State of Washington
Agency Total Cost of IT Ownership Assessment

Final Report
Version 2.2

Prepared for: State of Washington

19 July 2012

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Executive Summary: Statewide IT Costs are Comparable to Peer Average

- State of Washington (SoWA) total spending is about 2% greater than the peer groups would spend to support the same workload, $596.0M vs. $583.7M.
  - Applications spending is 2% greater than the peer groups.
  - Infrastructure spending is also 2% greater.

- Compared to the 25th Percentile, costs are 32% ($145.6M) greater.

- SoWA adjusted staffing levels are 14% greater than what the peer groups would require to support the same workload, 3,571.8 vs. 3,132.9 FTEs.
  - Applications staffing is 13% greater than the peer groups (including Outsourced Equivalent staff).
  - Infrastructure staffing is 16% greater.

- Compared to the 25th Percentile, staffing levels are 47% (1,148.1 FTEs) greater.

Total IT Spending

	SoWA	Peer	Peer - 25th
Infrastructure	$309,449	$303,195	$229,748
Applications	$286,503	$292,019	$220,616

$596.0M $583.7M $450.3M

(Thousands)

Total Adjusted Staffing

	SoWA	Peer - Avg	Peer - 25th
Infrastructure	1,295.9	1,115.1	843.3
Applications	2,275.9	1,990.2	1,580.4

3,571.8   3,132.9   2,423.7

Full-Time Equivalent Staff (FTEs)

- The peer groups represent a consolidated workload equivalent to the sum of all 39 SoWA agencies. Overall, SoWA agencies are operating efficiently enough to compare as "average" despite peer economies of scale that would otherwise be expected.

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While there are shared services and consolidation opportunities that can be pursued, the greater immediate value lies in improving agency performance.

- While costs at the State-wide level are in line with peer group averages, there are significant variations among the reporting agencies.

  – The size of some of the specific variances suggest that there may be data accuracy issues that should be refined through ongoing analyses performed by the State.

- While there are longer term shared services and consolidation opportunities that can be realized at a State-wide level, the greater immediate value to the State lies in improving agency performance in advance of larger initiatives to consolidate or establish additional shared services that could be leveraged State-wide.

  – The amount of data underlying this analysis, at an agency level, is substantial, and should be leveraged to identify specific opportunities for individual agencies.

  – Due to the variations in performance among agencies in specific technology functions, the opportunities for improvements will vary from agency to agency.

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Introduction

Objectives and Scope

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Objectives

■ OFM established the following engagement objectives using Gartner benchmark models and definitions:

– Collect and report the total cost of ownership of IT for reporting agencies.

– Compare reporting agencies' total cost of ownership, cost structure, and productivity levels.

– Contrast the sum total of reporting agencies to similar organizations in terms of size and technical characteristics.

– Identify areas of risk and opportunities for improvement.

– Use these models to start tracking the impact of changes made to improve performance.

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Analysis Scope

■ The scope of this analysis is state-wide IT spending by 39 executive branch agencies.

■ Time frame for the study is fiscal year ended June 30, 2011.

■ Functional Areas within the scope of the analysis include:

   – Infrastructure

      • Mainframe Computing (IBM, Unisys)

      • Midrange Computing (Windows, Unix, HP Guardian, Linux and iSeries Servers)

      • Storage Management

      • Client and Peripherals (Desktop)

      • IT Help Desk

      • Data Networks (WAN & MAN, LAN and Internet Access)

      • Voice Services (Voice Premise Technology (Local) and Wide Area Voice (Long Distance)c

   – Applications Development & Support

      • Application Development

      • Application Support – Non-ERP

      • SAP Support

   – Process Maturity Self-Assessments

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Analysis Scope
Participating Agencies

■ The 39 executive branch agencies participating in this analysis of IT spending and staffing include:

- Attorney General's Office
- Department of Agriculture
- Department of Commerce
- Department of Corrections
- Department of Early Learning
- Department of Ecology
- Department of Employment Security
- Department of Financial Institutions
- Department of Fish & Wildlife
- Department of General Administration
- Department of Health
- Department of Information Services
- Department of Labor & Industries

- Department of Licensing
- Department of Natural Resources
- Department of Personnel
- Department of Printing
- Department of Retirement Systems
- Department of Revenue
- Department of Social & Health Services
- Department of Transportation
- Department of Veteran's Affairs
- Gambling Commission
- Health Care Authority
- Industrial Insurance Appeals Board
- Insurance Commissioner's Office

- Liquor Control Board
- Military Department
- Office of Administrative Hearings
- Office of Financial Management
- Parks and Recreation Commission
- Public Disclosure Commission
- Recreation Conservation Commission
- State Auditor's Office
- State Investment Board
- State Treasurer's Office
- Superintendent of Public Instruction
- Washington State Lottery
- Washington State Patrol

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Introduction

Gartner Approach

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Benchmarking Rationale

- Benchmarking against peers provides insight.

- Causal drivers are highlighted for positive results and challenges.

- Improvement opportunities are identified.

- Following implementation, the environment is benchmarked again to evaluate results and identify the next round of opportunities.
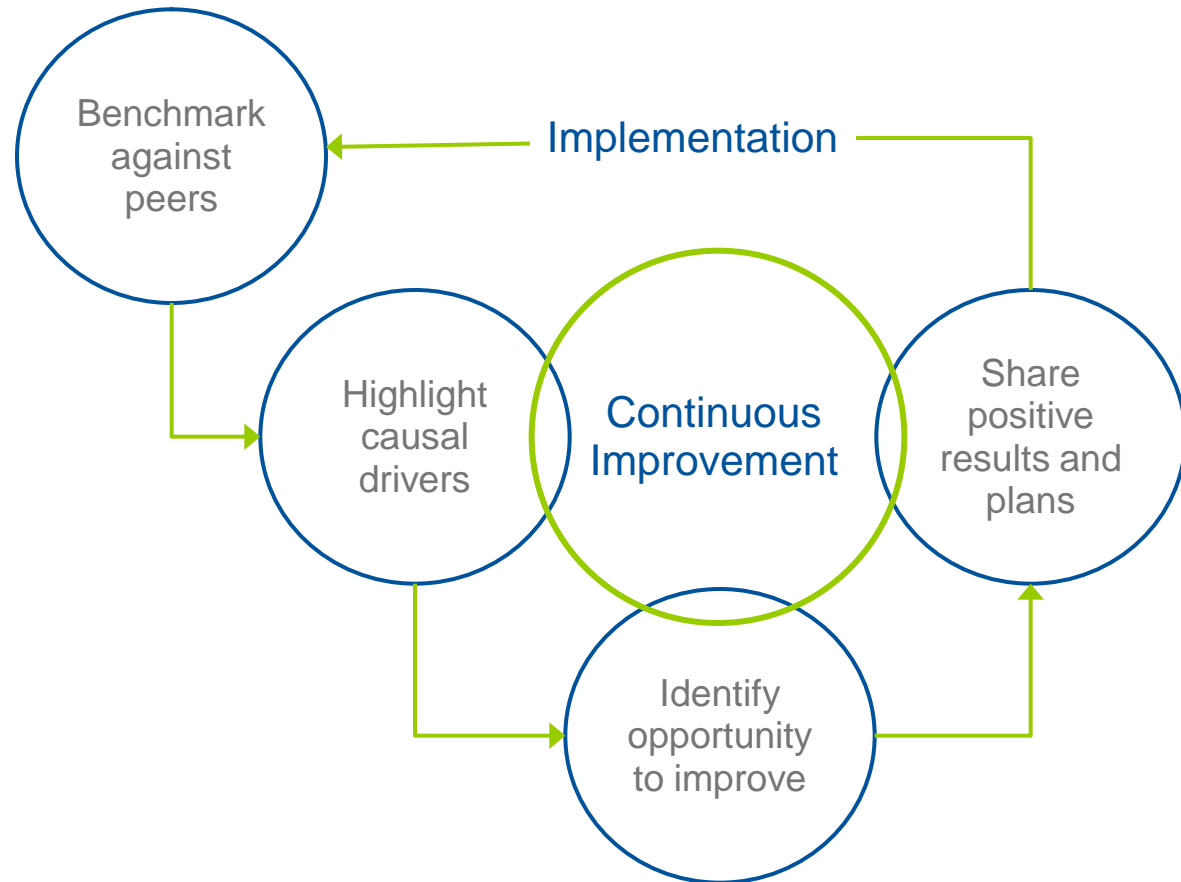
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Key Concepts of the Gartner Benchmarking Methodology – Consensus Models and consistent definitions of cost, labor and workload data elements

Adherence to "Consensus Models" ensures comparability.
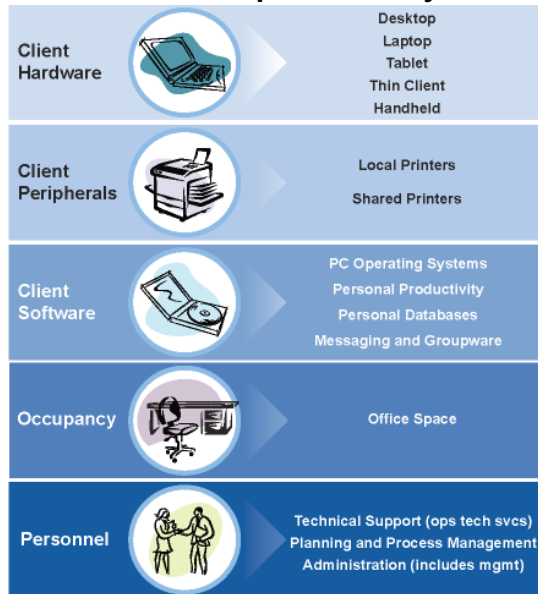
Sample Consensus Model for Client & Peripherals

Consensus models define the costs and labor activities to include in each category, as well as the workload to report for each tower.

"Workload" represents a provided service and is balanced with the cost and staff required to support that work.
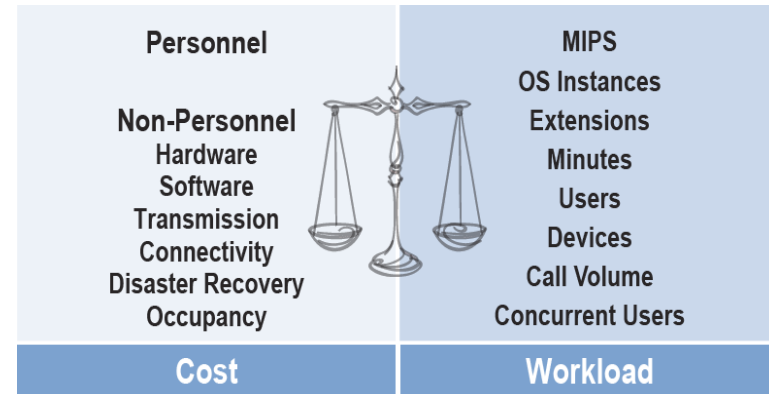
To compare total costs, an organization's workload is multiplied by the peers' average unit cost.

5,000	← The organization's user count
x $1,200	← Peers' average cost per device
$6,000,000	← Peers' cost for supporting the organization's devices

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Key Concepts of the Gartner Benchmarking Methodology – Consensus Models and consistent definitions of cost, labor and workload data elements

Gartner benchmarks rely on detailed financial and environmental data.

Common definitions of data elements ensures accurate comparisons.

	Servers & Storage	Network	End User Computing	Applications
Financial Data	• Cost per OS Instance or terabyte • Cost distribution (hardware, software personnel, occupancy) • Cost per capita • DR Costs	• Cost per device, port, GB traffic, minute or extension • Cost distribution (hardware, software personnel, occupancy) • Cost per capita	• Cost per device • Cost per contact • Cost distribution (hardware, software personnel, occupancy) • Cost per capita	• Costs per unit of work (Function Point or Concurrent User) • Cost distribution (hardware, software personnel, occupancy) • Cost per capita
Environ-mental Data	• # servers and instances (by operating system) • Storage types and amounts • Vendors, models and configurations • Number of data centers • Service levels	• # sites and devices • Transmission volume • % shared resources • Service levels	• # end user devices and calls • Response times • Service levels	• Size of applications • Languages • Environment • Quality/defect rates

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Key Concepts of the Gartner Benchmarking Methodology – Consensus Models and consistent definitions of cost, labor and workload data elements

- Costs have been reported for specific categories and types.
  - Detailed definitions have been provided to all participating State agencies.
  - Answers to questions and clarifications for definitions have been provided throughout to project.

- Cost categories include annual costs for hardware, software, transmission, disaster recovery, occupancy (facilities) and personnel.
  - Hardware costs generally represent annual lease, maintenance and depreciation expense, plus non-capital expenditures.
  - Software costs generally include annual license and maintenance costs.
  - Personnel costs include overtime pay, benefits, professional training and travel. Staff counts were calculated based on Full-Time Equivalents, and do not include furlough time.

- Cost types include insourced (direct), outsourced to DIS, outsourced to another state agency, outsourced to an external service provider, contractor and maintenance.
  - Outsourced costs have been categorized as hardware, software, personnel, etc., whenever possible. Where this was not possible, costs were categorized as "Unallocated Total."
  - Outsourced Personnel costs were used to calculate "Outsourced Equivalent FTEs." Gartner calculates this equivalent count for each functional area as follows:
    - Total Outsourced Personnel Cost / (State average cost per FTE * 1.25)

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Peer groups form the basis for the analysis, and are selected based on the IT environment within each functional area (tower)

- Independent peer groups are selected for each IT functional area based on the total, state-wide workload and complexity (e.g., programming languages, server virtualization, PC:user ratios).

  - Geographic dispersion, service levels, density of personnel and other characteristics are weighed and used in selecting the best peer match possible.

  - Agency comparisons to peers are to the SoWA peer normalized for Agency workload.

- The spending and support profile of each peer group is used to simulate what the comparative group would spend to support your workload. A composite model representing total IT spend in all areas included in the analysis is also created.

- Results are normally displayed in comparison with three peer group reference points:

  - Peer—Avg: representing the average for the comparative group

  - Peer—25th: representing the lowest quartile (most efficient) for the comparative group

  - Peer—75th: representing the highest quartile (least efficient) for the comparative group

- Differences in spending and other metrics derived from the analysis provide insight into opportunities for increased cost efficiency and reduced risk.

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The selection criteria for peer group is specific to each IT functional area

- Primary selection criteria for each environment includes:
  - Application Development
    - Number and size of development projects, languages and operating platforms
  - Application Support
    - Number applications, size of the applications portfolio, languages and operating platforms
  - ERP Application Support
    - Application (e.g., SAP, Oracle Financials), number of concurrent and named users, modules in production
  - Mainframe (IBM and Unisys)
    - Number of MIPS, type of MIPS (general purpose vs. specialty), number of data centers
  - Midrange (Windows, Unix, HP Guardian, Linux and iSeries)
    - Operating system, number of systems and OS instances, size of servers based on number of processors (CPW for iSeries only), number of data centers
  - Storage
    - Type of storage (SAN, DAS, NAS, etc.), amount of storage of each type, number of data centers

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The selection criteria for peer group is specific to each IT functional area (continued)

- Primary selection criteria for each environment includes (continued):
  - Client & Peripheral support
    - Number of devices (desktops, laptops), users and sites supported, ratio of devices to users and percentage of laptops
  - IT Help Desk
    - Number of contacts, type of calls, number of users and sites supported
  - Wide Area Network
    - Number and geographical dispersion of sites, the number of devices with WAN connectivity, traffic volume, number and size of routers, geography
  - Local Area Network
    - Number of active and inactive ports, number of sites, number and size of switches
  - Internet Access
    - Amount of inbound and outbound traffic, number of sites with internet connectivity, geography
  - Voice Premise Technology (Local Voice Service)
    - Type of service (VoIP, PBX), number of extensions and sites, geography
  - Wide Area Voice Network (Long Distance Voice Service)
    - Number of inbound and outbound minutes, geography

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Peer Groups Summary

IT Functional Area	Peer Group Members	Demographics
Enterprise Computing - Mainframe	9 Organizations – 4 Financial Services, 2 Public Administration, 2 Utilities, 1 Health Services	SoWA – 16,123 MIPS Peer – 17,577 MIPS
Enterprise Computing – Unisys	5 Organizations - 4 Government, 1 Communications	SoWA – 1,859 MIPS Peer – 2,977 MIPS
Enterprise Computing - Windows	10 Organizations - 2 Government, 2 Financial Services, 1 each Utilities, Software, Health Services, Retail, Manufacturing, Communications	SoWA – 9,098 OS Instances Peer – 6,171 OS Instances
Enterprise Computing - Unix	7 Organizations - 6 Utilities, 1 Insurance	SoWA – 80 OS Instances Peer - 86 OS Instances
Enterprise Computing - HP Guardian	15 Organizations – 12 Financial Services, 2 Business Services, 1 Transportation	SoWA – 7 Physical Servers Peer – 11 Physical Servers
Enterprise Computing – Linux	8 Organizations - 5 Government, 2 Financial Services, 1 Publishing	SoWA – 71 OS Instances Peer – 268 OS Instances

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Peer Groups Summary

IT Functional Area	Peer Group Members	Demographics
Enterprise Computing – iSeries	8 Organizations – 3 Financial Services, 2 Government, 2 Manufacturing, 1 Chemicals	SoWA – 17,680 CPWs Peer – 39,848 CPWs
Enterprise Storage	11 Organizations – 5 Utilities, 3 Government, 1 Health Services, 1 Insurance, 1 Publishing	SoWA – 4,958 Raw Configured TB Peer – 4,801 Raw Configured TB
End User Computing	10 Organizations - 7 Government, 1 Financial Services, 1 Pharmaceuticals, 1 Retail	SoWA – 78,576 Personal Computing Devices Peer – 70,200 Personal Computing Devices
IT Help Desk	8 Organizations - 5 Government, 2 Health Services, 1 Retail	SoWA – 976,163 Handled Contacts Peer – 694,101 Handled Contacts
Wide Area Data Network	11 Organizations - 8 Government, 1 Utilities 1 Financial Services, 1 Pharmaceuticals	SoWA – 98,091 Networked Devices Peer – 110,892 Networked Devices
Local Area Network	10 Organizations – 6 Government, 2 Health Services, 1 Financial Services, 1 Transportation	SoWA – 136,847 Active Ports Peer – 130,693 Active Ports
Internet Access Services	9 Organizations - 5 Utilities, 4 Government	SoWA - 569 TB Annual Traffic Peer - 940 TB Annual Traffic

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Peer Groups Summary

IT Functional Area	Peer Group Members	Demographics
Voice Premise – Local	10 Organizations - 3 Utilities, 2 Government, 2 Health Services, 1 Financial Services, 1 Insurance, 1 Publishing	SoWA – 66,293 Active Extensions Peer – 44,777 Active Extensions
Voice Network – Long Distance	16 Organizations – 12 Utilities, 2 Government, 1 Health Services, 1 Publishing	SoWA – 104.2M Call Minutes Peer – 122.3M Call Minutes
Applications Development	7 Organizations – 3 Health Services, 2 Communications, 1 Government, 1 Financial Services	SoWA – 378K Function Points Peer – 360K Function Points
Applications Support	7 Organizations – 2 Health Services, 2 Communications, 2 Publishing, 1 Government	SoWA – 2,626K Function Points Peer – 1,031K Function Points
SAP – DNR	7 Organizations – 2 Government, 2 Financial Services, 1 Oil & Gas, 1 Business Services, 1 Higher Education	SoWA (DNR) – 50 Concurrent Users Peer – 55 Concurrent Users
SAP – DOP	7 Organizations –1 each Utilities, Financial Services, Software, Manufacturing, Pharmaceuticals, Research, Retail	SoWA (DOP) – 2,200 Concurrent Users Peer – 2,435 Concurrent Users

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Gartner benchmarks follow a structured project plan to ensure data accuracy and comparability

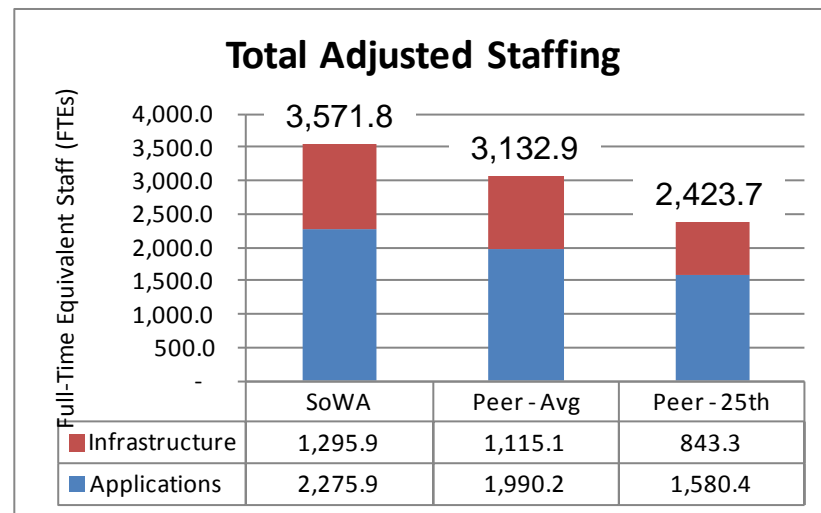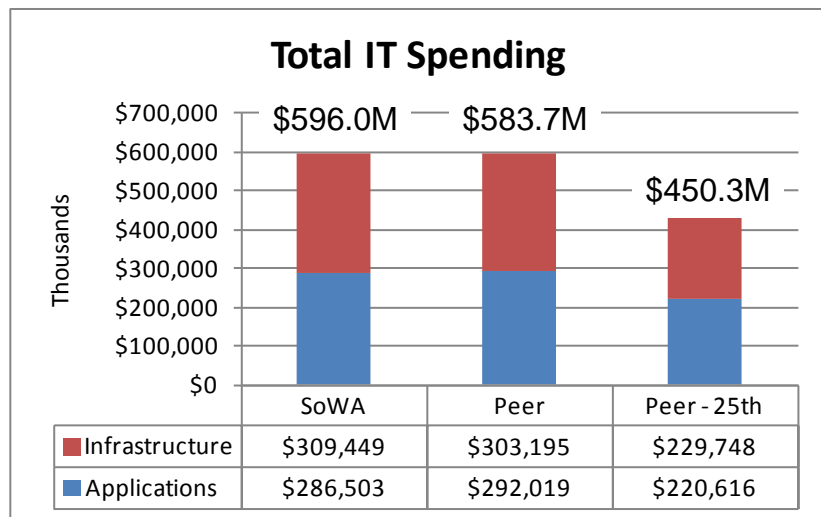| Data Gathering	Validation & Normalization	Research & Analysis	Metrics & Comparison	Strategic Recommendations
• Gartner Analysts assist your financial and technical personnel to complete benchmarking worksheets • Gartner Analysts work with Application Services and Infrastructure personnel to capture HW/SW, workload and sizing data	• Gartner Analysts will align the data with the Gartner database framework • Any issues or anomalies will be discussed and resolved with the client team	• Gartner Analysts will compare your data with the Benchmarking database and establish peer groups • Research best practices and root cause of issues that have been identified	• Gartner Analysts complete peer comparisons and metrics analysis • Generate reports, charts and graphs • Walk through findings with you and resolve any discrepancies	• Gartner Analysts and Consultants develop final presentation and strategic recommendations based on the benchmark results as well as other strategic criteria • Present final results to executive management

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Executive Summary

Overall Results

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Executive Summary
Total SoWA Spending and Staffing

- State of Washington (SoWA) total spending is about 2% greater than the peer groups would spend to support the same workload, $596.0M vs. $583.7M.

