politically sensitive or costly (\$10,000's) and Information Service can be delayed hours or days.</p>	<p>Receives general supervision and primarily review of final work products.</p> <p>Is generally self-directed and does independent research and testing.</p>	<p>Impact is on several areas of service normally affecting everyone in the agency and outside users. Scope is cross departmental, intergovernmental.</p> <p>Could affect all levels of web government services including services requiring high levels of security.</p>	<p>Researches, recommends and develops plans and coordinates functions for overall management technologies and processes or web applications.</p>

Effective date: 05/98 GR/BW/DA