Gartner Benchmark Analytics: IT Functional Area Framework

The following provides guidance on how to count spending and personnel Full Time Equivalent (FTE) numbers. Include annual capital plus operational (cash out) spending for assets and personnel spending, plus spending associated with the operation, lease, maintenance, of hardware, software, connectivity, disaster recovery, and occupancy requirements to support the IT environment. This includes all internal as well as third-party spending.

IT Functional Area Annual Spending Definitions

Data Center

The scope of the Data Center function includes

- IBM (or other) mainframe systems running z/OS including subsequent or prior models operating on both general-purpose engines and specialty engines such as zAAP, zIIP and IFL.
- Linux, Unix, Windows, and other standard Server environments
- Provisioning and management of all data storage within an enterprise
- Data Center facilities

Annual Data Center Spending

Data Center spending includes annual capital plus operational (cash out) spending for assets, maintenance, installation and taxes, as appropriate, for all hardware, software, connectivity, disaster recovery, facilities/occupancy, as defined below in “Non-personnel Spending,” in addition to annual personnel spending as defined below in “Personnel.”

Non-personnel Spending: Non-personnel spending include in-house related spending as well as fees for third party and outsource contracts.

Hardware

- Processing Devices: Includes all hardware in server platform configurations, including internal disk storage, processors, memory, cards, etc.
- Client Devices: This includes the equipment used by the operations staff to support the environment (e.g., desktops, laptops, tablets).
- Storage Controllers, Storage Servers: All dedicated storage hardware devices including controllers, servers, disk arrays, tape libraries, optical jukeboxes
- Offline Supplies (Media): Portable media used to store data offline such as tapes.
Software

- Spending for software related to host and virtual OS licenses, virtualization and partitioning software, utilities, databases, middleware, content/document management search engines, messaging, communications (TCP/IP, FTP and host based), and server security.
- Annual license spending on software dedicated to managing the storage systems. This includes creation and setup, storage maintenance, reporting, security, monitoring, backup/restore, archival, replication, media handling and data migration/tiering.

Connectivity

- Intra-Data Center Connectivity: This typically includes: routers, switches, load balancers, controllers and appliances. Data center communication networks are dedicated networks that are segregated or isolated from the general purpose Local-Area Data Networks (LAN) or WAN. General purpose or shared network spending is excluded.
- Inter-Data Center Connectivity: This typically includes: transmission spending and hardware spending on the fiber, both utilized and unutilized (dark fiber) and the switches and controllers. Data center remote communication networks are dedicated networks that are segregated or isolated from the general purpose Local-Area Data Networks (LAN) or WAN. General purpose or shared network spending is excluded.

Disaster Recovery

- Disaster Recovery Contracts (Compute and Communications) for Hot Sites (Shell facilities), Dedicated Hardware, Software, and Connectivity.
- Spending on hardware, software, connectivity, facilities and contracts specifically dedicated to disaster recovery storage management.

Occupancy and Facilities

- Occupancy spending should include fully burdened spending for the non-data center floor space being used by the staff supporting the enterprise computing and storage environment under analysis. Some examples include office space, furniture, electricity, maintenance, property taxes, security and office supplies.
- Facilities spending includes management of the physical data center premises, and other facilities and services associated with the premises such as furniture, power supply, heat management, climatization services, access security, floor space, office space, design and consulting.
- Building and Maintenance
  - Utilities - electricity, water and gas for all data center equipment
  - Mechanical and Electrical Systems – air conditioning (CRACS), chillers, humidifiers, fans and associated piping and ducting, power distribution units (PDUs),
uninterruptible power supply (UPS), backup generators/batteries, cabling and electrical conduits, fire prevention and suppression, building management systems (BMS), data center infrastructure management (DCIM), lighting, heating and physical/logical security systems

**Personnel Spending/FTEs:** Personnel spending/FTEs include in-house and contract personnel (salaries and benefits) spending/full-time equivalents supporting the following IT functions:

- Operations/Maintenance, Engineering/Technical Services, Planning and Process Management, Services Administration, Management and Administration.

**End-User Computing**

The scope of the End-User Computing environment analysis includes the full life cycle management of desktop, laptop, tablet, thin client, handheld and peripheral assets including acquisition, deployment, maintenance, change management as well as disposal.

**Annual End-User Computing Spending**

End-User Computing spending includes the annual capital plus operational (cash out) spending for, assets, maintenance, installation and taxes, as appropriate, for all of hardware, software, disaster recovery, occupancy/facilities, as defined below in “Non-personnel Spending,” in addition to annual personnel spending as defined below in “Personnel.”

**Non-personnel Spending:** Non-personnel spending includes in-house related spending as well as fees for third party and outsource contracts.