  - Applications spending is 2% greater than the peer groups.

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Total IT Spending

Thousands

	SoWA	Peer	Peer - 25th
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Full-Time Equivalent Staff (FTEs)

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3,571.8   3,132.9   2,423.7

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Executive Summary
Observations

- While costs at the State-wide level are in line with peer group averages, there are significant variations among the reporting agencies.

    - Within Infrastructure, agency costs range from $7.8M greater to $9.0M less than the peer groups would spend to support the same agency workload. On a percentage basis, costs range from close to three times greater to 56% less.

    - Within Applications, agency costs range from $48.3M greater to $29.8M less than the peer groups would spend to support the same agency workload. On a percentage basis, costs range from close to nine times greater to 97% less.

- The size of some of the specific variances suggest that there may be data accuracy issues that should be refined through ongoing analyses performed by the State.

    - Gartner and OFM have worked with the agencies through one round of data validation – questioning and revising cost, staff and workload information.

    - There are still some issues that should be further investigated, but at the State level, agencies with high cost tend to be offset by agencies with low cost.

        - The largest of these variances is found within Applications Development and Support, where excluding the agency with the largest variance to peer would shift Support costs from $2.4M less than the peer group to $31.2M less, and would shift Development costs from $8.3M greater than the peer group to $11.1M less.

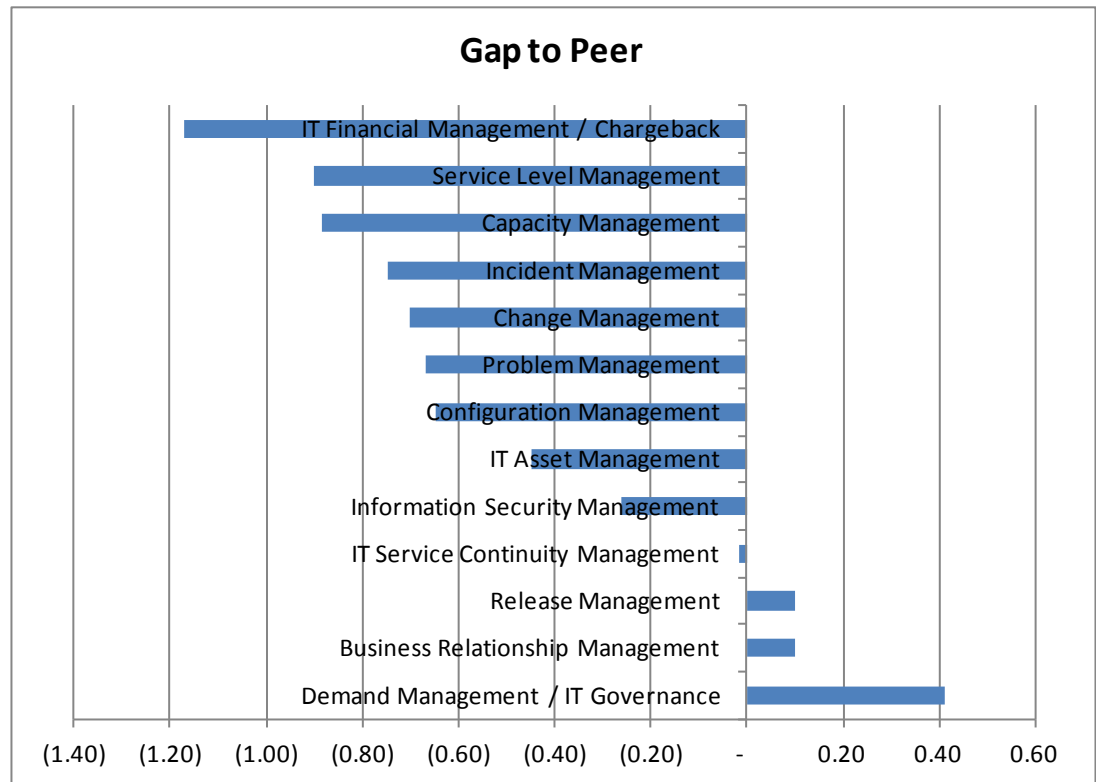**Gartner**

Executive Summary
Observations

- As the State examines Applications costs and staffing, it should be noted that when comparing the Cost per Function Point metric, the types of applications within the agencies may differ, and Gartner would expect to see variation in results.
  - Different types of applications will have different levels of cost and productivity. At a State level, these variations will tend to cancel out (complex and expensive applications to support and develop will be offset by simple, inexpensive applications).

- Consequently the results of the analysis should not be that an agency with low costs is "good" and one with high costs is "bad." Instead, the function point basis of this analysis can be used to measure improvement within an agency over time by continuing to measure costs and productivity and analyzing trends in performance.

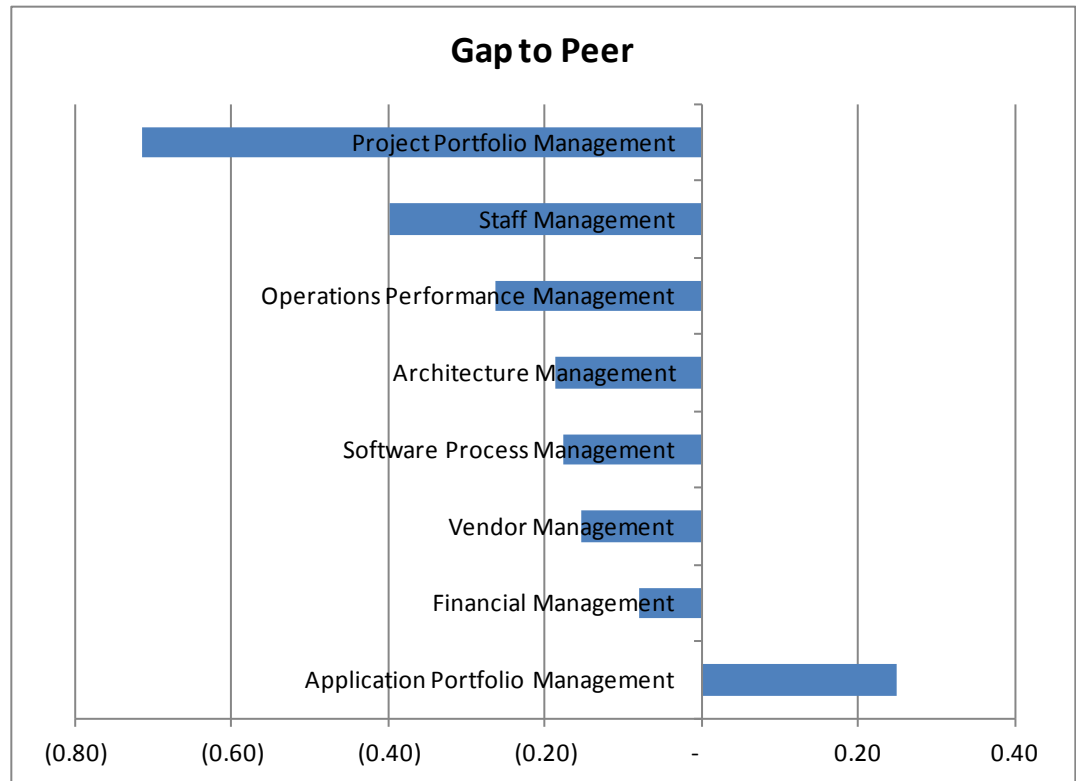**Gartner**®

Executive Summary
Observations

■ **Service Levels and Process Maturity self-assessment ratings also vary.**

   – While there are pockets of high service levels and process maturity, there are also areas with lower service levels and maturity where organizations could be relying on heroic staff efforts to meet support requirements.

   – For Infrastructure, the largest gaps in Process Maturity are in IT Financial Management and Service Level Management

   – However the next largest grouping are in the more technical, foundational processes of Capacity, Incident, Change, Problem and Configuration Management, suggesting opportunities to improve basic service delivery capabilities.

Gap to Peer

- IT Financial Management / Chargeback
- Service Level Management
- Capacity Management
- Incident Management
- Change Management
- Problem Management
- Configuration Management
- IT Asset Management
- Information Security Management
- IT Service Continuity Management
- Release Management
- Business Relationship Management
- Demand Management / IT Governance

(1.40) (1.20) (1.00) (0.80) (0.60) (0.40) (0.20) - 0.20 0.40 0.60

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Executive Summary
Observations

■ SoWA Application Process maturity level is also somewhat below the peer average overall.

– Overall the self assessment shows that the processes in Applications are immature.

– While respondents perceive Project Portfolio Management as one of the areas of greatest strength, it is also the area with the largest gap relative to the peer group.

Gap to Peer

Project Portfolio Management	
Staff Management	
Operations Performance Management	
Architecture Management	
Software Process Management	
Vendor Management	
Financial Management	
Application Portfolio Management	

(0.80)   (0.60)   (0.40)   (0.20)   -   0.20   0.40

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Executive Summary
Recommendations – Shared Best Practices

- Use the data collected at an agency level to identify opportunities for improvement by agency.
  - This engagement was structured to analyze results for the State as a whole, however the data has been collected by agency and can be used to analyze performance at an agency level and to identify opportunities by agency.
  - Spending patterns and staff productivity vary widely among agencies, and improvement opportunities for one agency may be opposite of those for another. Decisions around funding and budgeting for agency-level IT should be based on agency performance, rather than State-wide performance.

- There are likely pockets of best practices throughout the agencies that could be identified, shared and leveraged.
  - Use the analysis of agency-level results to identify and share best practices among agencies' subject matter experts.
  - Sharing process improvement results, work practices and experiences, and lessons learned will improve the performance of all agencies.
  - In addition, experiences from pilot programs and new technology roll-outs can be shared and leveraged across agencies.

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Executive Summary
Recommendations – Process Improvement

- As part of best practice sharing among agencies, consider establishing a formal IT process improvement initiative, beginning on improvement to foundational processes.

  – Be sensitive to organization scale, establishing maturity targets that take into account the concept of "just-enough" process.

- ITIL processes have been proven effective in managing IT operations and, as a result, IT costs.

  – Gartner Research has found that in order to gain maximum value, IT cannot develop these processes alone. Actively including business sponsors/partners in all ITIL processes is essential to success.

  – Gartner has found that both efficiency and effectiveness can improve with more mature processes, and therefore lead to improved customer satisfaction.

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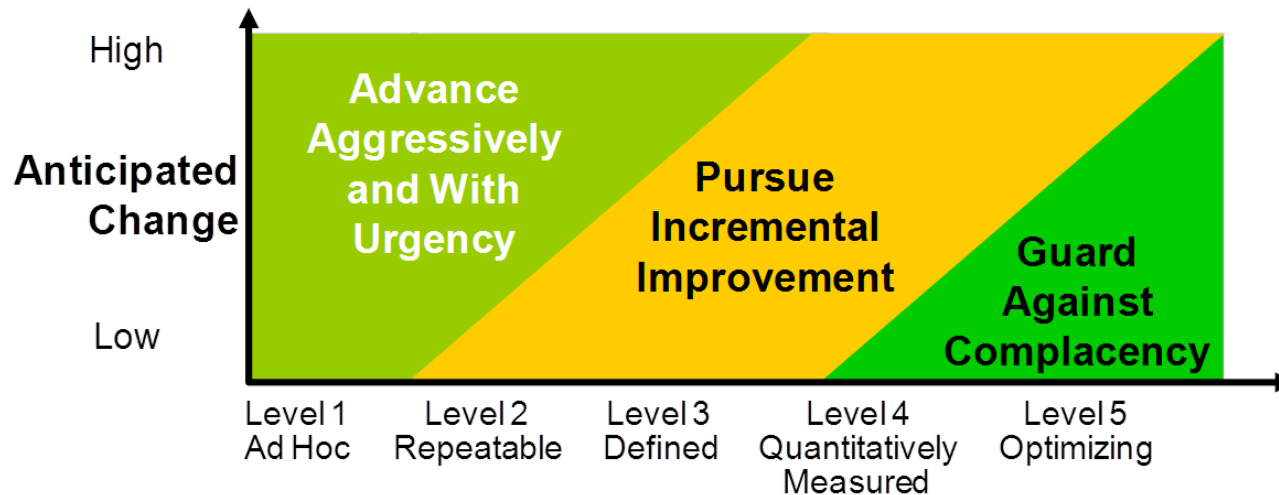
Executive Summary
Recommendations – Process Improvement

■ Gartner generally recommends defining an overarching IT Improvement Program. Best practices include:

- – Identifying a Program Manager to oversee program plans, initiatives, status and report results to leadership.

- – Defining a program plan based on prioritization of initiatives, including:

  - Budget/funding, roles, plans, schedule and ownership for initiatives occurring across the program

  - Communication plans, reports/results, status to IT and the business

  - Issue and Risk management with appropriate escalation channels to the program sponsors

  - Approaches for managing and integrating program objectives, plans and results across both tactical and focused recommended improvements

- – Executing the program plans and report status/results to IT and the business.

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Executive Summary
Recommendations – Process Improvement

- To begin, agencies should determine their desired process maturity state
  - Organizations scoring below 1.5:
    - Establish foundational process capability for each of the disciplines.
  - Organizations scoring between 1.5 and 2.5:
    - Strive for balanced maturity among individual disciplines.
  - Organizations scoring at all levels:
    - Plot optimal maturity level based upon current score and degree of anticipated change.

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Executive Summary
Recommendations – Process Improvement

- **To Move from Level 0 to Level 1**
  - Create a tangible vision of future end state and share it with others
  - Practice servant leadership

- **To Move from Level 1 to Level 2**
  - Empower others to do their best
  - Focus on results
  - Show how to turn strategy into action

- **To Move from Level 2 to Level 3**
  - Encourage a strong customer orientation
  - Communicate effectively on a day-to-day basis
  - Be holistic; take the whole system into account

- **To Move from Level 3 to Level 4**
  - Be prepared for change
  - Take risks and initiative

- **To Move from Level 4 to Level 5**
  - Become an information hub
  - Act as a catalyst and leader for strategic change

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Executive Summary
Recommendations – Asset Management

■ Strive for a more mature IT Asset Management (ITAM) process in order to completely understand "total cost of ownership."

  – Asset/license management involves managing assets through their entire life cycle to minimize their cost and maximize their economic benefit.

  – Gartner research has indicated that as much as 20% of software licensing and hardware maintenance charges are incurred for assets no longer in use. By establishing formal ITAM processes, SoWA would realize the following benefits:

    • Reduce license and maintenance fees

    • Avoid the costs of buying new assets by recycling unused assets

    • Reduce vendor billing overcharges

    • Support contract renegotiation with accurate asset usage data

    • Support disaster recovery with a repository of asset information by location

    • Reduce the risk of software license noncompliance

■ Mature ITAM practices require time-consuming, ongoing updating of asset inventories and contract files. ITAM processes should also include tight integration with procurement and financial processes.

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- See also Gartner Research on IT Asset Management, including:
  - "Gartner Survey Shows How to Save Money With ITAM," G00225114, 28 March 2012.
  - "Gartner Survey Shows That the Benefits of ITAM Change in Importance as Program Maturity Increases," G00225121, 29 March 2012.
  - "Five Critical Success Factors for Advanced IT Asset Management and Successful IT," G00170006, 28 September 2009.
  - "Characteristics of IT Asset Management Maturity," G00227267, 28 March 2012.

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Executive Summary
Recommendations – Consolidated Services

- The State should consider moving to a more consolidated service delivery where it has delivery expertise, and examine ways to streamline chargeback and associated overhead.
  - DIS Mainframe costs are low relative to the peer group, while agencies that buy Mainframe service from DIS reported relatively high costs. DIS can provide the service efficiently, but there are barriers to passing this efficiency to agencies.
  - Similarly, Voice services have higher personnel costs, while carrier costs are competitive.
  - There is also an opportunity to better leverage State buying power in some areas. For example, state-wide Desktop Software costs are 17% ($2.5M) greater than the peer group.
    - There is an opportunity to centrally manage procurement services and negotiate state-wide discounts that can be taken advantage of by agencies.
    - A central negotiating authority and procurement function would also aid in standardizing environments within the State.

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Executive Summary
Recommendations – Data Center Consolidation

- During the study period, DIS provided shared services to a number of agencies, primarily for data center, data network, and voice services. In areas with fairly standardized environments, such as Mainframe or Voice services, DIS was relatively efficient. However in more complex environments, such as Windows server management, DIS was less efficient.
  - Especially in the Windows server environment, DIS service offerings are relatively complex as it has tried to be all things to all people, accommodating customized service requests.

- Within the Windows Server environment alone, if the State were able to achieve the same level of efficiency as the peer average, there is a potential savings of $2.0M. However if the State were able to achieve the same level of efficiency as the 25th percentile of the peer group, there is a potential savings of $17.8M.
  - Gartner has estimated in other consolidation studies that transition costs can range from 18% to 25% of the annual expense run rate. For Windows Servers, this would be between $9.4M and $13.0M.

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- Within Mainframe, most reporting agencies paid DIS for services (DSHS and DOT were the exceptions).

  – DIS and the Department of Corrections cost per MIPS is less than the peer group average, all other agencies are greater.

  – The primary opportunity in Mainframe is in relation to the rates charged by DIS, rather than improvement in operations.

    • This analysis did not examine DIS rates, or how DIS sets its rates.

    • A secondary factor is overhead associated with rate setting on the DIS side, as well as agency staff to review, validate and track billings.

- Review Software costs and the tools and utilities in use to ensure that there is no un-used or redundant functionality.

  – Within Mainframe, the category with highest cost compared to the peer group is Software, where reported costs are about 13% ($2.0M) greater than the peer group.

  – Software costs, as a percentage of total Mainframe costs, continues to grow. However there may be opportunities to leverage under-utilized functionality and to reduce the number of products in use.

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Executive Summary
Recommendations – Mainframe

- See also Gartner Research on managing capacity increases on the mainframe:

    - "Use Best Practices to Determine When You Should Add More Capacity to Your IBM Mainframe," G00212576, 26 August 2011.

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- Try to limit or reduce the number of different platforms in use.
  - At the state level, seven different platforms are in use. The agencies use a variety of platforms, though Windows servers makes up 50% of total spending.
  - There are a number of platforms that appear to have very little investment – indicating either a need for renewal soon or an environment about to be retired.
    - HP Guardian, Unix and iSeries are all small scale, low cost and in only a few agencies.
    - Linux costs are greater than the peer group, but Linux servers are installed at only 10 agencies and does not appear to be a strategic platform. Personnel costs drive higher overall Linux costs and it may be that as agencies are evaluating and researching this platform, it will remain an expensive option.

- Continue to pursue virtualization opportunities within Unix and Windows server environments.
  - In order to appropriately leverage the virtualized model, there needs to be a solid understanding of the applications portfolio in order to determine which groups of servers and their associated workloads make good candidates for virtualization.
  - Virtualization can also extend the life of a data center, reducing requirements for power and space.

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Executive Summary
Recommendations – Midrange

- See Gartner Research related to virtualization:
    - "Save Millions: How to Add Years of Growth to Data Centers," G00164723, 1 April 2009.

- See Gartner Research related to Windows Server Migration Plans:
    - "Time to Adjust Your Windows Server Migration Plans," G00231525, 5 March 2012.
    - "'Windows Server 8' to Provide Administration and Operations Advantages," G00231523, 29 February 2012.
    - "Prepare for Windows Server 8 by Rethinking Your Application Development and Operations Environment," G00231524, 23 March 2012.

- See Gartner Research for Unix to Linux migration strategies:
    - "The Future of Unix: Hazy and Overcast, So Reach for the Umbrella," G00232079, 20 April, 2012.
    - "Six Ways to Get From Unix to Linux and the Associated Risks," G00209045, 11 January 2011.

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- Review Storage growth patterns and technology options, including backup solutions and other capacity-reduction tools such as data de-duplication and thin-provisioning, to effectively manage growth.

- Analysis of the Gartner Benchmarking Database shows that organizations continue to increase installed storage capacity significantly:

  – From 2008 to 2009, average installed storage capacity increased by 57 percent.

  – Storage staffing generally has not kept pace with capacity increases. From 2008 to 2009, storage personnel increased by 25%, but 2010 personnel increased only 6%.

- Continued significant storage growth without concomitant FTE adjustment places the data center at operational risk.

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Executive Summary
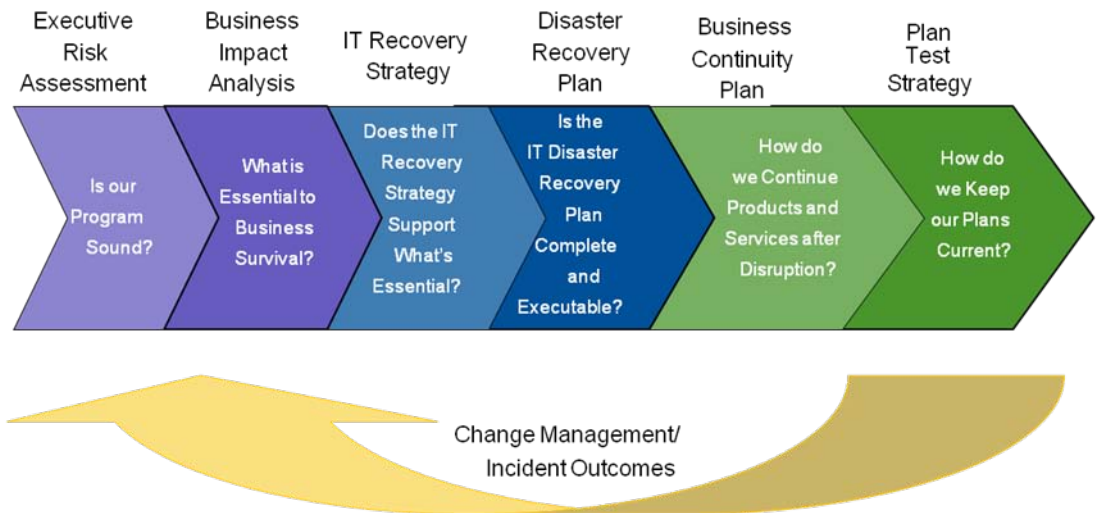## Recommendations – Storage

- See Gartner Research on managing Storage growth:
  - "Best Practices for Storage Management: Developing an Information Life Cycle Management Strategy," G00230023, 27 January 2012.

  - "Emerging Technology Analysis: Enterprise Solid-State Appliances," G00225195, 23 November 2011.

  - "The Future of Storage Management," G00219320, 14 March 2012.

  - "Use SSDs, Rather Than Disk Striping, to Improve Storage Performance and Cut Costs," G00228529, 22 March 2012.

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Executive Summary
Recommendations – Disaster Recovery

■ Total SoWA DR spending is 29% ($1.2M) less than the average for the peer groups, and is 6% less than the 25th percentile. Low spending is sometimes offset by technical infrastructure for high availability and fail-over, but could also highlight an area of potential risk.

– Integrate DR/BCP into change management and project life cycle processes to ensure recovery requirements – people, technology, facilities and business processes – are defined early and adequately funded.

– Obtain executive sponsorship for business continuity plans.

– Assess the costs of risks in the event of any level of business disruption - from inconvenience to full disaster.

– Once complete, business continuity plans should be periodically tested.

– Involve business leaders and commit to keeping the plan current.
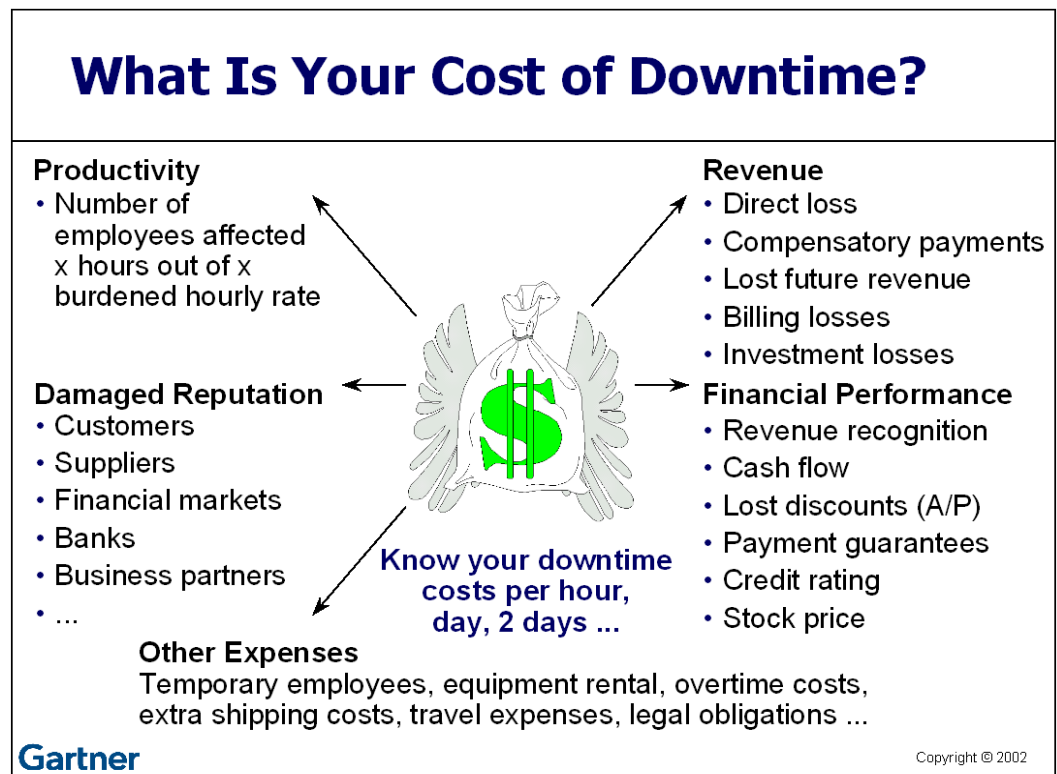

Gartner BCP/DR Planning Process

Executive Risk Assessment	Business Impact Analysis	IT Recovery Strategy	Disaster Recovery Plan	Business Continuity Plan	Plan Test Strategy
Is our Program Sound?	What is Essential to Business Survival?	Does the IT Recovery Strategy Support What's Essential?	Is the IT Disaster Recovery Plan Complete and Executable?	How do we Continue Products and Services after Disruption?	How do we Keep our Plans Current?

Change Management/ Incident Outcomes

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Recommendations – Disaster Recovery

■ **Business Continuity Planning / Disaster Recovery (BCP / DR):**

– No specified "right" level of spending exists in the disaster recovery area. The amount to spend depends on the level of risk the organization is willing to accept. Issues to consider and corresponding actions include:

- How critical are the applications to service fulfillment and organization reputation?

- If critical, conduct a business impact assessment to determine the cost of application downtime.

- Communicate these costs to the impacted business units in order to confirm that the higher spending levels justify the higher costs incurred.

– Execute a full test annually exercising the process from the point of failure to complete recovery.

What Is Your Cost of Downtime?

Productivity
- Number of employees affected x hours out of x burdened hourly rate

Damaged Reputation
- Customers
- Suppliers
- Financial markets
- Banks
- Business partners
- ...

Revenue
- Direct loss
- Compensatory payments
- Lost future revenue
- Billing losses
- Investment losses

Financial Performance
- Revenue recognition
- Cash flow
- Lost discounts (A/P)
- Payment guarantees
- Credit rating
- Stock price

Know your downtime costs per hour, day, 2 days ...

Other Expenses
Temporary employees, equipment rental, overtime costs, extra shipping costs, travel expenses, legal obligations ...

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Executive Summary
Recommendations – End User Computing

- **Review desktop Software costs and maintenance agreements for opportunities to leverage State-wide volume and discounting, as well as to re-negotiate and lower costs.**
  - State-wide, Desktop Software costs are 17% ($2.5M) greater than the peer group
  - Analyze the effectiveness of canceling some annual maintenance agreements, balancing annual cost savings against periodic upgrade costs.

- **Also consider opportunities to standardize desktop environments.**
  - Gartner Research findings indicate cost savings from reductions in repairs and downtime when organizations manage desktops. However, note that fully implemented processes and policies are critical to gain efficiencies.
    - A "somewhat" managed desktop that involves a tool can actually cost more - an underused implementation means you are paying to run the tool, while still managing the environment manually without the tool.
    - Ensure to highlight the benefits to the business of managed environments. For example, security concerns are usually understood outside of IT. Software compliance is another reason. Of most benefit to end users however are better services, such as delivering applications more quickly and reliably.
  - Review the amount of applications installed on desktops as another opportunity to reduce support requirements.

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Executive Summary
Recommendations – End User Computing

- See Gartner Research on End User Computing:

  - "How to Reduce the Cost of PC Support," G00211079, 9 March 2011

  - "Desktop Total Cost of Ownership: 2011 Update," G00208726, 16 November 2010.

  - "Simplify PC Image Management With Windows 7 Migration," G00200879, 8 June 2010.

  - "Windows 7 Migration Planning: Time and Microsoft Wait for No One," G00214569, 24 August 2011.

  - "Key Issues for Client Computing, 2011," G00211375, 14 March 2011.

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Executive Summary
Recommendations – IT Help Desk

- Many agencies do not have formal IT Help Desks, and estimated contacts based on the number of tickets. While at an agency level this could lead to some inaccuracies, at a State level these would tend to cancel out.

- Overall, Help Desk costs are greater than the peer group, which may be driven by differences in economies of scale (agency level vs. State). There is an opportunity to share or consolidate Help Desk services as well as software tools.

  - The State could potentially leverage a single solution for problem management, trouble ticketing, knowledge management, and even self-service.

  - For many agencies, acquiring these systems does not make economic sense given the size of the individual agency. The State as a whole does have the scale overall to leverage such an investment.

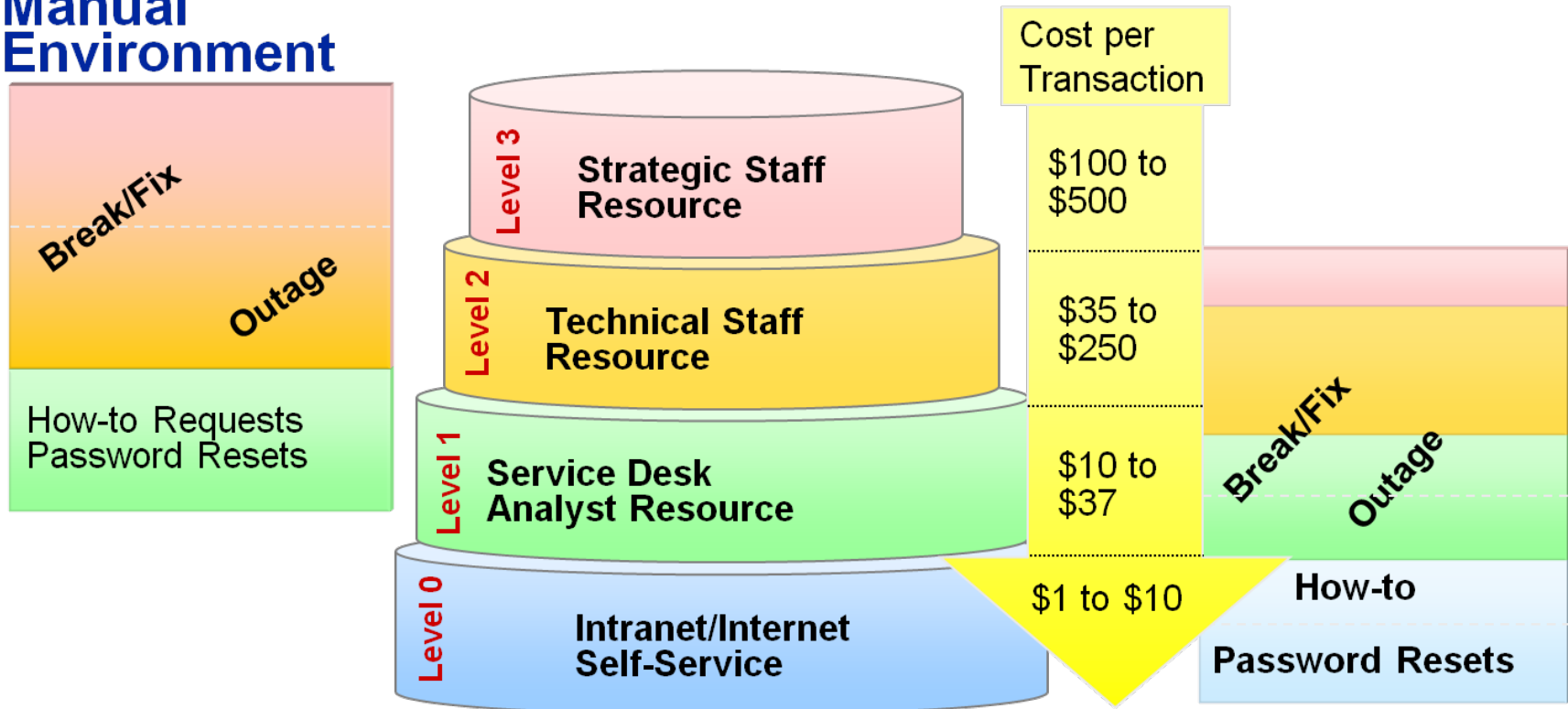**Gartner.**

Executive Summary
Recommendations – IT Help Desk

- In gauging opportunities to increase self-service utilization, include the following activities:
  - Identify issue types and frequency to understand why users commonly contact the service desk. Consistent issue types are often the best target for providing self-service options.
    - Consistent – issues are repeatable and generate the same results every time
    - Inconsistent – issues occur repeatedly but are often the results of unknown errors in infrastructure
    - Transient – do not occur with any consistency and usually can not be reproduced
  - Further categorize issues into sub-categories: How to's, password resets, break/fix, outage and/or service requests.
  - Identify appropriate technology that provides the technical solution: for example, an end-user-focused knowledge base or prescriptive scripts.
  - Allocate resources required to support the self-service channel

- IT self-service represents a change in how users receive support. With any IT self-service initiative, getting the business involved early on to understand the drivers of IT self-service and the value it presents increases its opportunity to be successful.

- Communicate end-user feedback specific to IT self-service experiences to balance the IT goal of support reduction and the user attitudes and expectations that drive utilization.

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Executive Summary
Recommendations – Providing Cost Efficient Support

- See also Gartner Research for Service Desk best practices:

  – "Research Roundup: 2011 Service Desk Best-Practices Guide," G00227216, 6 December 2011.

  – "Analyze IT Issue Types and Frequency to Optimize IT Self-Service Investments, G00218091, 17 October 2011.

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Executive Summary
Recommendations –Data Networking

■ Wide Area and Local Area Networks are operating efficiently at a State level. The build-up of costs is different, with lower Transmission costs and higher Hardware costs, however that is expected given the private networks that are operated with the State (the Capital Campus MAN as well as WSDOT fiber).

■ There is an potential savings opportunity within Internet Access of as much as $3.8M

  – However, this may not accurately represent the full opportunity. This savings is based on data for only eight agencies that were able to report traffic volumes. The Gartner metric for Internet Access is based on traffic volume, and for many agencies this could not be reported.

  – In order to fully evaluate the opportunity, traffic volumes will need to be collected and reported. Based on the findings, it may be possible to reduce capacity (if usage patterns allow) or renegotiate carrier costs to further reduce costs.

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Executive Summary
Recommendations – Voice Services

- Like Mainframe, a factor in Voice Services costs is overhead associated with rate setting on the DIS side, as well as agency staff to review, validate and track billings.
  - Combined Personnel costs for local and long distance voice services are 47% ($2.3M) greater than the peer group would spend to support the same volume of work (extensions and long distance minutes).
  - A more streamlined approach to billing and chargeback could potentially alleviate some staff work.

- Other overall best practices in carrier contract negotiations include:
  - Pre-agreed unit price decreases (e.g., 5% per year)
  - Pre-pricing of foreseen upgrades
  - Adding incremental services, in return for additional discounts
  - Shared risk-reward pricing, especially for new services
  - Discounts linked to committed volumes, balancing discount against risk when consumption is changing so rapidly
  - Benchmarking clause to reset pricing
  - Exit clause if not satisfied with revisions

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- **Commit to application development process improvement initiatives.**
  - State-wide, the overall process maturity self-assessment is lower than the peer group.

Criteria	Level 1 -> 2	Level 2 -> 3	Level 3 -> 4
Reduce defects	12%	40%	85%
Reduce cycle time	10%	38%	63%
Reduce cost	8%	35%	75%
Schedule variance	145%	24%	15%

- **Adopt clear and concise SDLC processes that can be consistently applied to Application Development projects.**
  - According to Gartner Research, improving application development processes through consistent, moderate use of a software development methodology can result in up to a 35% increase in development staff productivity.
  - Consider process frameworks, such as the Software Engineering Institute Capability Maturity Model (CMMI) and the Project Management Institute Project Management Book of Knowledge (PMBOK), to improve the quality, timeliness and cost of application development and project management work

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Executive Summary
Recommendations – Applications Development and Support (continued)

- There is an opportunity to improve quality by reducing defect levels within certain agencies.
 - While there are pockets of strong performance, there are also pockets with high defect levels.

- Review the accumulated defects by application and attempt root-cause analysis on the most critical defects and the configuration items/modules that are most defect-prone.

  - Gartner Research indicates: "Organizations employing a full end-to-end defect removal strategies will improve defect removal rates by more than 20% and will decrease defect removal costs by as much as two thirds in the first year."

- Break defects down into "new" vs. latent defects, assign and attach priorities.

- Gather data such as: Program defects reported over a period of time; Program volatility (the number of times that component was delivered to production over a period of time); and Program complexity (how difficult the program is to understand).

Costs of Correcting Defects (Dollars per Defect Correction)
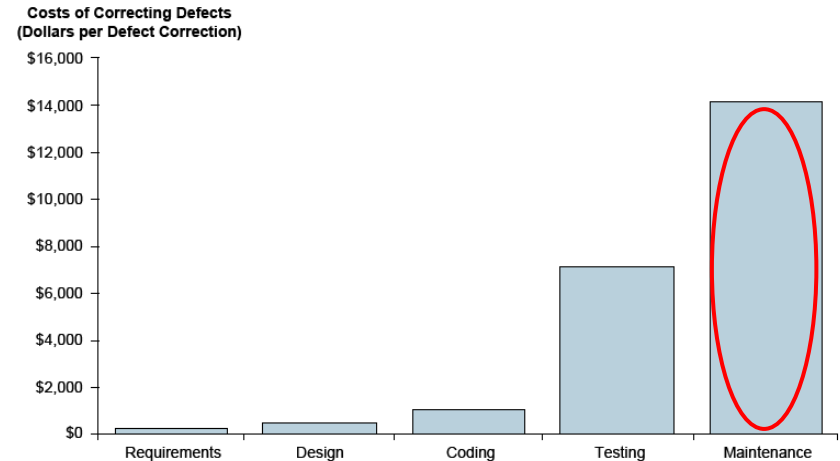
Source: Gartner Research, "Developing Quality Metrics That Matter"
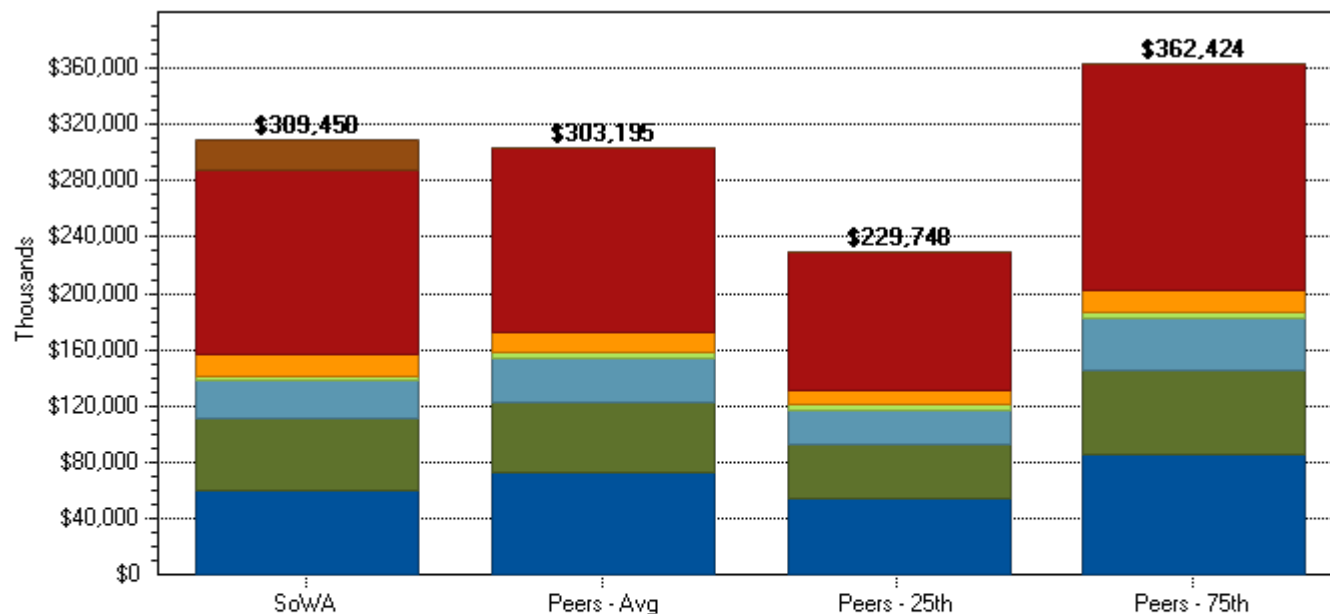
Cost to correct defects in maintenance stage is 3-4 times to fix than during coding or testing

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Executive Summary

Infrastructure Results

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Executive Summary
Infrastructure Total Spending by Cost Category

	SoWA	Peers - Avg	Peers - 25th	Peers - 75th
Hardware	$59,454	$72,804	$54,802	$84,923
Software	$51,851	$49,043	$37,545	$59,773
Transmission	$26,729	$31,828	$25,035	$36,951
Disaster Recovery	$2,983	$4,209	$3,168	$4,791
Occupancy	$15,918	$13,963	$10,102	$16,358
Personnel	$130,908	$131,347	$99,096	$159,628
Unallocated Total	$21,606	$0	$0	$0

Unallocated costs are those that could not be allocated to other categories. It generally includes Outsourcer costs but also includes some DIS charges.