**Hardware**

- Personal Computing Devices: Desktop, laptop, thin client, and tablet.
- Other Client Devices: Handheld.
  
  Transmission spending for handhelds and tablets are excluded and should be allocated to the data network.
- Peripheral hardware: Personal and shared printers as well as multifunctional printers/devices. Include costs for toner cartridges but exclude other consumables such as drum costs, ribbons, paper, and printer maintenance kits.
- IT management hardware: This encompasses hardware that primarily supports an IT process, not a business or user process. Examples are test and training devices, servers hosting network and system management (NSM) or asset management software, and devices used by the IT staff supporting the end-user computing environment. This also includes supporting a hosted virtual desktop (HVD) installation.

**Software**

- User client software.
- Personal productivity and database: This includes new word processors, spreadsheets, presentation packages, personal databases and other personal productivity software executing on client systems. It also includes upgrades.
• Messaging and groupware: This includes new and upgraded email, groupware and collaboration software.

• IT management software: This includes IT software that is used exclusively for IT functions including network, systems, storage and asset management, training and computer-based training (CBT) software, as well as security software (anti-virus, personal firewall, encryption, etc.) as well as mobile device management which offers software distribution, policy management, inventory management, security management and service management for smartphones and media tablets. This also includes HVD implementations comprised of dedicated server virtualization software to host desktop software (as a server workload), brokering/session management software to connect users to their desktop environments, and tools for managing the provisioning and maintenance (e.g., updates and patches) of the virtual desktop software stack.

Disaster Recovery

• Annual spending on hardware, software, connectivity, occupancy and contracts specifically dedicated to disaster recovery for end-user computing.

Occupancy

• Occupancy spending should include fully burdened spending on the facilities being used by the staff supporting the end-user computing environment. Some examples include office space, furniture, electricity, maintenance, property taxes, security and office supplies.

Personnel Spending/FTEs: Personnel spending/FTEs include in-house and contract personnel (salaries and benefits) spending/full-time equivalents supporting the following IT functions:

• Operations/Maintenance, Engineering Technical Services, Planning and Process Management, Service Administration, Management and Administration.

IT Service Desk

The scope of the IT Service Desk environment analysis includes receipt and/or placement of technical support calls or contacts to a predetermined group of Tier 0/Tier 1 support staff who support end-users of IT services.

Annual IT Service Desk Spending

IT Service Desk spending includes the annual capital plus operational (cash out) spending for assets, maintenance, installation and taxes, as appropriate, for all hardware, software, transmission, disaster recovery, occupancy, as defined below in “Non-personnel Spending,” in addition to annual personnel spending as defined below in “Personnel.”

Non-personnel Spending: Non-personnel spending include in-house related spending as well as fees for third party and outsource contracts.

Hardware

• PBX, ACD, interactive voice response, computer-telephony integration, IT service desk end-user computing devices, and IT service desk application servers.
Software
- This includes all software that is necessary to operate the service desk, such as expert knowledge tools, problem management tools, quality monitoring, self-service, workforce management software, workflow management software and service desk management portal software.

Occupancy
- Occupancy spending should include fully burdened spending for the facilities being used by the staff supporting the IT service desk environment. Some examples include office space, furniture, electricity, maintenance, property taxes, security and office supplies.

Transmission
- Includes inbound 800 service, dedicated trunking, local service, outbound long distance, Internet access (for example, IT service desk portal) and networking between IT service desks.

Disaster Recovery
- Annual spending on hardware, software, connectivity, occupancy and contracts specifically dedicated to disaster recovery for IT service desk.

Personnel Spending/FTEs: Personnel spending/FTEs include in-house and contract personnel (salaries and benefits) spending/full-time equivalents supporting the following IT functions:
- Operations/Maintenance (IT Service Desk Agents), Engineering Technical Services, Planning and Process Management, Service Administration, Management and Administration.

Network (Voice and Data)

The scope of the Network (Voice and Data) function includes:
- Wide-Area Voice Network (WAV): Traditional Outbound Long Distance and Inbound (Toll Free) voice services. This includes mobile voice.
- Voice Premise Technology (VPT) — Local voice services including voice mail and all move/add/change activity associated with local voice equipment (e.g., switches, circuits and handsets), and local (i.e., not Long Distance) calling. These assessments can encompass PBX/PABX and VoIP technologies..
- Wide Area Network (WAN): Connectivity and transmission of business-critical data between enterprise locations and business partners. This includes mobile data.
- Local Area Network (LAN): Accounts for the provisioning of communications and connectivity to critical business systems within enterprise sites and campuses

Note: Spending associated with permanent building cabling, horizontal and vertical, are excluded. Likewise, spending for any inter-building cabling (copper and/or fiber) that would be found on a campus are also excluded.
• Internet Access Services (IAS): Enterprise access to the global Internet, for the use of its personnel and for the use of its external customers to access enterprise websites

**Annual Network Spending**

Voice and Data Network spending includes annual capital plus operational (cash out) spending for, assets, maintenance, installation and taxes, as appropriate, for all hardware, software, disaster recovery, occupancy, transmission, as defined below in “Non-personnel Spending,” in addition to annual personnel spending as defined below in “Personnel.”