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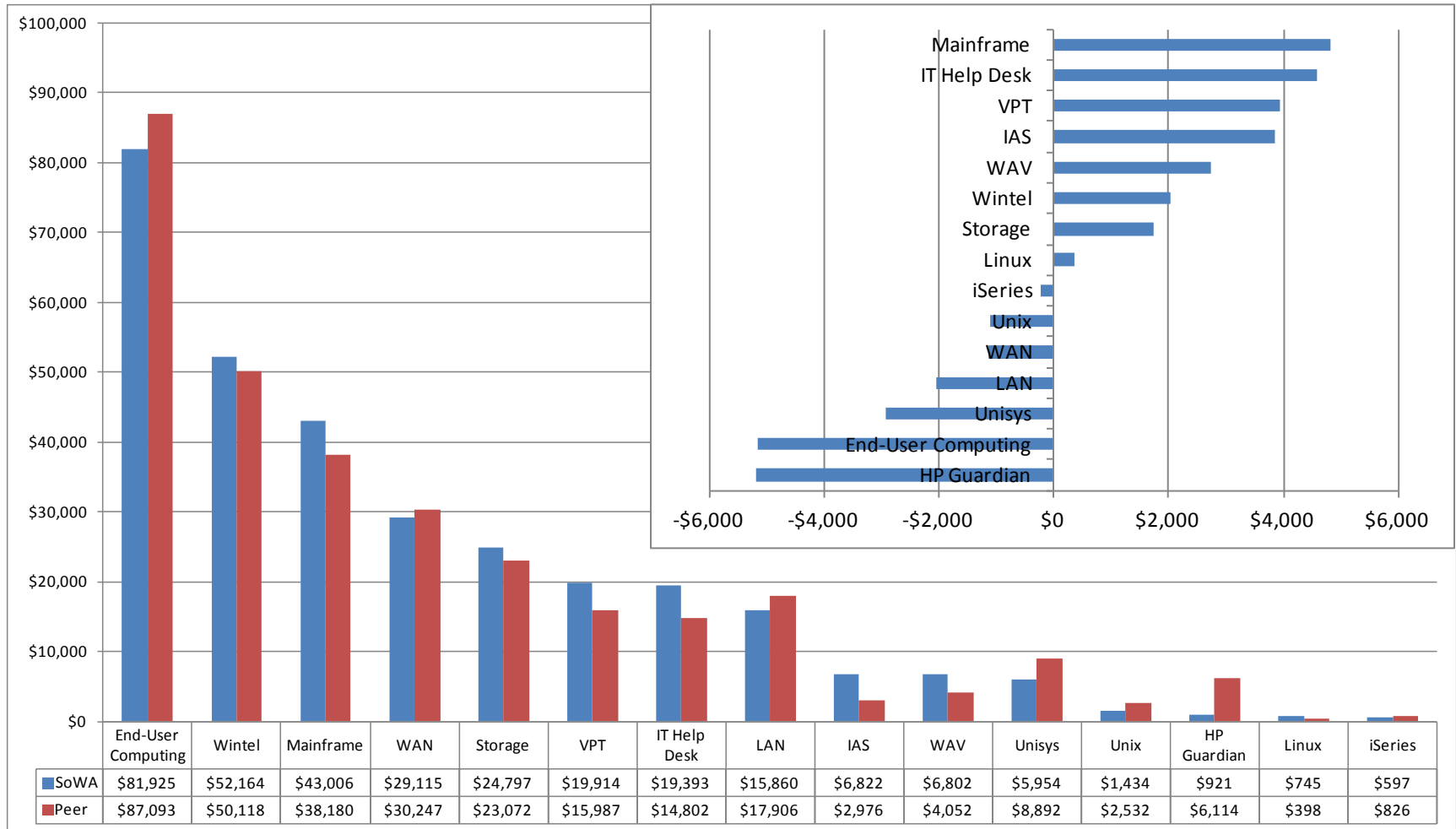# Executive Summary
Infrastructure Total Spending by Cost Category

	Personnel	Hardware	Software	Transmission	Unallocated	Occupancy	Disaster Recovery
■SoWA	$130,908	$59,454	$51,851	$26,729	$21,606	$15,918	$2,983
■Peer	$131,347	$72,804	$49,043	$31,828	$0	$13,963	$4,209

Unallocated costs are those that could not be allocated to other categories. It generally includes Outsourcer costs but also includes some DIS charges.

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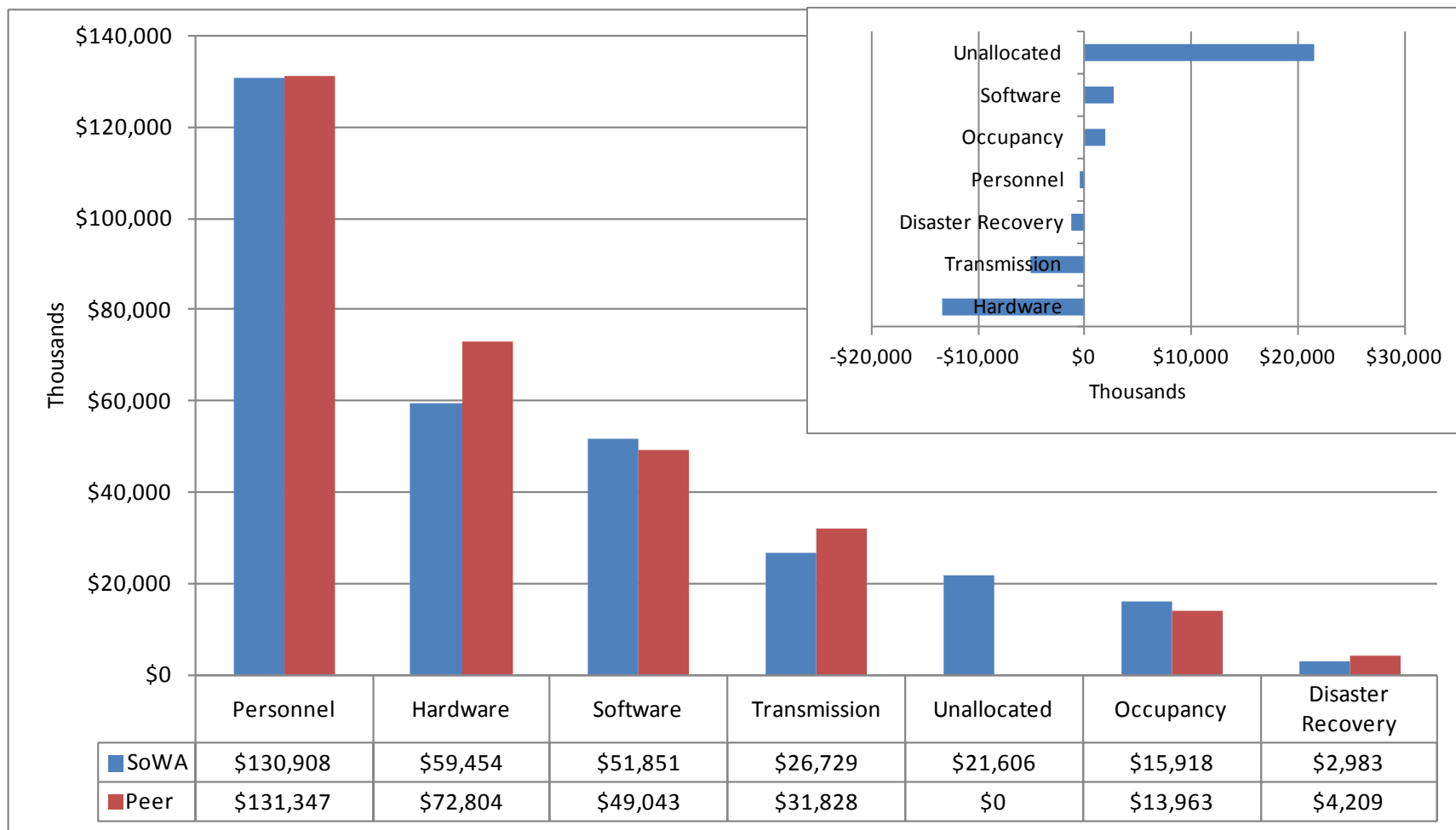
Executive Summary
Infrastructure Total Spending by Functional Area
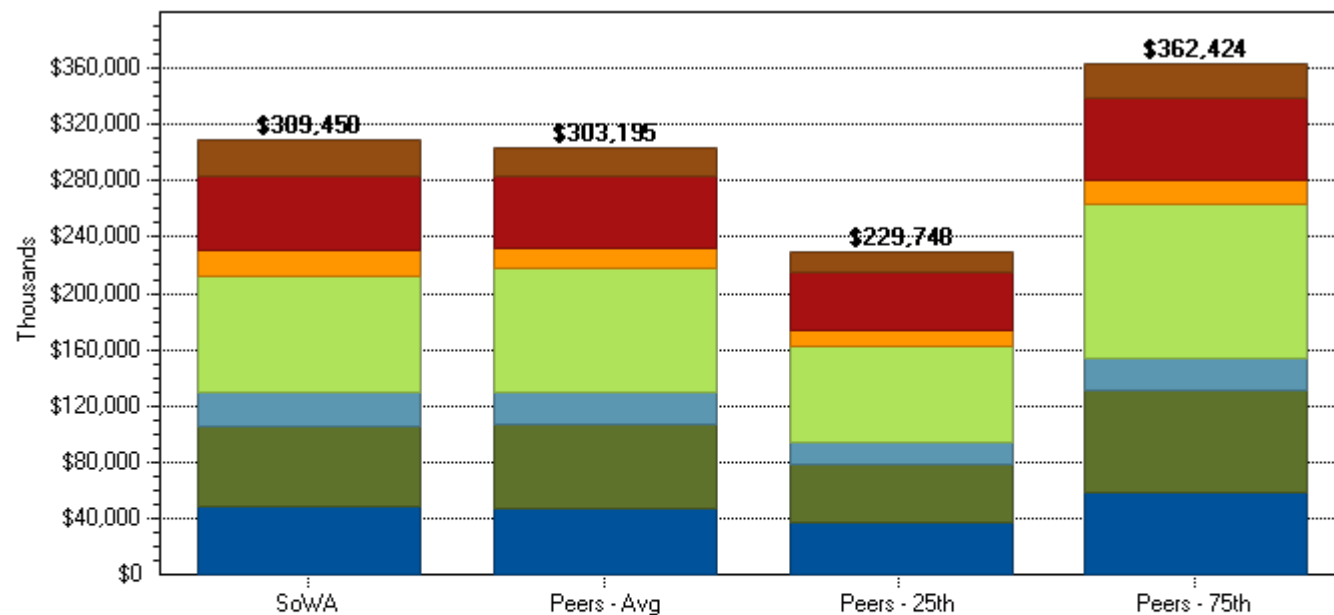
	SoWA	Peers - Avg	Peers - 25th	Peers - 75th
Compute - Mainframe	$48,960	$47,072	$37,325	$58,885
Compute - Midrange	$55,862	$59,989	$41,025	$72,720
Storage	$24,797	$23,072	$15,582	$21,498
End-User Computing	$81,925	$87,093	$68,663	$110,527
IT Service Desk	$19,393	$14,802	$11,769	$17,565
Data Networking	$51,797	$51,128	$40,119	$57,304
Enterprise Telecom	$26,716	$20,039	$15,266	$23,925

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Executive Summary
Infrastructure Total Spending by Functional Area

	End-User Computing	Wintel	Mainframe	WAN	Storage	VPT	IT Help Desk	LAN	IAS	WAV	Unisys	Unix	HP Guardian	Linux	iSeries
SoWA	$81,925	$52,164	$43,006	$29,115	$24,797	$19,914	$19,393	$15,860	$6,822	$6,802	$5,954	$1,434	$921	$745	$597
Peer	$87,093	$50,118	$38,180	$30,247	$23,072	$15,987	$14,802	$17,906	$2,976	$4,052	$8,892	$2,532	$6,114	$398	$826

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Executive Summary
Infrastructure Total Spending by Agency

Agency costs range from $7.8M greater to $9.0M less than the peer groups would spend to support the same agency workload. On a percentage basis, costs range from close to three times greater to 56% less.

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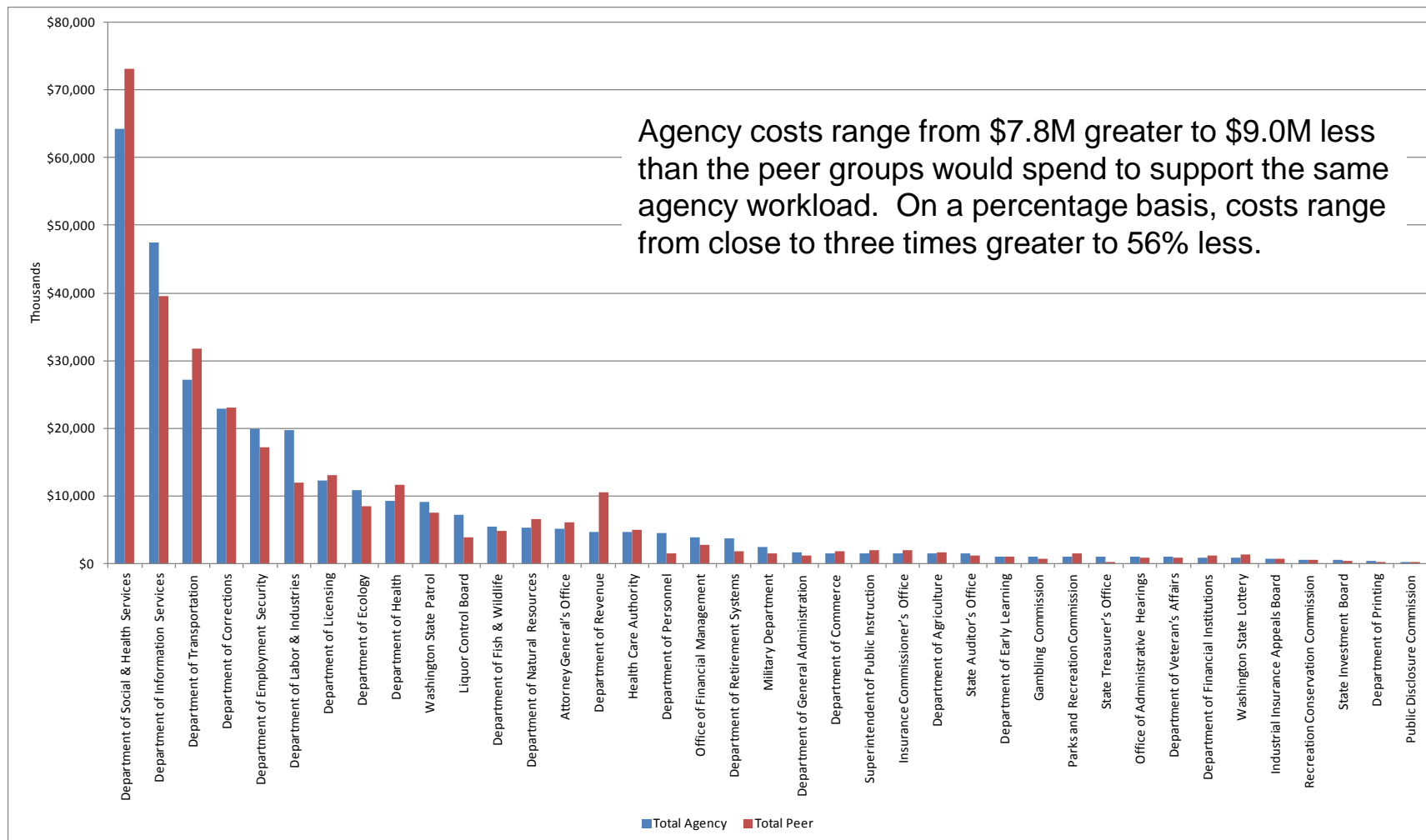
Executive Summary
Infrastructure Total Spending by Agency

$ Thousands	Total Agency	Total Peer
Department of Social & Health Services	$64,202	$73,211
Department of Information Services	$47,385	$39,608
Department of Transportation	$27,128	$31,699
Department of Corrections	$22,914	$23,110
Department of Employment Security	$19,827	$17,147
Department of Labor & Industries	$19,796	$11,970
Department of Licensing	$12,350	$13,013
Department of Ecology	$10,900	$8,535
Department of Health	$9,269	$11,659
Washington State Patrol	$9,181	$7,549
Liquor Control Board	$7,164	$3,832
Department of Fish & Wildlife	$5,534	$4,846
Department of Natural Resources	$5,328	$6,535
Attorney General's Office	$5,142	$6,131
Department of Revenue	$4,669	$10,536
Health Care Authority	$4,666	$5,047
Department of Personnel	$4,514	$1,575
Office of Financial Management	$3,884	$2,789
Department of Retirement Systems	$3,806	$1,762
Military Department	$2,439	$1,576

$ Thousands	Total Agency	Total Peer
Department of General Administration	$1,640	$1,167
Department of Commerce	$1,552	$1,800
Superintendent of Public Instruction	$1,508	$2,023
Insurance Commissioner's Office	$1,447	$2,020
Department of Agriculture	$1,444	$1,639
State Auditor's Office	$1,442	$1,237
Department of Early Learning	$1,065	$1,050
Gambling Commission	$1,055	$740
Parks and Recreation Commission	$1,048	$1,513
State Treasurer's Office	$1,020	$311
Office of Administrative Hearings	$1,017	$850
Department of Veteran's Affairs	$1,004	$873
Department of Financial Institutions	$857	$1,187
Washington State Lottery	$806	$1,314
Industrial Insurance Appeals Board	$770	$671
Recreation Conservation Commission	$609	$499
State Investment Board	$511	$363
Department of Printing	$344	$313
Public Disclosure Commission	$214	$170
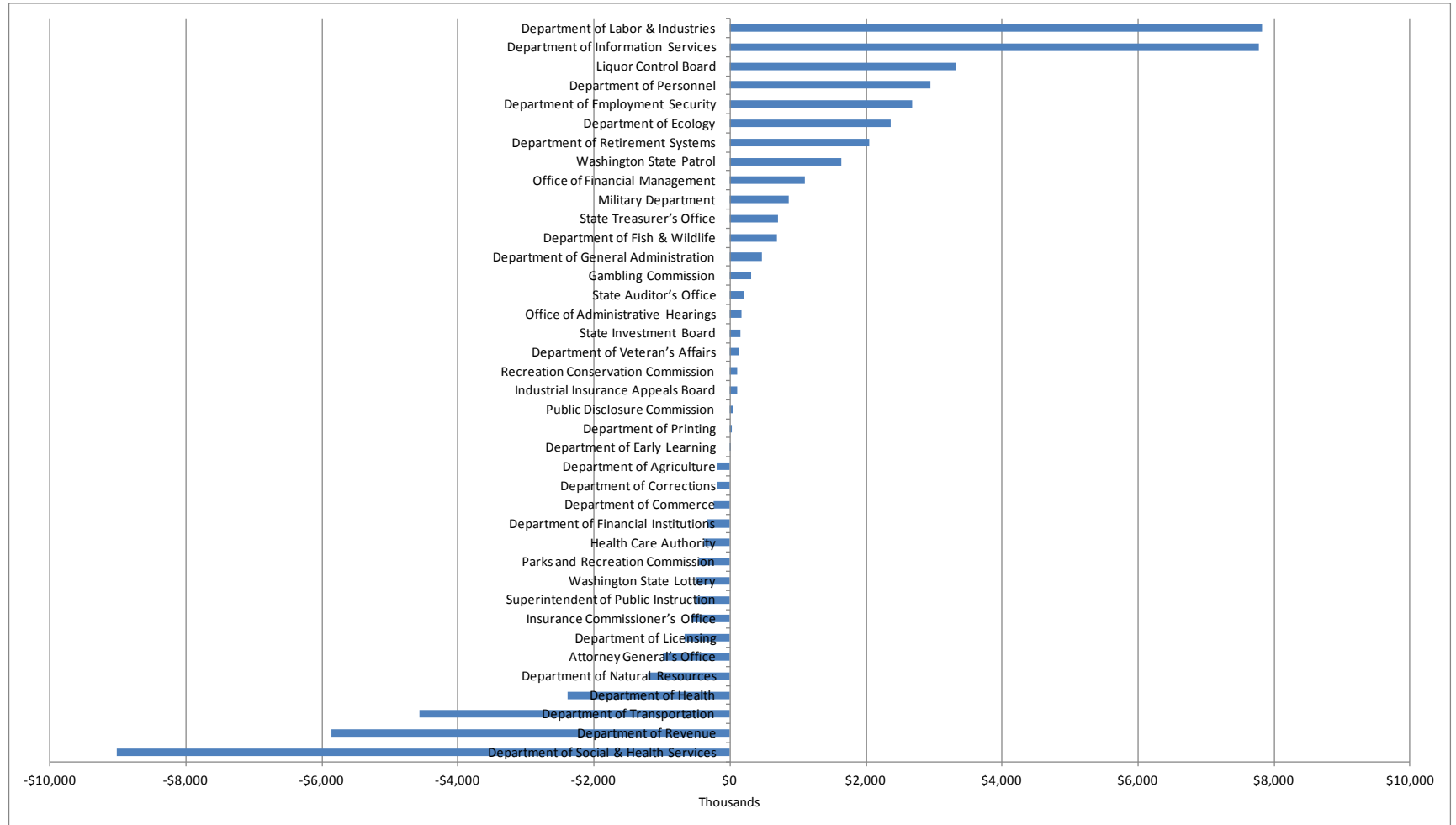
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Executive Summary
Infrastructure Spending Gaps by Agency

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Executive Summary
Infrastructure Spending Gaps by Agency

$ Thousands	Gap to Peer
Department of Labor & Industries	$7,827
Department of Information Services	$7,777
Liquor Control Board	$3,332
Department of Personnel	$2,939
Department of Employment Security	$2,680
Department of Ecology	$2,365
Department of Retirement Systems	$2,044
Washington State Patrol	$1,632
Office of Financial Management	$1,095
Military Department	$862
State Treasurer's Office	$709
Department of Fish & Wildlife	$688
Department of General Administration	$473
Gambling Commission	$315
State Auditor's Office	$206
Office of Administrative Hearings	$168
State Investment Board	$148
Department of Veteran's Affairs	$131
Recreation Conservation Commission	$110
Industrial Insurance Appeals Board	$100
Public Disclosure Commission	$44
Department of Printing	$31
Department of Early Learning	$14

Agencies spending more than peers would spend ←

Agencies spending less than peers would spend →

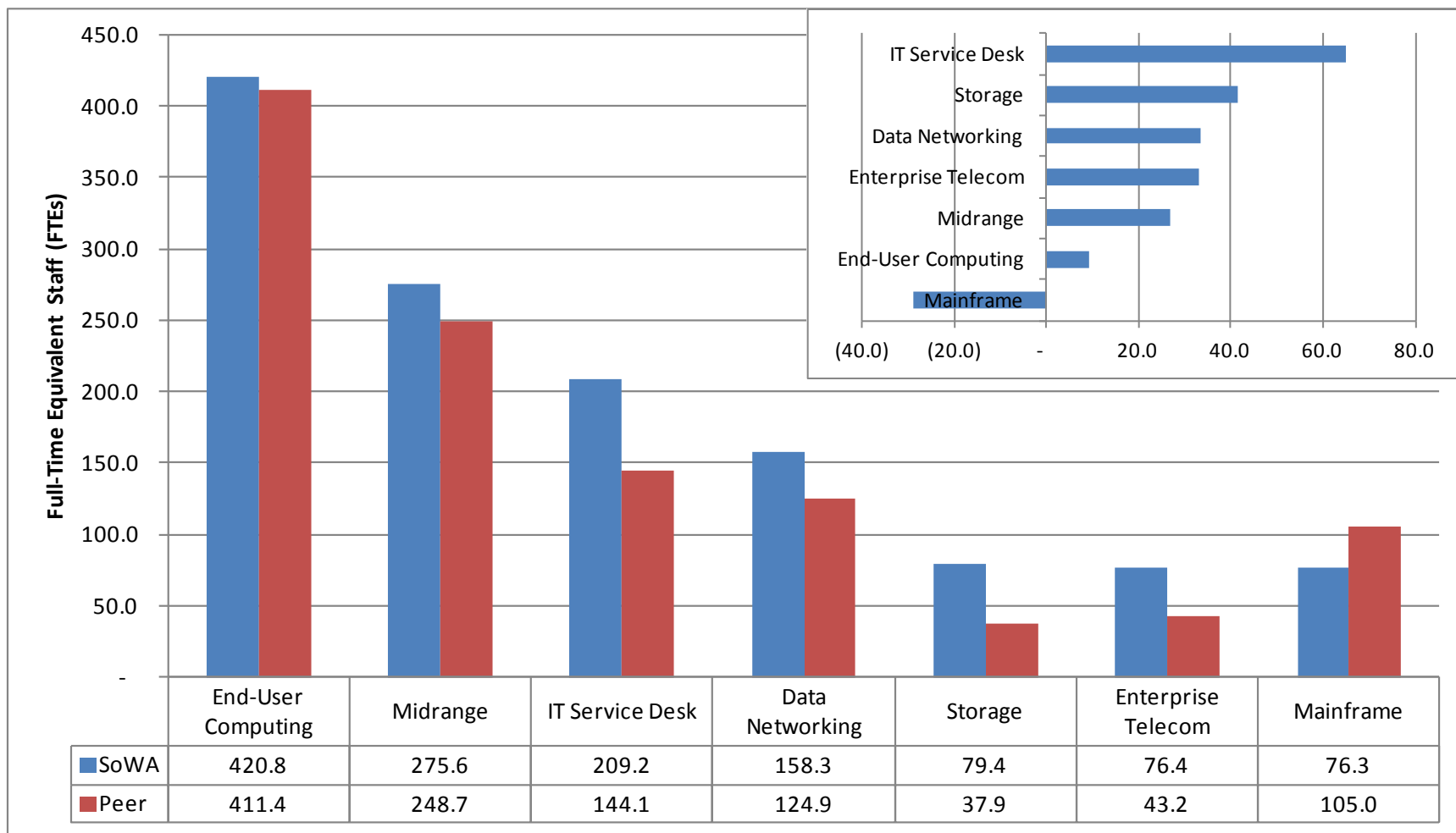| $ Thousands	Gap to Peer
Department of Social & Health Services	-$9,008
Department of Revenue	-$5,867
Department of Transportation	-$4,571
Department of Health	-$2,391
Department of Natural Resources	-$1,207
Attorney General's Office	-$989
Department of Licensing	-$663
Insurance Commissioner's Office	-$574
Superintendent of Public Instruction	-$515
Washington State Lottery	-$508
Parks and Recreation Commission	-$466
Health Care Authority	-$381
Department of Financial Institutions	-$331
Department of Commerce	-$248
Department of Corrections	-$196
Department of Agriculture	-$194

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	SoWA	Peers - Avg	Peers - 25th	Peers - 75th
Compute - Mainframe	76.3	105.0	78.6	138.2
Compute - Midrange	275.6	248.7	170.8	303.5
Storage	79.4	37.9	25.6	35.4
End-User Computing	420.8	411.4	324.3	522.1
IT Service Desk	209.2	144.1	114.6	171.0
Data Networking	158.3	124.9	96.3	138.1
Enterprise Telecom	76.4	43.2	33.2	50.9

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Executive Summary
Infrastructure Total Staffing by Functional Area

	End-User Computing	Midrange	IT Service Desk	Data Networking	Storage	Enterprise Telecom	Mainframe
SoWA	420.8	275.6	209.2	158.3	79.4	76.4	76.3
Peer	411.4	248.7	144.1	124.9	37.9	43.2	105.0

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Executive Summary

Applications Results

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Executive Summary
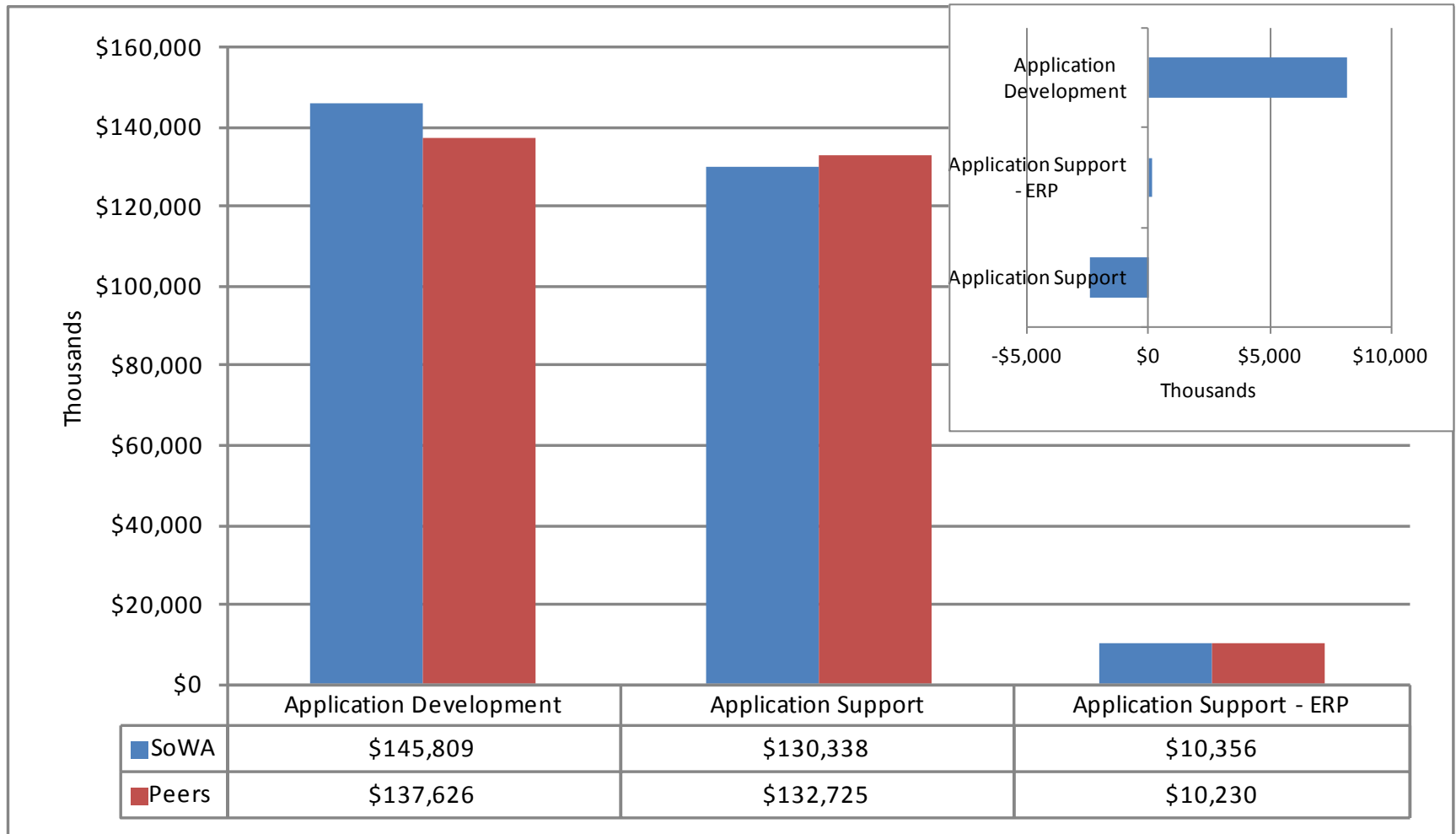## Applications Total Spending by Cost Category

- Health Care Authority and Department of Licensing both heavily influence total State results.
  - HCA costs are much greater than the peer group, while DOL is much less.
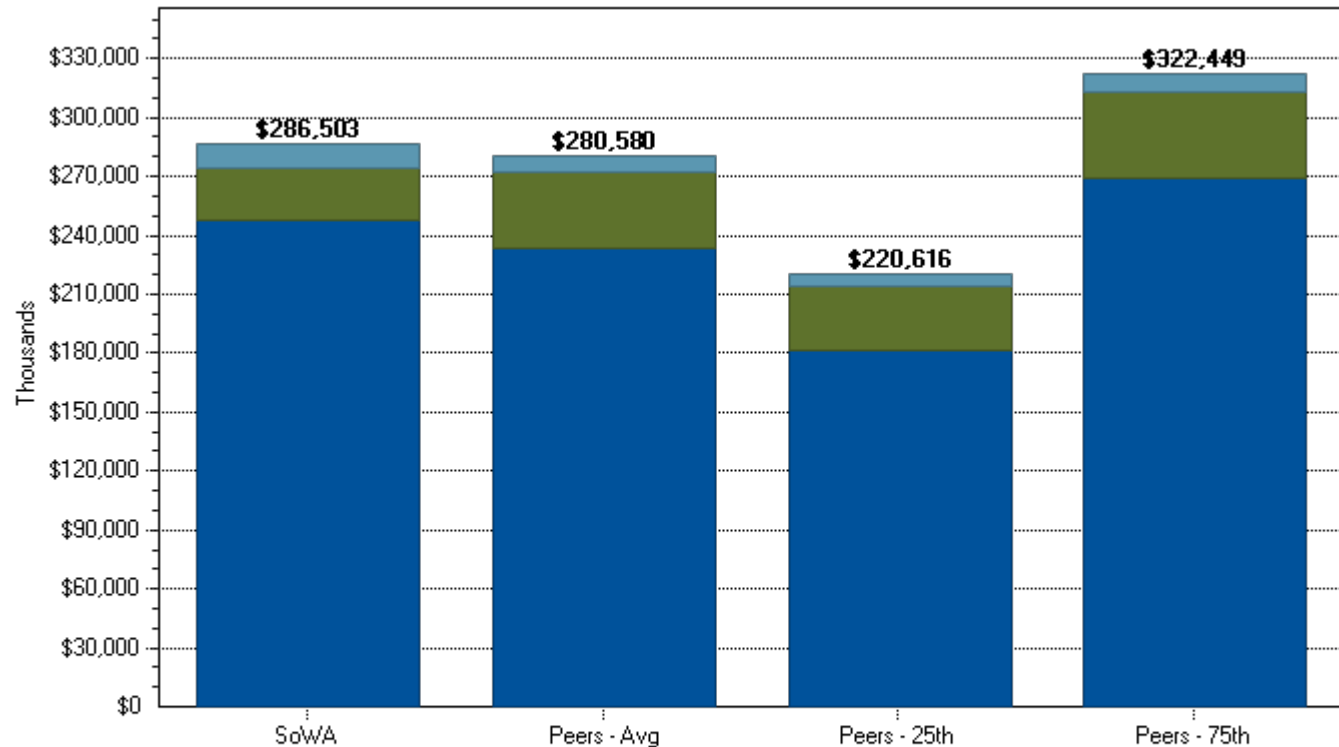
	SoWA	Peers - Avg	Peers - 25th	Peers - 75th
Personnel	$247,316	$233,169	$181,402	$268,647
Software	$27,268	$39,430	$32,867	$44,659
Occupancy	$11,919	$7,980	$6,347	$9,143

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Executive Summary
Applications Total Spending by Cost Category

	Personnel	Software	Occupancy
■SoWA	$247,316	$27,268	$11,919
■Peers	$233,169	$39,430	$7,980

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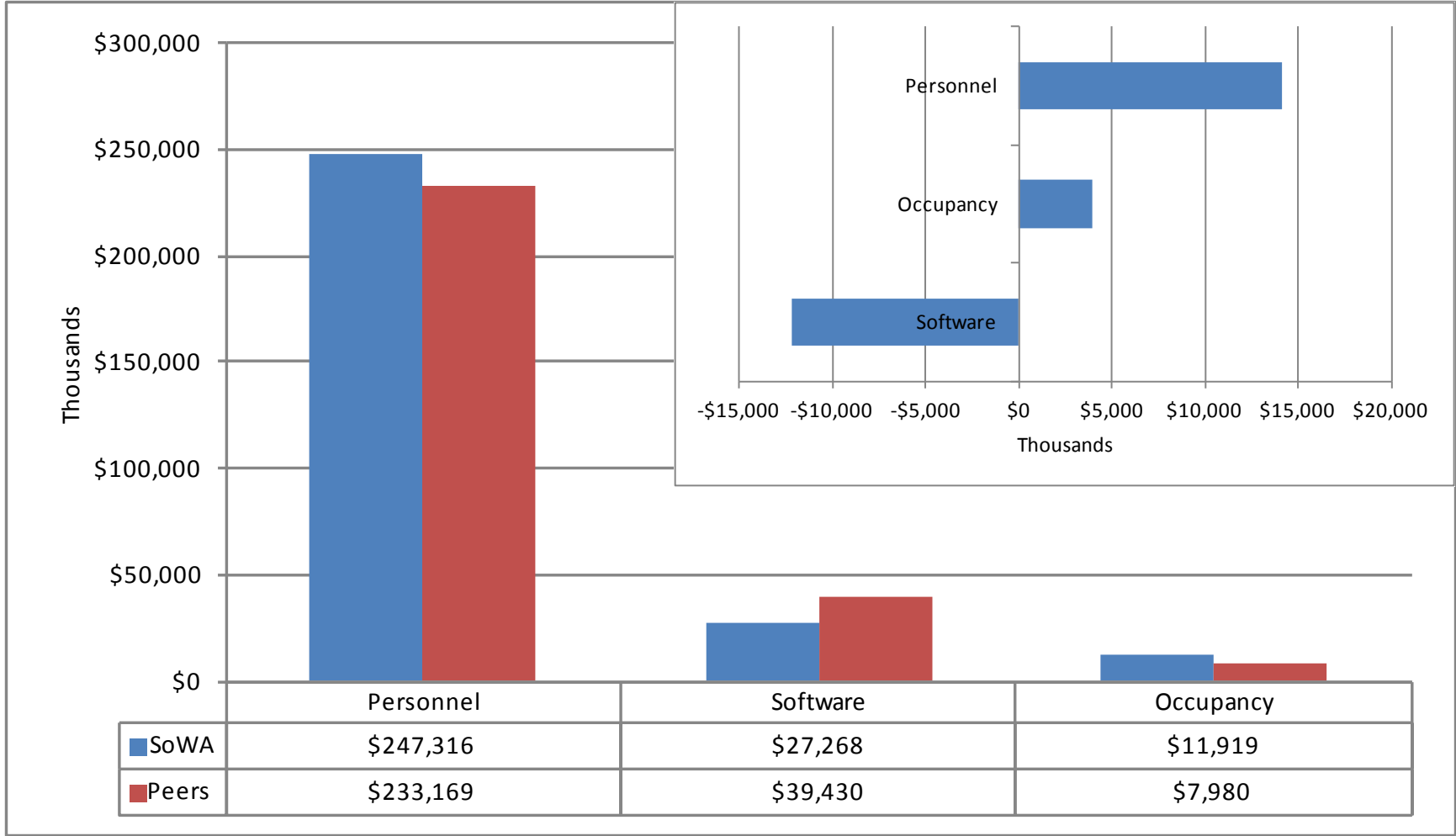
Executive Summary
Applications Total Spending by Functional Area

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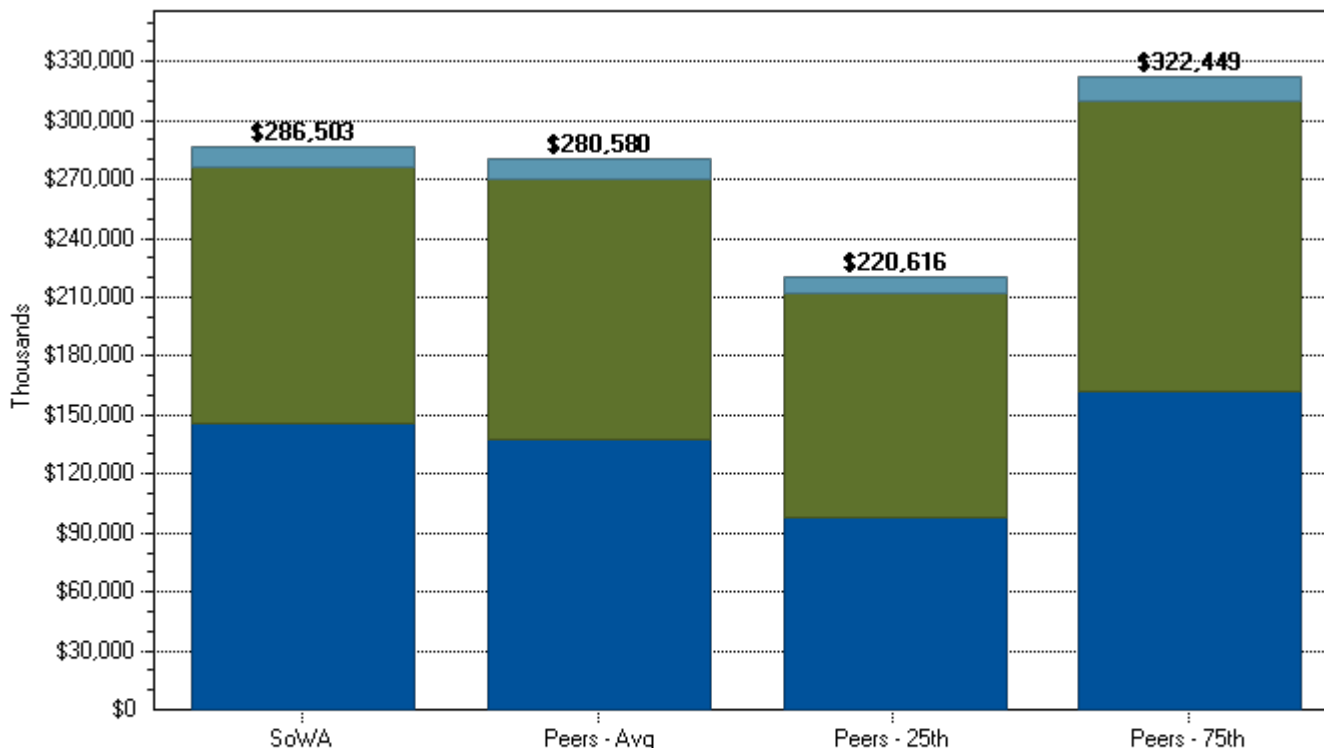
	SoWA	Peers - Avg	Peers - 25th	Peers - 75th
Application Development	$145,809	$137,626	$97,886	$161,958
Application Support	$130,338	$132,725	$113,704	$147,733
Application Support - ERP	$10,356	$10,230	$9,027	$12,758

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Executive Summary
Applications Total Spending by Functional Area

	Application Development	Application Support	Application Support - ERP
■ SoWA	$145,809	$130,338	$10,356
■ Peers	$137,626	$132,725	$10,230

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Executive Summary
Applications Total Spending by Agency

Agency costs range from $48.3M greater to $29.8M less than the peer groups would spend to support the same agency workload. On a percentage basis, costs range from close to nine times greater to 97% less.