**Non-personnel Spending**: Non-personnel spending includes in-house related spending as well as fees for third party and outsource contracts.

**Hardware**

- Wide-area voice network hardware: Switching and routing, as well as terminating hardware. Terminating hardware includes microwave, satellite, compression, multiplexer/channel bank, PBX network interface card and channel service unit/data service unit (CSU/DSU).
- Voice premise: Telephone system equipment (such as voice switch/server and peripherals, including modules and uninterruptible power supply [UPS]), premise system phones (voice only; smartphones such as BlackBerry, iPhone and Android-based devices are excluded and should be allocated to the end-user computing environment), voice mail hardware (for example, processors and storage) and message authentication control (MAC) materials.
- Security hardware: Dedicated data network firewall hardware/servers, intrusion/detection servers and devices, as well as encryption hardware.
- Switching, routing and wireless hardware, including switches and routers, multiplexers, satellite equipment, boundary (branch) routers, backbone routers and bridges, and wireless access points.
- Other dedicated data network hardware, including Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) servers, optimization equipment such as Internet load-balancing hardware, MAC hardware and MAC cable (closet to desktop).
- IT management (network operations center [NOC]): This includes hardware that is located within a client's NOC and is used to support a client's centrally managed infrastructure/network. This includes client devices (PCs on NOC desktops) as well as servers (NOC), located within the NOC or elsewhere, but used primarily by the NOC.

**Software**

- Switch/voice server and peripherals (e.g., automatic call distribution [ACD], voice response unit [VRU]) and voice mail software spending.
- IT management (NOC): Software used by the NOC primarily to support/manage a client's voice and data networks.
• Security software: Dedicated data network firewall software, intrusion/detection software as well as encryption software.

• IT Management (network operations center (NOC)) software: All Network Systems Management software spending related to the NOC’s support of the infrastructure/network.

Transmission

• Includes all outbound and inbound transmission spending. It also includes the annual spending on local central office lines (where applicable) as well as cellular (mobile) voice only transmission spending.

• Annual data network transmission spending, such as carrier digital services including Frame Relay access, ports and PVCs (Permanent Virtual Circuits), ATM (Asynchronous Transfer Mode) access, ports and PVCs, MPLS (Multiprotocol Label Switching) access, ports, and CARs (Committed Access Rates) which also includes specific charges for Quality of Service (QoS) commitments, sometimes referred to as traffic shaping, T3/E3, dial backup service, Synchronous Optical Network (SONET), metropolitan Ethernet, and dark fiber, as well as annual spending on circuits connected to the Internet service provider and cellular (mobile) data transmission spending.

Disaster Recovery

• Disaster recovery contracts (communications) for hot sites (shell facilities), dedicated hardware, software, and connectivity.

Occupancy

• Occupancy spending should include fully burdened spending for the facilities being used by the staff supporting the voice and data network function. Some examples would include office space, furniture, electricity, maintenance, property taxes, security and office supplies. Occupancy for hardware (for example, closet space) is specifically excluded.

Personnel Spending/FTEs: Personnel spending/FTEs include in-house and contract personnel (salaries and benefits) spending/full-time equivalents supporting the following IT functions:

• Operations/Maintenance, Engineering Technical Services, Planning and Process Management, Service Administration, Management and Administration.

Application Development

The scope of the applications environment analysis is a high-level view of the spending associated with the provisioning and management of all applications within an enterprise.

Annual Applications Spending
Applications spending includes: Personnel spending as well as annual capital plus operational (cash out) spending for, maintenance, installation and taxes, as appropriate for all non-personnel spending (i.e., hardware, development software, business functionality software, occupancy). This also includes third party or outsourced spending for application development activity.

**Applications Development**

New code for a new application and functional enhancements to the current code that take more than two person-weeks, or that typically add eight function points or more. A "functional enhancement" is defined as "a change made for a user that allows additional capabilities (from a business point of view) that were not there before. In some environments, major enhancements can actually be added in less than two person-weeks. If this is the case, and eight function points or more are added (about 800 lines of COBOL or 300 lines of a database language), then this is still categorized as development.

**Non-personnel Spending**: Non-personnel spending include in-house related spending as well as fees for third party and outsource contracts.

**Hardware**

- This includes only hardware (mainframes, servers, end-user computing devices) used by the application development or support staff members to do their jobs (that is, client devices as well as servers and a portion of the mainframe used for application development and testing). This excludes end-user or production hardware.

**Software**

- Development and support software required by the application development and support staff members to do their jobs. It may include the languages/compilers/databases, development/testing tools and IT management software tools, such as project estimators and project schedulers.

- Business functionality software: For application support, this includes the maintenance spending on off-the-shelf vendor packages, as well as the spending on the software.

**Occupancy**

- Fully burdened spending for the facilities used by the development or support staff and included in this analysis view. Some examples would include office space, furniture, electricity, maintenance, property taxes, security and office supplies.

**Personnel Spending/FTEs**: Personnel spending/FTEs include in-house and contract personnel (salaries and benefits) spending/full-time equivalents supporting the following IT functions:

- Development, Logical Database Analyst, Quality Assurance & Testing, IT Process Management, Project & Program Management, Services Administration, Management and Administration

Application Development staff includes those involved in developing new applications, enhancing existing applications, installing new packages and installing major functional enhancements to existing packages.
Application Support

The scope of the applications environment analysis is a high-level view of the spending associated with the provisioning and management of all applications within an enterprise.

Annual Applications Spending

Applications spending includes: Personnel spending as well as annual capital plus operational (cash out) spending for, maintenance, installation and taxes, as appropriate for all non-personnel spending (i.e., hardware, development software, business functionality software, occupancy). This also includes third party or outsourced spending for application development activity.

Application Support

- Bug fixes of any size or duration, maintenance of hard-coded data or tables (including field size changes) embedded within the programs (any size or duration), and functional enhancements to current code that take less than two person-weeks and typically add fewer than eight function points, or any project that produces no new business functionality for the user.

- A "functional enhancement" is defined as "a change made for a user that allows additional capabilities (from a business point of view) that were not there before." In some environments, major enhancements can actually be added in less than two person-weeks. If this is the case, and eight function points or more are added (about 800 lines of COBOL or 300 lines of a database language), then this is categorized as development rather than support.

Non-personnel Spending: Non-personnel spending include in-house related spending as well as fees for third party and outsource contracts.

Hardware

- This includes only hardware (mainframes, servers, end-user computing devices) used by the application development or support staff members to do their jobs (that is, client devices as well as servers and a portion of the mainframe used for application development and testing). This excludes end-user or production hardware.

Software

- Development and support software required by the application development and support staff members to do their jobs. It may include the languages/compilers/databases, development/testing tools and IT management software tools, such as project estimators and project schedulers.

- Business functionality software: For application support, this includes the maintenance spending on off-the-shelf vendor packages, as well the spending on the software.

Occupancy

- Fully burdened spending for the facilities used by the development or support staff and included in this analysis view. Some examples would include office space, furniture, electricity, maintenance, property taxes, security and office supplies.
**Personnel Spending/FTEs:** Personnel spending/FTEs include in-house and contract personnel (salaries and benefits) spending/full-time equivalents supporting the following IT functions:

- Development, Logical Database Analyst, Quality Assurance & Testing, IT Process Management, Project & Program Management, Services Administration, Management and Administration

Application Support staff includes those involved in supporting applications that exist within the current portfolio. It also includes personnel who are responsible for fixing programming problems uncovered when applications are running in production. It does not include any personnel who are responsible for running the production applications. If an upgrade for a packaged application primarily contains fixes for existing problems, then the efforts involved in installing such a maintenance upgrade are included in application support.

**Corporate IT Management, Finance, and Administration**

Only include functions that are at a level within the IT organization that, after best effort, cannot be allocated to an IT functional area.

**Office of the CIO/CTO**

- This includes the "C-level" IT management, including the CIO and CTO functions. Also included here are the direct reports of the CIO, who spend the majority of their time providing enterprise-wide support other than the functions outlined below (that is, special projects).

**IT Human Resources**

- This includes resources dedicated to human resource issues surrounding the recruiting and retention of IT staff.

**IT Marketing**

- This includes resources dedicated to marketing the capabilities of the IT organization to the business units.

**Technology Planning and Process Management**

- This includes activities related to the planning for and management of current and future technology needs, and the establishment of policies and processes relating to technology. This also includes, but is not limited to, systems research, product management, technology evaluation and purchase decision making, the establishment of processes surrounding security and virus protection, and business continuity/recovery.