Gaps relative to peers for HCA and DOL significantly affect overall results

Legend: ■ Total Agency ■ Total Peer

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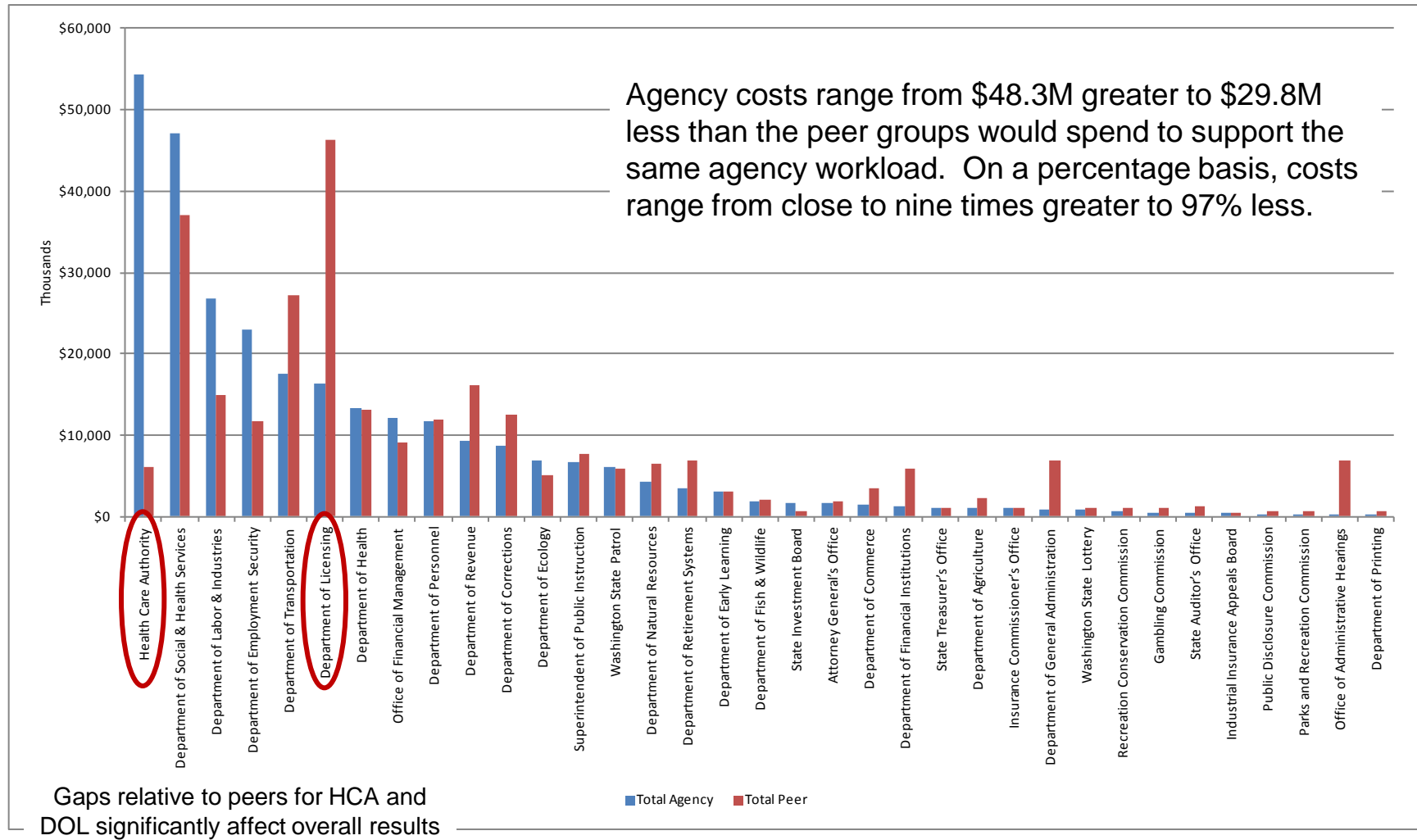
Executive Summary
Applications Total Spending by Agency

$ Thousands	Total Agency	Total Peer
Health Care Authority	$54,382	$6,107
Department of Social & Health Services	$47,006	$37,104
Department of Labor & Industries	$26,701	$14,842
Department of Employment Security	$22,934	$11,821
Department of Transportation	$17,641	$27,155
Department of Licensing	$16,407	$46,233
Department of Health	$13,291	$13,162
Office of Financial Management	$12,042	$9,137
Department of Personnel	$11,742	$11,938
Department of Revenue	$9,235	$16,086
Department of Corrections	$8,629	$12,522
Department of Ecology	$6,891	$5,092
Superintendent of Public Instruction	$6,610	$7,672
Washington State Patrol	$6,096	$5,875
Department of Natural Resources	$4,254	$6,470
Department of Retirement Systems	$3,540	$6,815
Department of Early Learning	$3,025	$3,056
Department of Fish & Wildlife	$1,966	$2,171

$ Thousands	Total Agency	Total Peer
State Investment Board	$1,717	$579
Attorney General's Office	$1,682	$1,869
Department of Commerce	$1,409	$3,440
Department of Financial Institutions	$1,341	$5,922
State Treasurer's Office	$1,013	$1,159
Department of Agriculture	$995	$2,250
Insurance Commissioner's Office	$981	$1,143
Department of General Administration	$963	$6,881
Washington State Lottery	$791	$1,134
Recreation Conservation Commission	$714	$1,074
Gambling Commission	$551	$1,146
State Auditor's Office	$419	$1,336
Industrial Insurance Appeals Board	$373	$427
Public Disclosure Commission	$282	$697
Parks and Recreation Commission	$235	$599
Office of Administrative Hearings	$232	$6,890
Department of Printing	$193	$695

Gaps relative to peers for HCA and
DOL significantly affect overall results

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Gaps relative to peers for HCA and
DOL significantly affect overall results

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Executive Summary
Applications Spending Gaps by Agency

$ Thousands	Gap to Peer
Health Care Authority	$48,275
Department of Labor & Industries	$11,860
Department of Employment Security	$11,113
Department of Social & Health Services	$9,902
Office of Financial Management	$2,905
Department of Ecology	$1,799
State Investment Board	$1,138
Washington State Patrol	$221
Department of Health	$128

Agencies spending more than peers would spend ←

Agencies spending less than peers would spend →

Gaps relative to peers for HCA and DOL significantly affect overall results

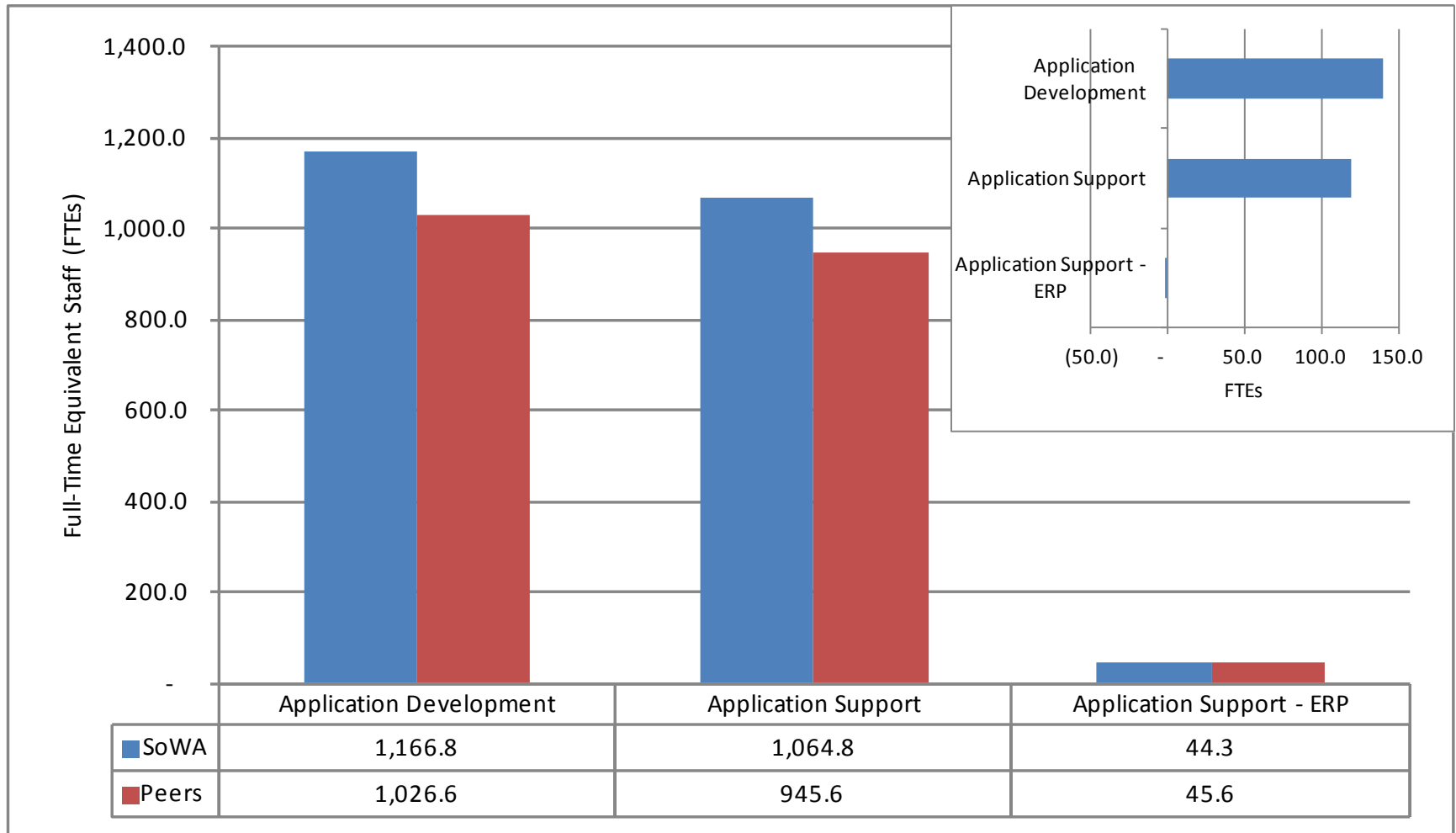| $ Thousands	Gap to Peer
Department of Licensing	-$29,826
Department of Transportation	-$9,513
Department of Revenue	-$6,851
Office of Administrative Hearings	-$6,657
Department of General Administration	-$5,918
Department of Financial Institutions	-$4,581
Department of Corrections	-$3,894
Department of Retirement Systems	-$3,276
Department of Natural Resources	-$2,216
Department of Commerce	-$2,031
Department of Agriculture	-$1,255
Superintendent of Public Instruction	-$1,062
State Auditor's Office	-$917
Gambling Commission	-$595
Department of Printing	-$502
Public Disclosure Commission	-$415
Parks and Recreation Commission	-$364
Recreation Conservation Commission	-$360
Washington State Lottery	-$343
Department of Fish & Wildlife	-$205
Department of Personnel	-$195
Attorney General's Office	-$187
Insurance Commissioner's Office	-$162
State Treasurer's Office	-$146
Industrial Insurance Appeals Board	-$53
Department of Early Learning	-$31

Gartner.

Executive Summary
Applications Total Adjusted FTEs by Functional Area
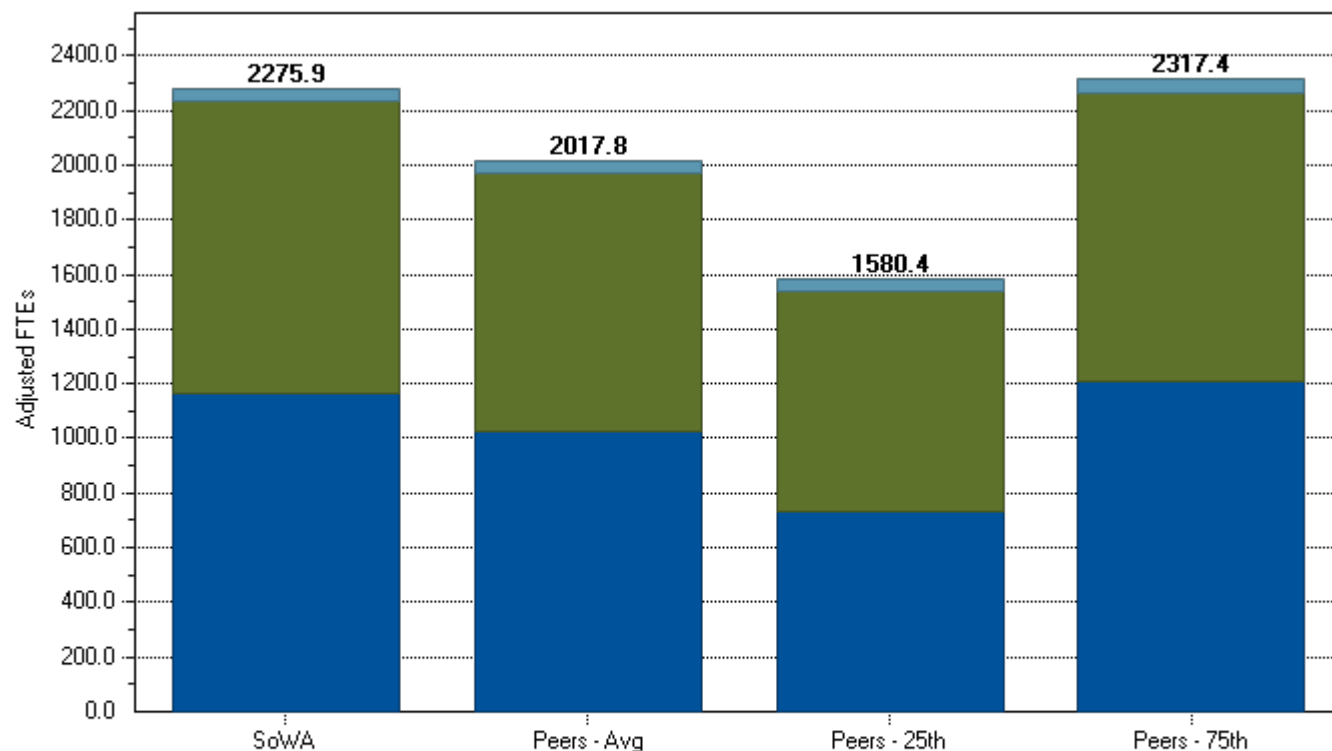
	SoWA	Peers - Avg	Peers - 25th	Peers - 75th
Application Development	1166.8	1026.6	730.1	1208.1
Application Support	1064.8	945.6	810.1	1052.5
Application Support - ERP	44.3	45.6	40.2	56.8

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Executive Summary
Applications Total Staffing by Functional Area

	Application Development	Application Support	Application Support - ERP
SoWA	1,166.8	1,064.8	44.3
Peers	1,026.6	945.6	45.6

Gartner

Analysis By Area

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Mainframe

Gartner.

Enterprise Computing – Mainframe
Consensus Model & Demographics

Category	Icon	Details
Hardware		Processors (mainframe, servers) Internal Disk Storage
Software		Operating Systems, Virtualization Database/Database Management Middleware, Messaging, Security
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Technical Support (ops tech svcs) Planning and Process Management Administration (includes mgmt)

- **State of Washington**
  - 16,123 Total MIPS
    - 54% Standard MIPS
    - 46% Specialty MIPS

- **Peer**
  - Average 17,577 Total MIPS
    - 66% Standard MIPS
    - 34% Specialty MIPS
  - 9 Organizations
    - 4 Financial Services, 2 Public Administration, 2 Utilities, 1 Health Services

Gartner

Enterprise Computing – Mainframe Efficiency – Cost Per MIPS

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Enterprise Computing – Mainframe Efficiency – Cost Per MIPS by Agency

Cost per MIPS

All agencies buy Mainframe service from DIS with the exception for DOT and DSHS.