**Disaster Recovery**

- This includes resources dedicated to planning, testing and implementing contingency procedures across all IT functions. This also includes the staff dedicated to safeguarding the enterprise's ability to continue operations of vital business functions following physical damage or other catastrophes that impact business facilities. Responsibilities include:
• Maintaining disaster recovery documentation
• Negotiating contingency site arrangements and serving as liaison with the vendor
• Managing off-site data retention

Security
• This includes resources that oversee the development of standards and procedures for ensuring overall network and systems integrity.

IT Administration
• This includes direct administrative and clerical support to enterprise-level IT. Positions include secretary, receptionist and administrative assistant.

Budget and Chargeback
• This area establishes the overall IT budget, monitors actual expenses versus the budget, arranges financing for purchases and performs financial reporting to other enterprise areas. Staff members also handle the operation of the chargeback system. Positions include financial analyst and chargeback administrator.

Asset Management
• Tracking: This area provides the administrative support for tracking systems and system components. It accounts for labor and contract spending for managing depreciation records and lease contracts, performing asset inventories (physical or automatic management), asset identification and tracking, asset database management, change recording and reconciliation. It also includes the creation and maintenance of an up-to-date record of installations, moves, adds, changes, removals and final disposal of all assets (for example, hardware, software and circuits). The record contains information for locating, assessing, auditing, troubleshooting, counting and assigning assets, or performing other technical and business functions without the need to repeatedly visit the asset location or reassemble data records. It also includes the determination of an asset's useful life, including planning for the installation, upgrade, and removal/disposal of the asset and executing the plan.
• Procurement: This area solicits bids, negotiates purchasing agreements, establishes purchase orders, validates vendors' bills, coordinates with accounts payable for payments and handles contract administration.

Quality Assurance
• This includes staff responsibility for monitoring, tracking and recommending solutions for improving the content and delivery of services provided by the customer service contact center.

Training
• This refers to the primary source for the delivery of training within the IT organization and for end users in the business units. This area may also prepare the training materials, evaluate employee skills and assist in the creation of custom training programs for the organization.
IT Functional Area Staffing Definitions

Data Center
The scope of the Data Center Function includes

- IBM (or other) mainframe systems running z/OS including subsequent or prior models operating on both general-purpose engines and specialty engines such as zAAP, zIIP and IFL.
- Linux, Unix, Windows, and other standard Server environments
- Provisioning and management of all data storage with in an enterprise
- Data Center facilities

Personnel FTEs: Includes in-house and contract FTEs supporting the following IT functions:

Operations/Maintenance

- Operations support and production control
- Task management related to storage devices and media— Disk Storage Management and Tape Support.
- The management of physical data center premises, and other facilities and services associated with the premises such as furniture, power supply, heat management, climatization services, access security, floor space, office space, design, consulting, administration etc.

Engineering Technical Services

- Systems and Storage Support — Change and release management, problem and incident management, performance monitoring and management, physical database administration, capacity management, system and storage security management.

Planning and Process Management

- This includes systems research and planning, process development and management, project management as well as data center disaster recovery planning.

Services Administration

- This includes product management, budget, chargeback and service level reporting, training (IT and end-user training), asset management (procurement, asset and configuration tracking) as well as account management (both business unit relationship and contract and service provider management)
Management and Administration

- IT Administration provides direct administrative and clerical support to all organizations related to the technology environment.
- Management: This area includes time spent by management personnel on supervisory, departmental administration, or strategy related tasks.

End-User Computing

The scope of the End-User Computing function includes the full life cycle management of desktop, laptop, tablet, thin client, handheld and peripheral assets including acquisition, deployment, maintenance, change management as well as disposal.

Personnel FTEs: Include in-house and contract FTEs supporting the following IT functions:

Operations/Maintenance

- Incident Resolution/Prevention: Includes tasks directly involved in resolving or preventing incidents related to the end-user computing environment. Typical activities include repairing malfunctioning functioning client hardware and software. Preventative activities such as applying patches are included as well.
- Service Request Fulfillment: Includes FTEs/tasks related to fulfilling service requests around client equipment. These include but are not limited to software deployment (electronic or manual), installation of new computers and moves/adds/changes/deinstalls/removals of existing computers.

Engineering/Technical Services

- Desktop Engineering: Includes the technical design, and modification of the desktop environment. Typical activities include but are not limited to client software application packaging, scripting, testing, debugging, and implementation of change and production support.
- Security Management: The process of planning and managing a defined level of security for information and IT services in relation to the End-User Computing environment, including all aspects associated with procedures for and reaction to security incidents.

Planning and Process Management

- This includes systems research and planning, process development and management as well as project management.

Services Administration

- This includes product management, budget, chargeback and service level reporting, training (IT and end-user training), asset management (procurement, asset and configuration tracking) as well as account management (both business unit relationship and contract and service provider management).

Management and Administration
• IT Administration provides direct administrative and clerical support to all organizations related to the technology environment.

• Management: This area includes time spent by management personnel on supervisory, departmental administration, or strategy related tasks.

IT Service Desk

The scope of the IT Service Desk environment analysis includes the receipt and/or placement of technical support calls or contacts to a predetermined group of Tier 0/Tier 1 support staff who support end-users of IT services.

Personnel FTEs: Includes in-house and contract FTEs supporting the following IT functions:

Operations/Maintenance
• Agents: The primary source of handling customer service requests, issues, concerns in the customer service contact center. May also be classified as customer service representatives or IT service desk staff (first line). Also includes any "second line agents" or time spent by team leaders or supervisors performing this function.

Engineering/Technical Services
• Contact Data Management and Analysis: This includes staff having responsibility for monitoring and tracking trends in contacts, and recommending solutions that can be implemented by the service desk. This also includes monitoring of key service desk statistics such as peak usage times to manage service desk efficiency.
• Infrastructure Application Development: This includes activities related to the development of scripts or other programming necessary to operate or customize the service desk toolset.
• Quality Assurance: Monitoring and reviewing of agent contacts to ensure compliance with procedures and best practices, and to search for ways to improve services.

Planning and Process Management
• This includes systems research and planning, process development and management as well as project management.

Services Administration
• This includes product management, budget, chargeback and service level reporting, training (IT and end-user training), asset management (procurement, asset and configuration tracking) as well as account management (both business unit relationship and contract and service provider management).

Management and Administration
• IT Administration provides direct administrative and clerical support to all organizations related to the technology environment.
• Management: This area includes time spent by management personnel on supervisory, departmental administration, or strategy related tasks.
Network (Voice and Data)

The scope of the Voice and Data Network analysis function includes:

- **Wide-Area Voice Network (WAV):** Traditional Outbound Long Distance and Inbound (Toll Free) voice services. This includes mobile voice.
- **Voice Premise Technology (VPT):** Local voice services including voice mail and all move/add/change activity associated with local voice equipment (e.g., switches, circuits and handsets), and local (i.e., not Long Distance) calling. These assessments can encompass PBX/PABX and VoIP technologies.
- **Wide Area Network (WAN):** Connectivity and transmission of business-critical data between enterprise locations and business partners. This includes mobile data.
- **Local Area Network (LAN):** Accounts for the provisioning of communications and connectivity to critical business systems within enterprise sites and campuses (Note: Spending associated with permanent building cabling, horizontal and vertical, are excluded. Likewise, spending for any interbuilding cabling — copper and/or fiber — that would be found on a campus are also excluded).
- **Internet Access Services (IAS):** Enterprise access to the global Internet, for the use of its personnel and for the use of its external customers to access enterprise websites.

**Personnel FTEs:** Includes in-house and contract FTEs supporting the following IT functions:

**Operations/Maintenance**

- **Network Operations Center (NOC):** This includes day-to-day activities of NOC (Network Operations Center) related to monitoring and troubleshooting of the Voice Network infrastructure.

**Engineering Technical Services**

- **This includes:** Voice and Data Network support (Break/Fix — Tier II support & Tier III support), change management (MAC work), transmission procurement, capacity management and security management.

**Planning and Process Management**

- This includes systems research and planning, process development and management as well as project management.

**Services Administration**

- This includes product management, budget, chargeback and service level reporting, training (IT and end-user training), asset management (procurement, asset and configuration tracking) as well as account management (both business unit relationship and contract and service provider management).

**Management and Administration**
• IT Administration provides direct administrative and clerical support to all organizations related to the technology environment.

• Management: This area includes time spent by management personnel on supervisory, departmental administration, or strategy related tasks.

Application Development

The scope of the applications environment analysis is a high-level view of the staff associated to provisioning and management of all applications within an enterprise.

Applications Development

New code for a new application. Functional enhancements to current code that take more than two person-weeks or typically add eight function points or more. A functional enhancement is defined as a change made for a user that allows additional capabilities (from a business point of view) that were not there before. In some environments, major enhancements actually can be added in less than two person-weeks. If this is the case, and more than eight function points are added (about 800 lines of COBOL or 300 lines of a database language), this enhancement is recorded as a project and marked as an enhancement.

Development Staff: This includes staff involved in developing new applications, enhancing existing applications, installing new packages and installing major functional enhancements to existing packages.

Personnel /FTEs: Include in-house and contract FTEs supporting the following IT functions:

Development

• Developer — General: This includes personnel devoted to developing new applications, enhancing existing applications or maintaining currently operational applications.

• System Analyst: Responsible for the design and development of IT systems.