Gartner.
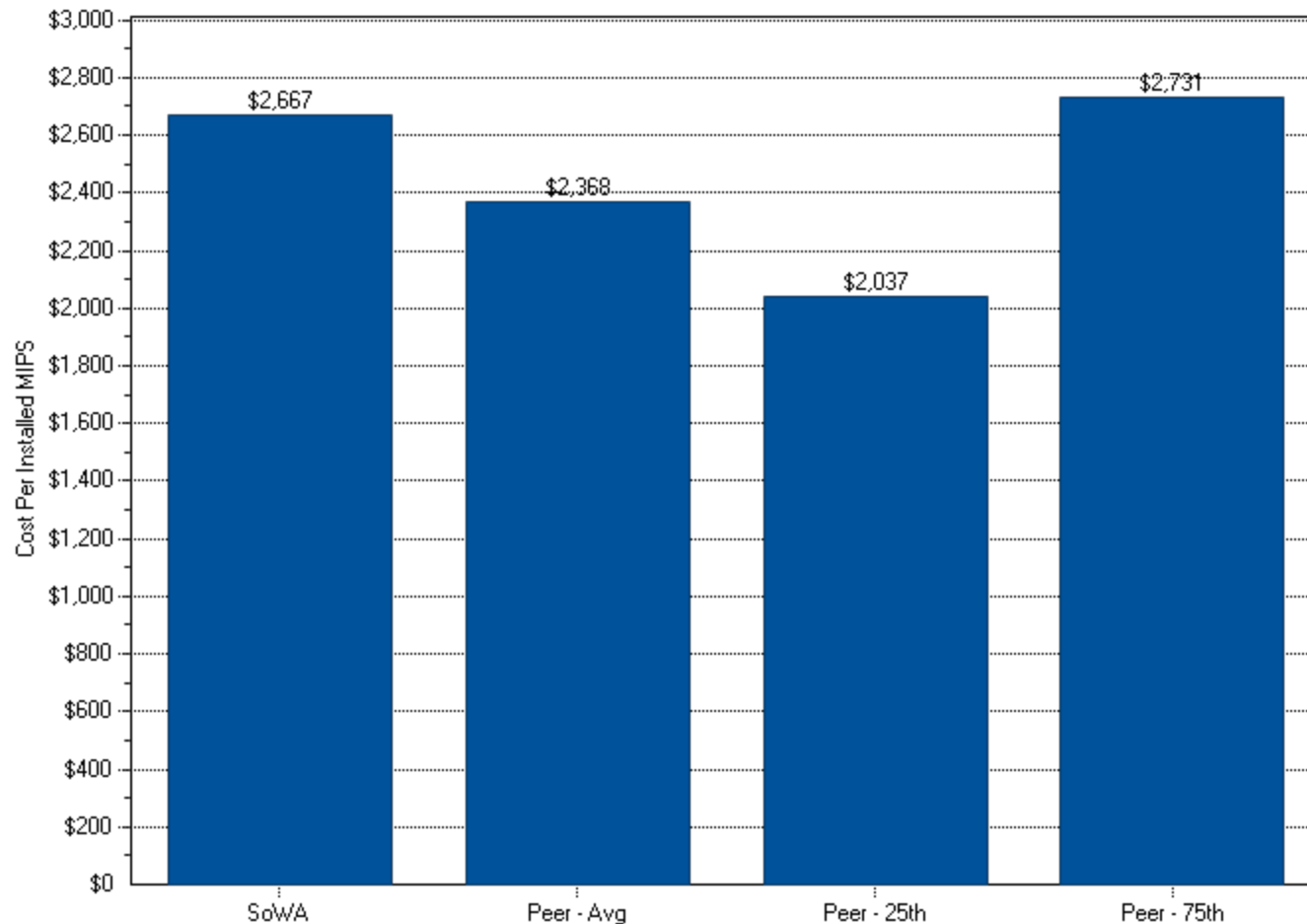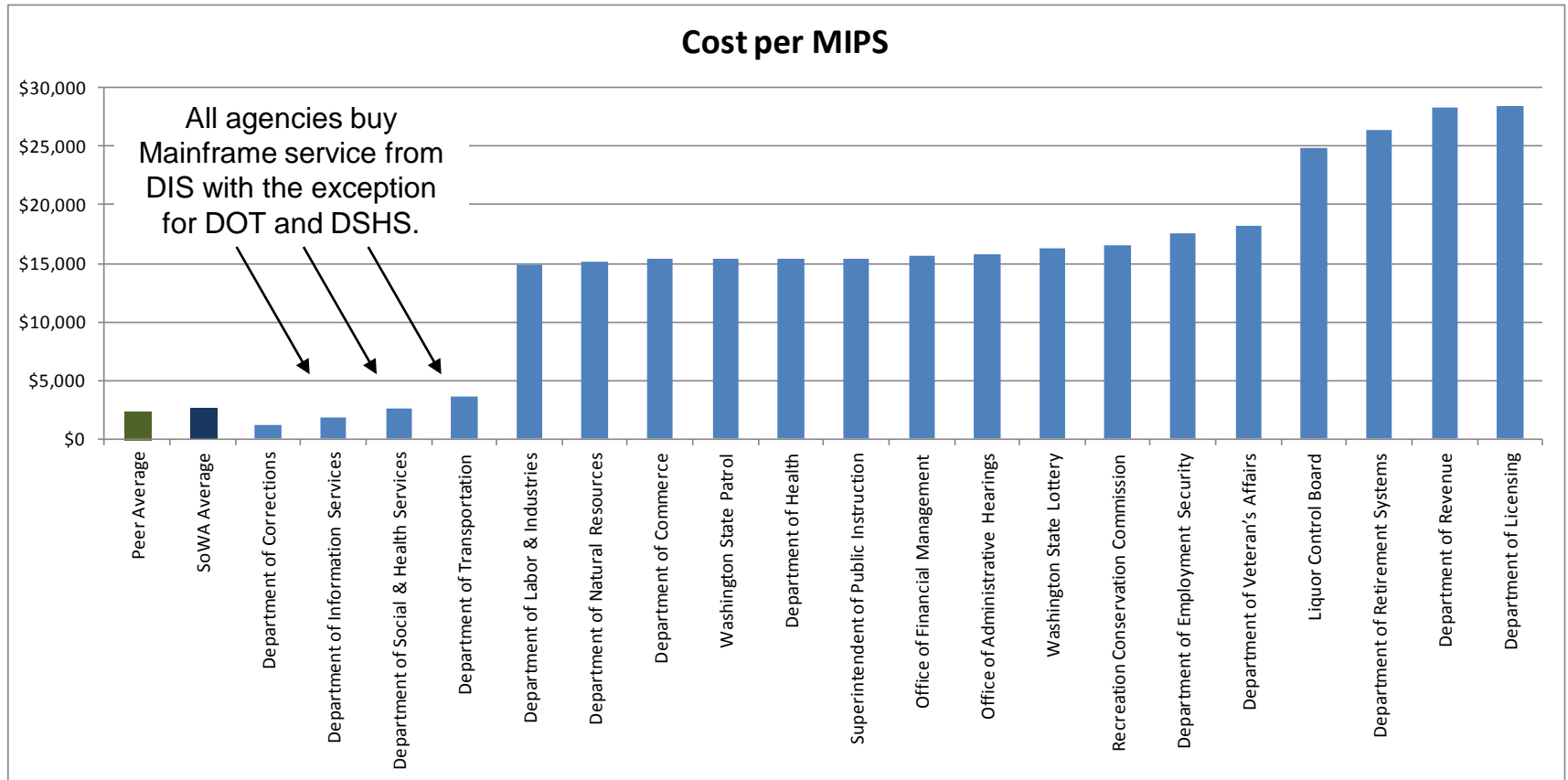
Enterprise Computing – Mainframe
IT Spending by Cost Category
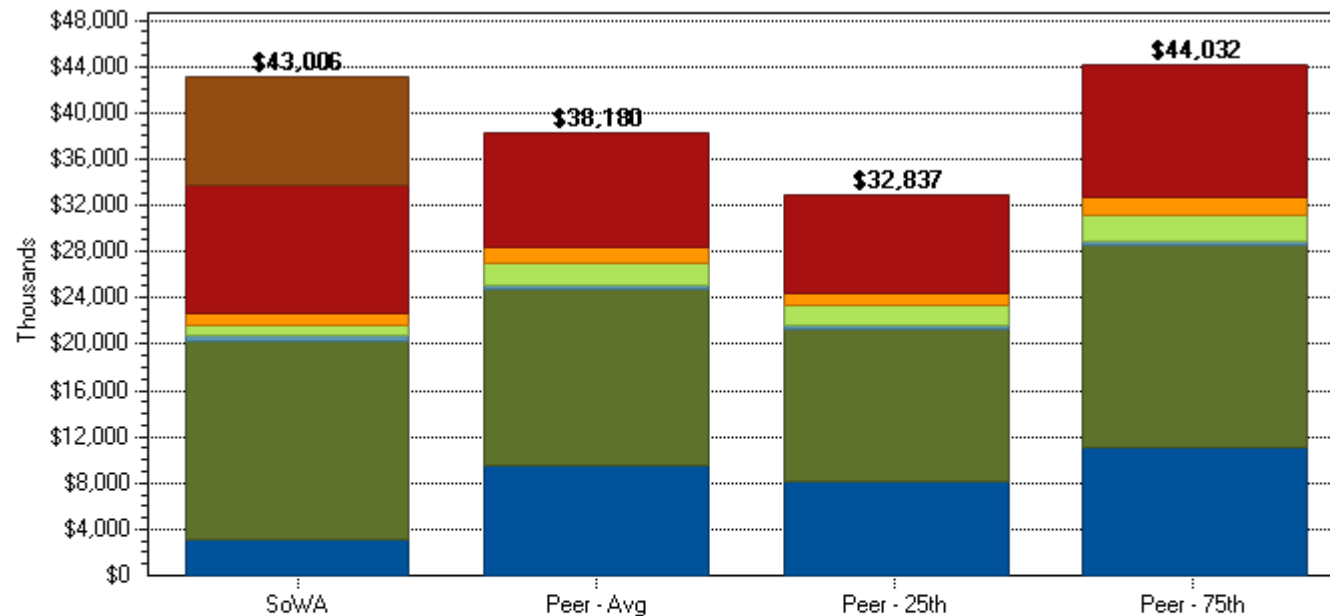
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$3,106	$9,530	$8,196	$10,990
Software	$17,179	$15,157	$13,036	$17,481
Connectivity	$390	$420	$361	$484
Disaster Recovery	$1,006	$1,959	$1,685	$2,260
Occupancy/Facilities	$987	$1,239	$1,066	$1,429
Personnel	$11,061	$9,875	$8,493	$11,388
Unallocated Total	$9,278			

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Enterprise Computing – Mainframe
Total Spending Gap to Peer by Agency

Total Gap to Peer

Horizontal bar chart showing Total Gap to Peer (Thousands) by agency:

Agency	Total Gap to Peer (Thousands)
Department of Employment Security	~4,250
Department of Labor & Industries	~3,150
Department of Retirement Systems	~1,700
Department of Social & Health Services	~900
Office of Financial Management	~700
Department of Transportation	~550
Department of Licensing	~400
Department of Revenue	~75
Liquor Control Board	~30
Department of Natural Resources	~15
Department of Health	~10
Washington State Patrol	~10
Superintendent of Public Instruction	~10
Department of Commerce	~10
Office of Administrative Hearings	~10
Department of Veteran's Affairs	~10
Washington State Lottery	~5
Recreation Conservation Commission	~5
Department of Corrections	~-2,700
Department of Information Services	~-4,400

X-axis: -$5,000, -$4,000, -$3,000, -$2,000, -$1,000, $0, $1,000, $2,000, $3,000, $4,000, $5,000 (Thousands)

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Enterprise Computing – Mainframe Productivity – MIPS Per Adjusted FTE
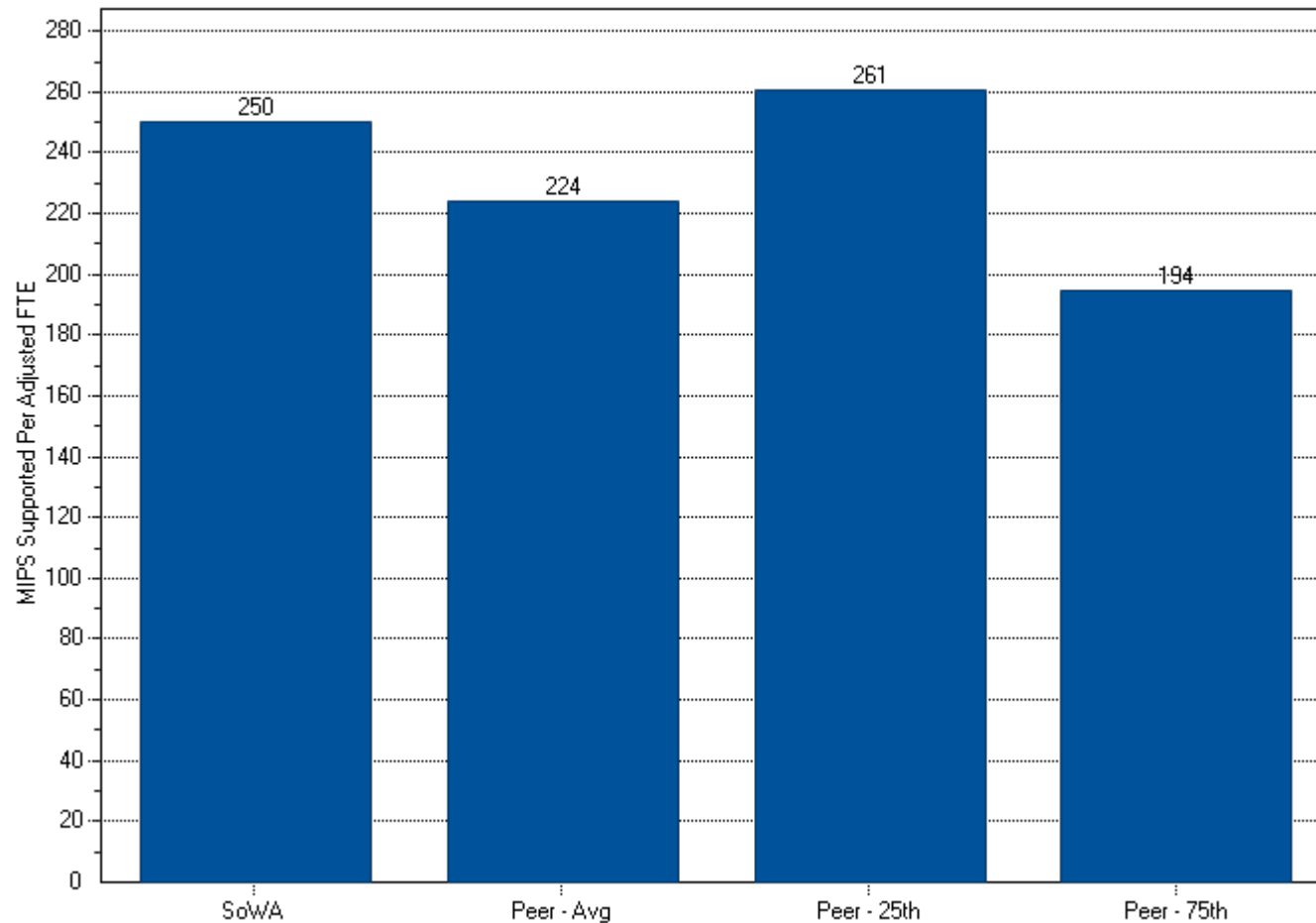
Productivity for Mainframe is skewed higher by DIS costs without corresponding FTEs.

Gartner.

Enterprise Computing – Mainframe
IT Headcount (FTE) Total
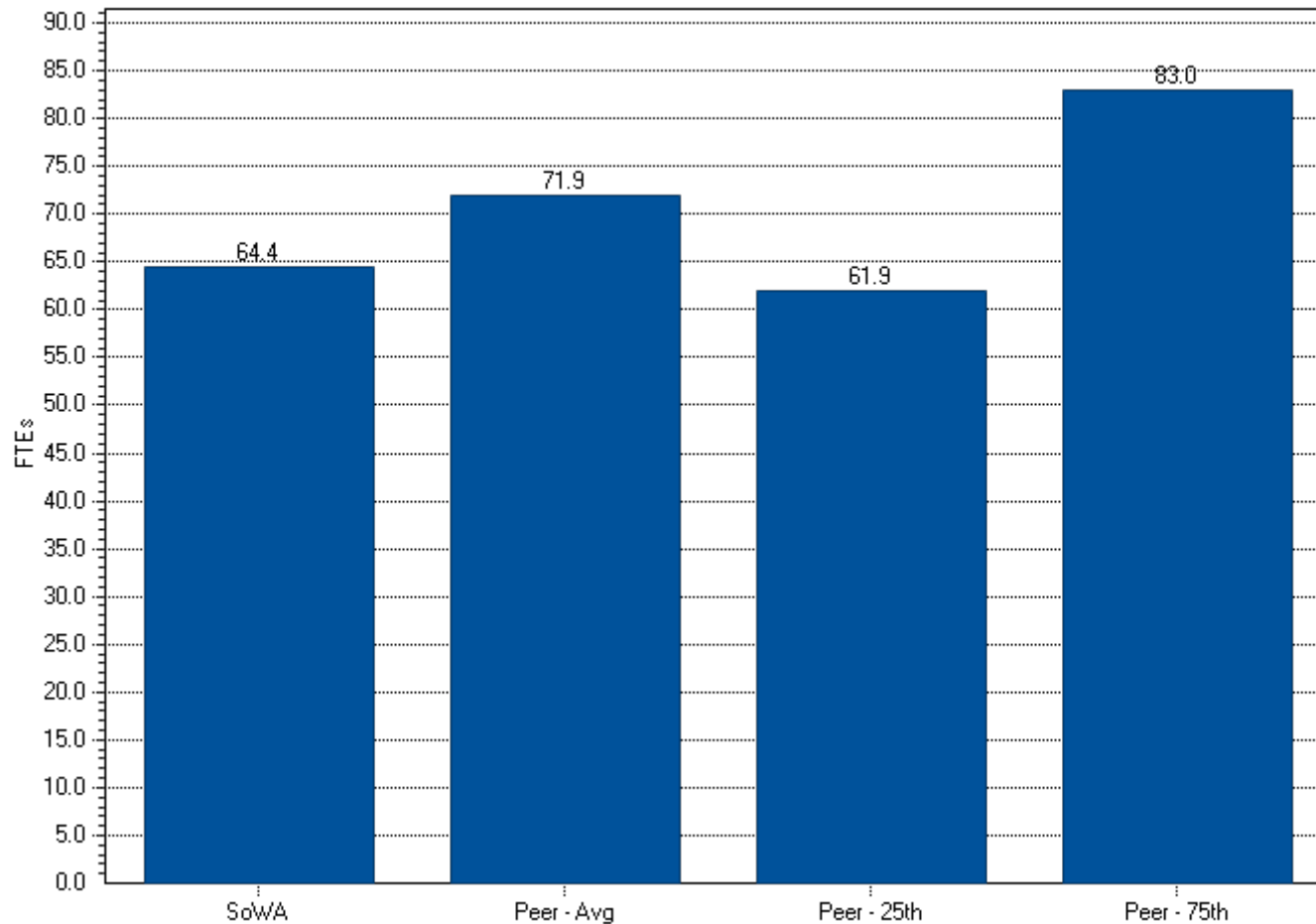
Headcount for Mainframe is under-reported by DIS charges without corresponding FTEs.

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Enterprise Computing – Mainframe
Cost Per FTE – Insourced & Contractor Blended Total
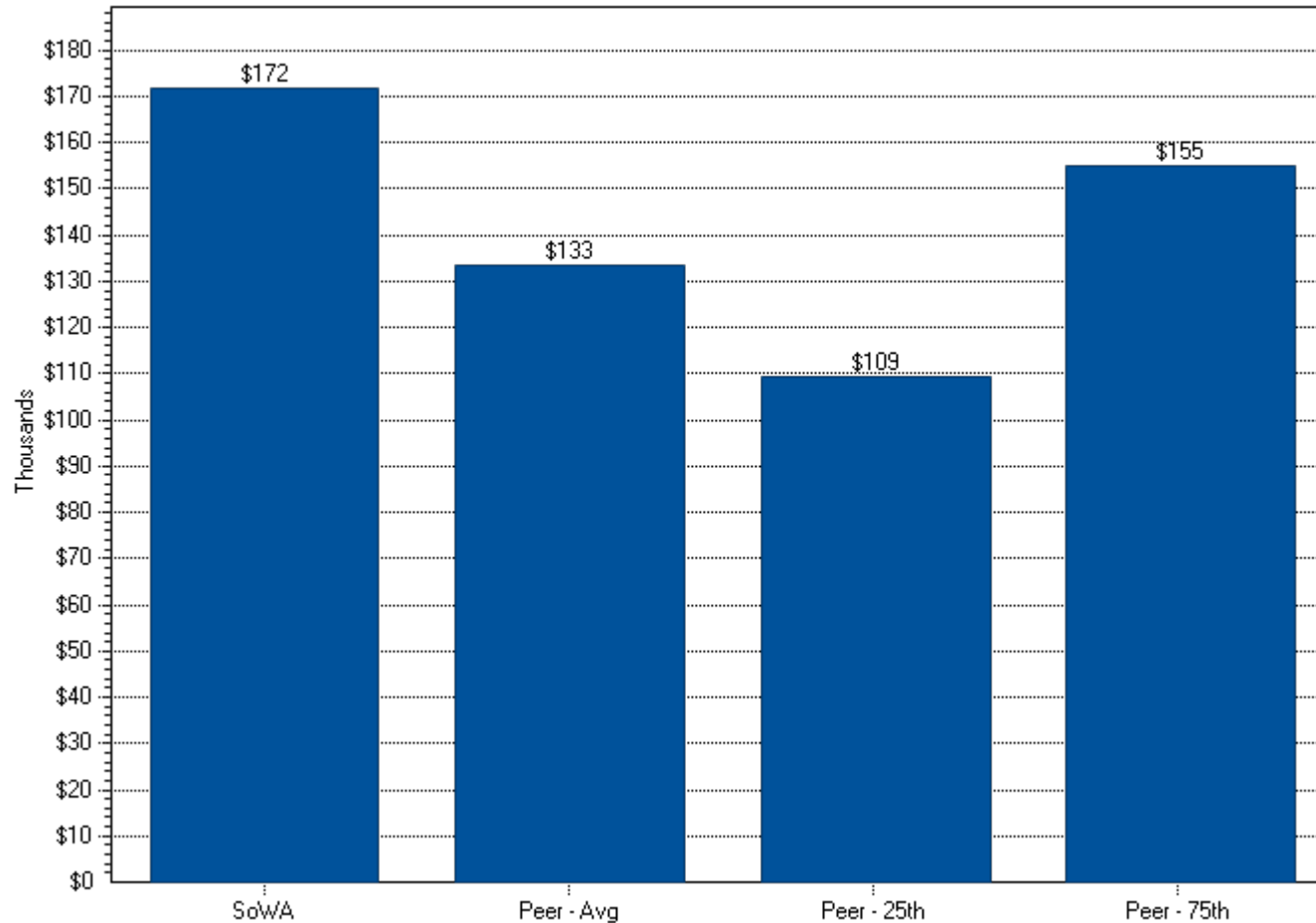
Cost per FTE for Mainframe is skewed higher by DIS charges allocated to Personnel without corresponding FTEs.