• Middleware Specialist: Responsible for maintaining the middleware infrastructures. Often support products like Tibco, WEBLogic, EDI as well as many other vendor middleware packages. Additional functions that would fall under this category include Middleware Lead.

• Application Architect: Provides design recommendations based on long-term IT organization strategy.

Logical Database Analyst

• Accountable for analyzing and developing complex logical database designs, logical data models and relational data definitions in support of corporate and customer information systems requirements. Additional functions that would fall under this category include Master Data Management Specialist, Data Modeler, Logical Database Administrator and Data Warehouse Analyst.

Quality Assurance & Testing
• Tester: Responsible for executing the test scenarios and test cases in various types of testing. Execution can be manual or automated. Additional functions that would fall under this category include Test Consultant.

• Test Manager: Responsible for developing and executing formal test plans to ensure the delivery of quality software applications. Involved in test planning, writing test cases/scripts, test case automation and test execution. Documents all problems and assists in their resolution. Additional functions that would fall under this category include Quality Engineering Consultant & Quality Assurance Analyst.

**IT Process Management**

• IT Process Management/Manager: Responsible for the delivery of the IT organization’s process improvement and strategic change initiatives.

**Business Analysis & Architecture**

• Business Analyst: Serves as a liaison between the business community and the IT organization in order to provide technical solutions to meet user needs.

• Business Architect: Perform comprehensive high-level scans of all of the factors that may affect organizational design to assess organizational health, identify incongruent structure or content and uncover valuable opportunities; including the economy, political trends, competitive marketplace and customer preferences.

• Enterprise Architect: Provides overall direction, guidance and definition of an enterprise’s architecture to effectively support the corporate business strategy.

**Project & Program Management**

• Project Manager: Responsible for overall coordination, status reporting and stability of project oriented work efforts.

• PMO Member: Member of the Project Management Office (PMO) responsible for collecting required data on plans, status, resource usage etc. from all or a group of running Application Development projects. Additional functions that would fall under this category include Project Management Specialist and Resource Manager.

• Program Manager: Responsible for managing one or more highly complex or enterprise-wide IT program(s) consisting of multiple projects.

**Services Administration**

• This includes product management, budget, chargeback and service level reporting, training (IT and end-user training), asset management (procurement, asset and configuration tracking) as well as account management (both business unit relationship and contract and service provider management).

**Management and Administration**

• IT Administration provides direct administrative and clerical support to all organizations related to the technology environment.

• Management: This area includes time spent by management personnel on supervisory, departmental administration, or strategy related tasks.
Application Support

The scope of the applications environment analysis is a high-level view of the staff associated to provisioning and management of all applications within an enterprise.

Application Support

Bug fixes of any size or duration, maintenance of hard-coded data or tables (including field size changes) embedded within the programs (any size or duration), and functional enhancements to current code that take less than two person-weeks and typically add fewer than eight function points, or Any project that produces no new business functionality for the user. A functional enhancement is defined as a change made for a user that allows additional capabilities (from a business point of view) that were not there before. In some environments, major enhancements actually can be added in less than two person-weeks. If this is the case, and more than eight function points are added (about 800 lines of COBOL or 300 lines of a database language), this enhancement is recorded as a project and marked as an enhancement and categorized as development.

Support staff: This includes staff involved in supporting applications that exist within the current portfolio. It also includes personnel who are responsible for fixing programming problems uncovered when applications are running in production. It does not include any personnel who are responsible for running the production applications. If an upgrade for a packaged application primarily contains fixes for existing problems, then the efforts involved in installing such a maintenance upgrade are included in application support.

Personnel Spending/FTEs: Personnel spending/FTEs include in-house and contract personnel (salaries and benefits) spending/full-time equivalents supporting the following IT functions:

Development

- Developer — General: This includes personnel devoted to developing new applications, enhancing existing applications or maintaining currently operational applications.
- System Analyst: Responsible for the design and development of IT systems.
- Middleware Specialist: Responsible for maintaining the middleware infrastructures. Often support products like Tibco, WEBLogic, EDI as well as many other vendor middleware packages. Additional functions that would fall under this category include Middleware Lead.
- Application Architect: Provides design recommendations based on long-term IT organization strategy.

Logical Database Analyst

- Accountable for analyzing and developing complex logical database designs, logical data models and relational data definitions in support of corporate and customer information systems requirements. Additional functions that would fall under this category include Master Data Management Specialist, Data Modeler, Logical Database Administrator and Data Warehouse Analyst.

Quality Assurance & Testing
• Tester: Responsible for executing the test scenarios and test cases in various types of testing. Execution can be manual or automated. Additional functions that would fall under this category include Test Consultant.

• Test Manager: Responsible for developing and executing formal test plans to ensure the delivery of quality software applications. Involved in test planning, writing test cases/scripts, test case automation and test execution. Documents all problems and assists in their resolution. Additional functions that would fall under this category include Quality Engineering Consultant & Quality Assurance Analyst.

IT Process Management

• IT Process Management/Manager: Responsible for the delivery of the IT organization’s process improvement and strategic change initiatives.

Business Analysis & Architecture

• Business Analyst: Serves as a liaison between the business community and the IT organization in order to provide technical solutions to meet user needs.

• Business Architect: Perform comprehensive high-level scans of all of the factors that may affect organizational design to assess organizational health, identify incongruent structure or content and uncover valuable opportunities; including the economy, political trends, competitive marketplace and customer preferences.

• Enterprise Architect: Provides overall direction, guidance and definition of an enterprise’s architecture to effectively support the corporate business strategy.

Project & Program Management

• Project Manager: Responsible for overall coordination, status reporting and stability of project oriented work efforts.

• PMO Member: Member of the Project Management Office (PMO) responsible for collecting required data on plans, status, resource usage etc. from all or a group of running Application Development projects. Additional functions that would fall under this category include Project Management Specialist and Resource Manager.

• Program Manager: Responsible for managing one or more highly complex or enterprise-wide IT program(s) consisting of multiple projects.

Services Administration

• This includes product management, budget, chargeback and service level reporting, training (IT and end-user training), asset management (procurement, asset and configuration tracking) as well as account management (both business unit relationship and contract and service provider management).

Management and Administration

• IT Administration provides direct administrative and clerical support to all organizations related to the technology environment.

• Management: This area includes time spent by management personnel on supervisory, departmental administration, or strategy related tasks.
Corporate IT Management, Finance and Administration

Only include functions that are at a level within the IT organization that, after best effort, cannot be allocated to an IT functional area.

Office of the CIO/CTO

- This includes the “C-level” IT management, including the CIO and CTO functions. Also included here are the direct reports of the CIO, who spend the majority of their time providing enterprise-wide support other than the functions outlined below (that is, special projects).

IT Human Resources

- This includes resources dedicated to human resource issues surrounding the recruiting and retention of IT staff.

IT Marketing

- This includes resources dedicated to marketing the capabilities of the IT organization to the business units.

Technology Planning and Process Management

- This includes activities related to the planning for and management of current and future technology needs, and the establishment of policies and processes relating to technology. This also includes, but is not limited to, systems research, product management, technology evaluation and purchase decision making, the establishment of processes surrounding security and virus protection, and business continuity/recovery.

IT Disaster Recovery

- This includes resources dedicated to planning, testing and implementing contingency procedures across all IT functions. This also includes the staff dedicated to safeguarding the enterprise’s ability to continue operations of vital business functions following physical damage or other catastrophes that impact business facilities. Responsibilities include:
  - Maintaining disaster recovery documentation
  - Negotiating contingency site arrangements and serving as liaison with the vendor
  - Managing off-site data retention

IT Security

- This includes resources that oversee the development of standards and procedures for ensuring overall network and systems integrity.

IT Administration

- This includes direct administrative and clerical support to enterprise-level IT. Positions include secretary, receptionist and administrative assistant.
Budget and Chargeback

- This area establishes the overall IT budget, monitors actual expenses versus the budget, arranges financing for purchases and performs financial reporting to other enterprise areas. Staff members also handle the operation of the chargeback system. Positions include financial analyst and chargeback administrator.

Asset Management

- Tracking: This area provides the administrative support for tracking systems and system components. It accounts for managing depreciation records and lease contracts, performing asset inventories (physical or automatic management), asset identification and tracking, asset database management, change recording and reconciliation. It also includes the creation and maintenance of an up-to-date record of installations, moves, adds, changes, removals and final disposal of all assets (for example, hardware, software and circuits). The record contains information for locating, assessing, auditing, troubleshooting, counting and assigning assets, or performing other technical and business functions without the need to repeatedly visit the asset location or reassemble data records. It also includes the determination of an asset's useful life, including planning for the installation, upgrade, and removal/disposal of the asset and executing the plan.

- Procurement: This area solicits bids, negotiates purchasing agreements, establishes purchase orders, validates vendors' bills, coordinates with accounts payable for payments and handles contract administration.

Quality Assurance

- This includes staff responsibility for monitoring, tracking and recommending solutions for improving the content and delivery of services provided by the customer service contact center.

Training

- This refers to the primary source for the delivery of training within the IT organization and for end users in the business units. This area may also prepare the training materials, evaluate employee skills and assist in the creation of custom training programs for the organization.