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Unisys

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Enterprise Computing – Unisys Consensus Model & Demographics

Category		Description
Hardware		Processors (mainframe, servers) Internal Disk Storage
Software		Operating Systems, Virtualization Database/Database Management Middleware, Messaging, Security
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Technical Support (ops tech svcs) Planning and Process Management Administration (includes mgmt)

- State of Washington
  - 1,859 MIPS

- Peer
  - Average 2,977 MIPS
  - 5 Organizations
    - 4 Government, 1 Communications

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Enterprise Computing – Unisys
Efficiency – Cost Per MIPS

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Enterprise Computing – Unisys
Efficiency – Cost Per MIPS by Agency

Cost per MIPS

Gartner
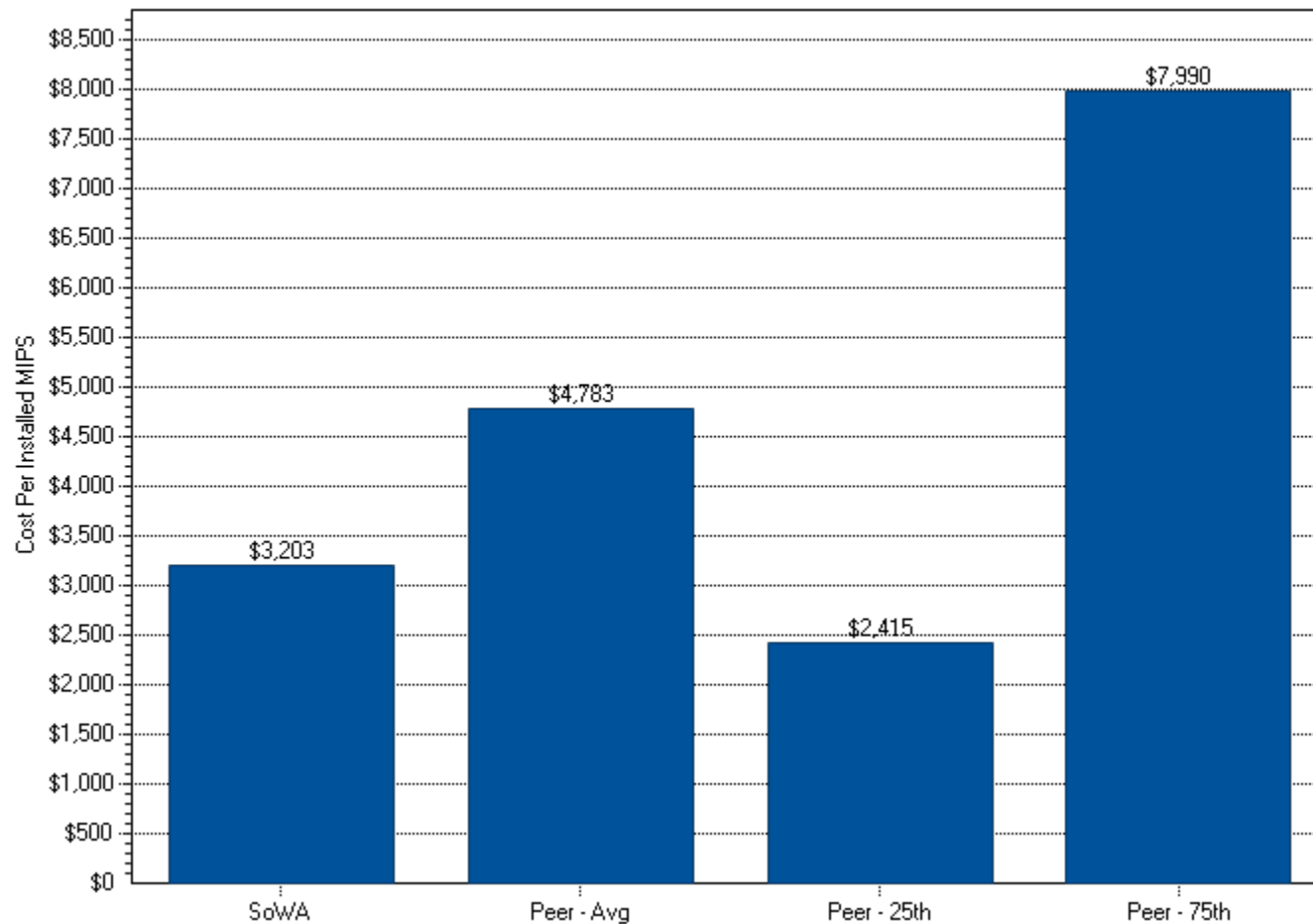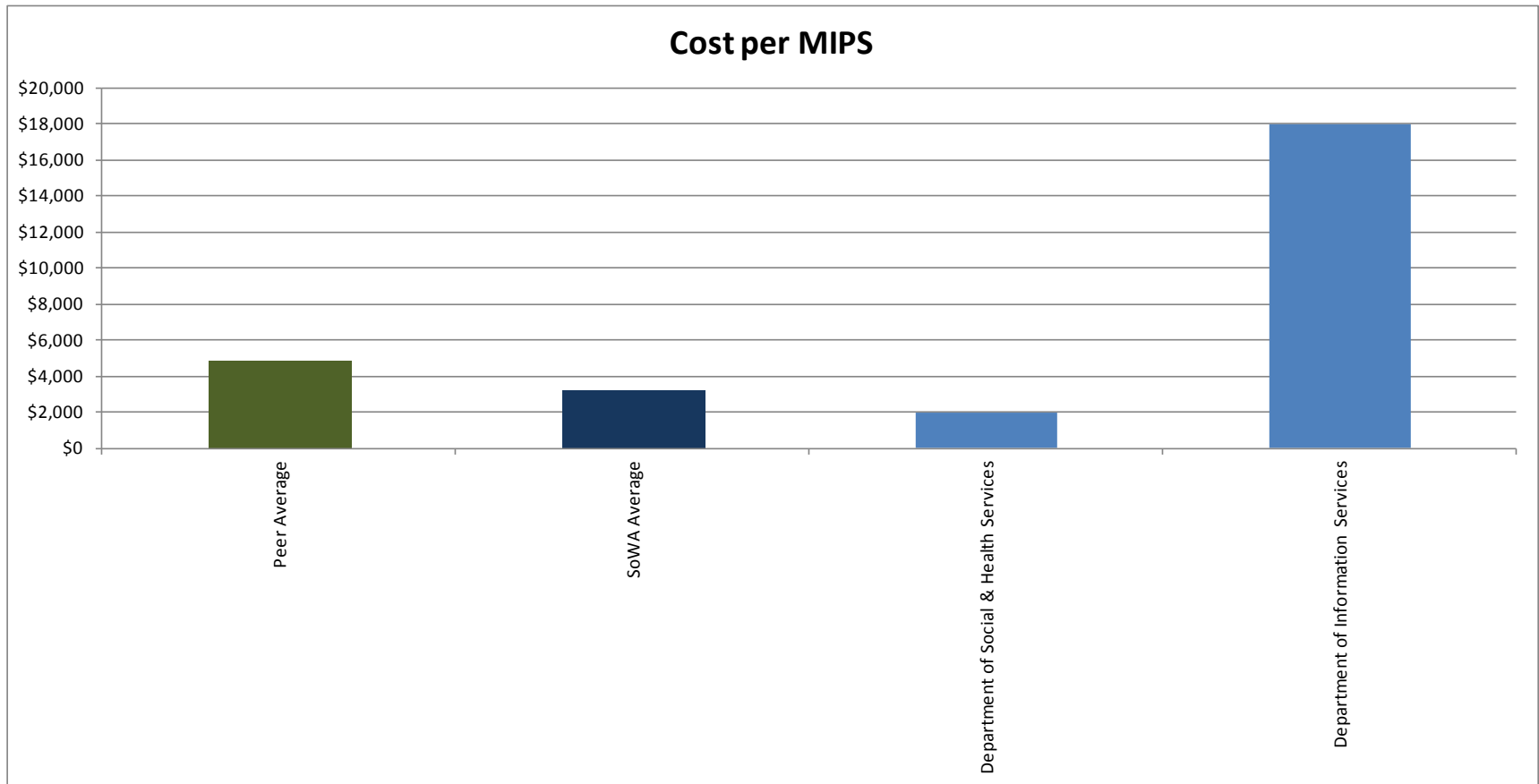
Enterprise Computing – Unisys
IT Spending by Cost Category
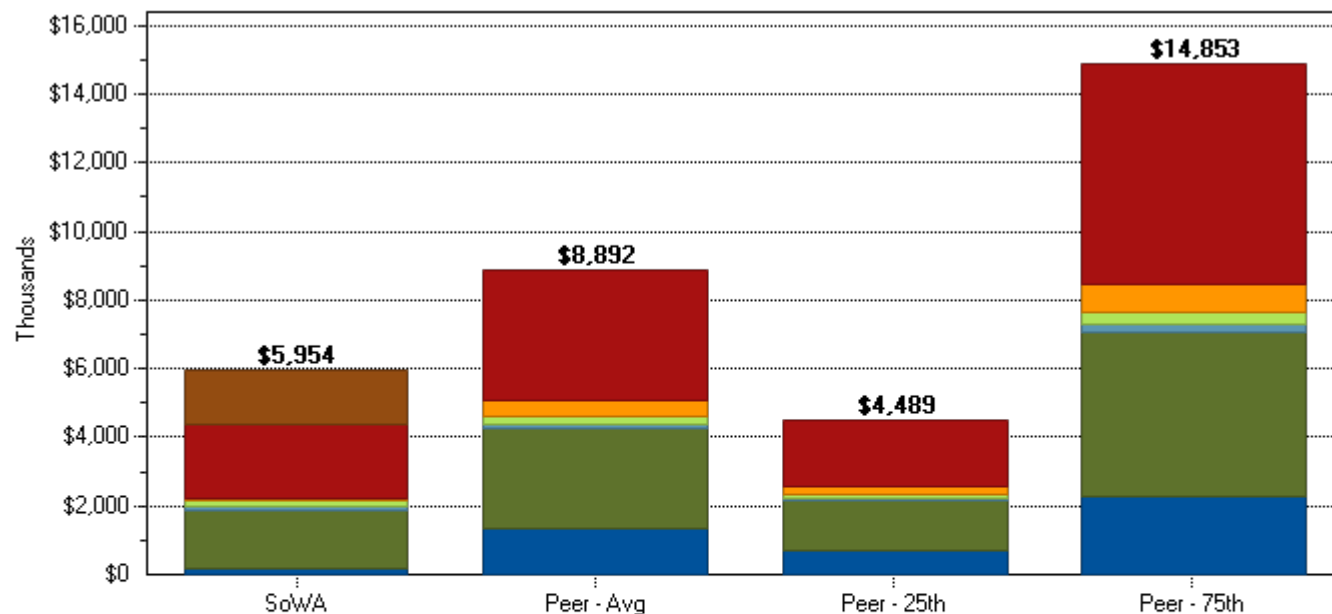
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$200	$1,351	$682	$2,257
Software	$1,695	$2,884	$1,456	$4,818
Connectivity	$73	$131	$66	$218
Disaster Recovery	$167	$215	$109	$360
Occupancy/Facilities	$73	$494	$249	$824
Personnel	$2,145	$3,817	$1,927	$6,376
Unallocated Total	$1,601			

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Enterprise Computing – Unisys
Total Spending Gap to Peer by Agency

Total Gap to Peer

Department of Information Services

Department of Social & Health Services

-$6,000   -$5,000   -$4,000   -$3,000   -$2,000   -$1,000 $0 $1,000 $2,000 $3,000

Thousands

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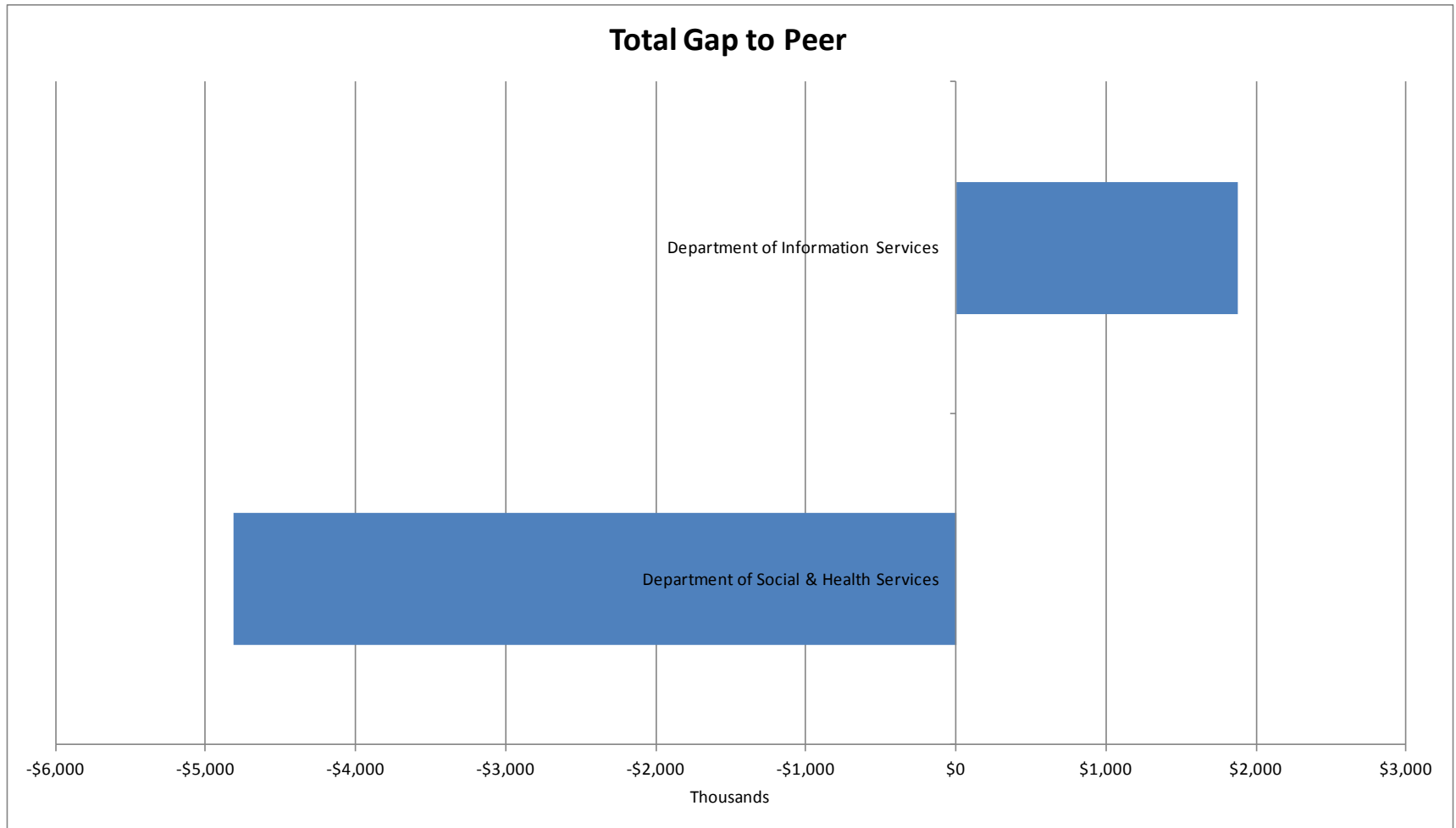
Enterprise Computing – Unisys
Productivity – MIPS Per Adjusted FTE

Gartner®
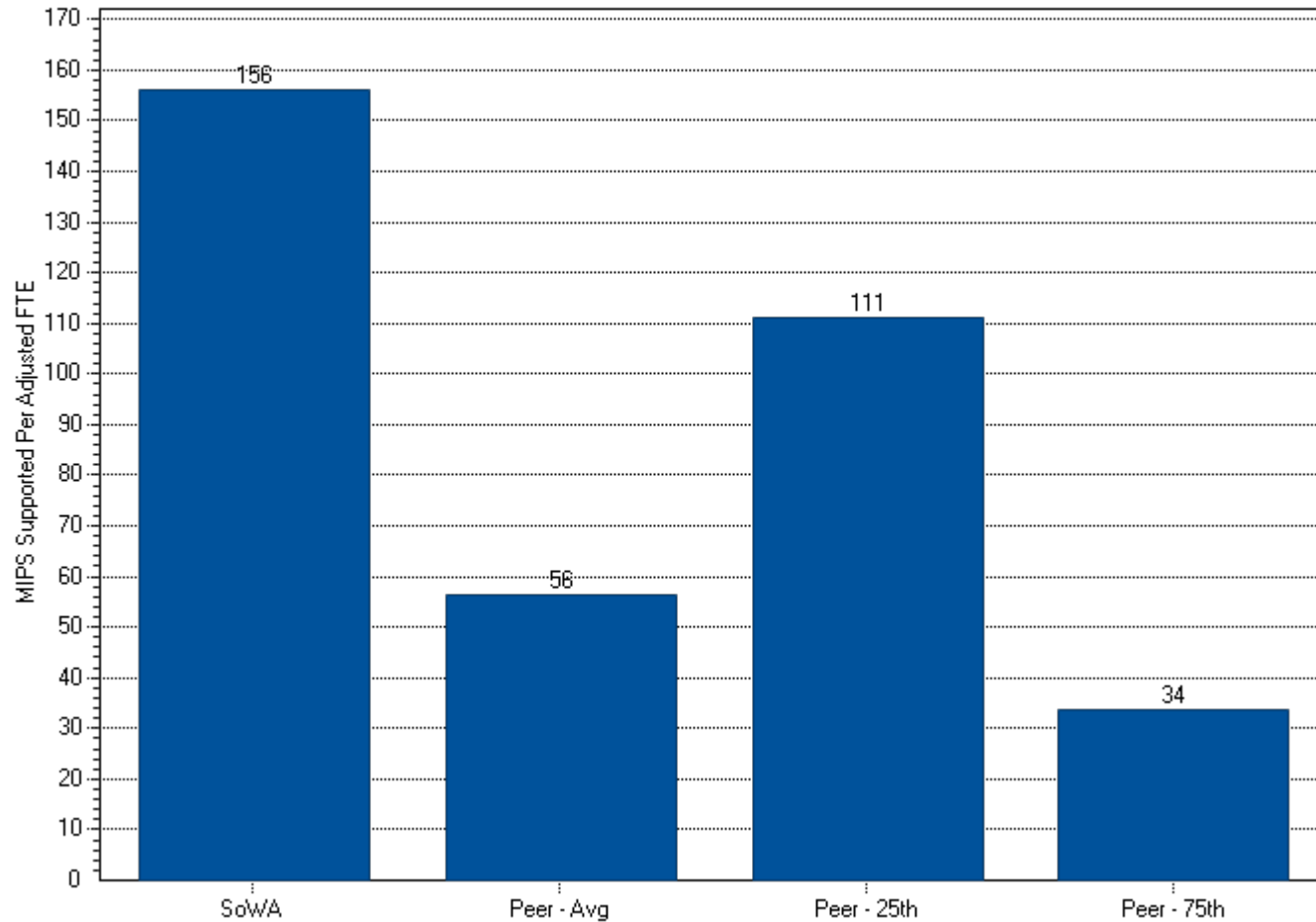
Enterprise Computing – Unisys
IT Headcount (FTE) Total

Gartner®
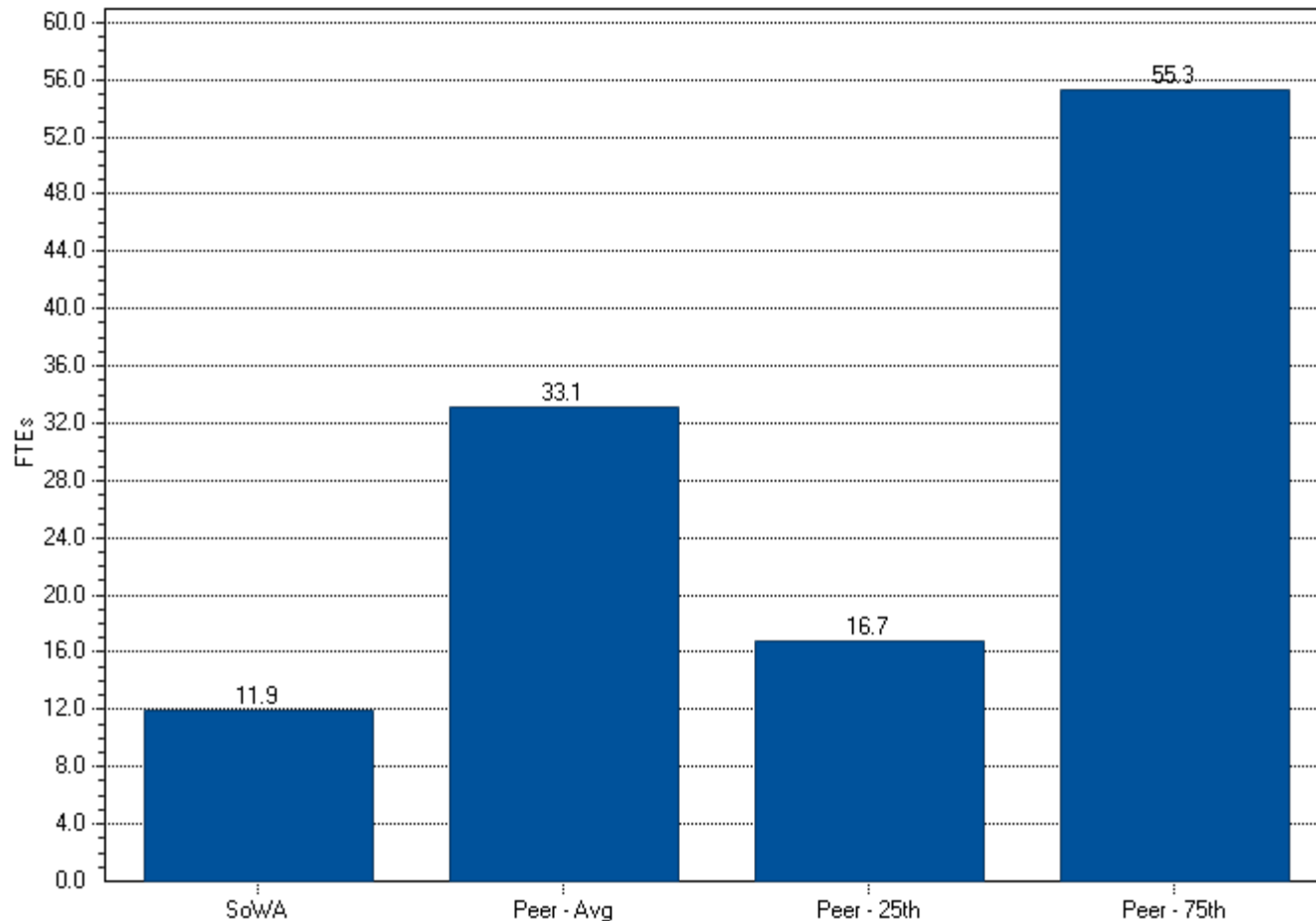
Enterprise Computing – Unisys
Cost Per FTE – Insourced & Contractor Blended Total

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Windows Servers

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Enterprise Computing – Windows Servers
Consensus Model & Demographics

Hardware		Processors (mainframe, servers) Internal Disk Storage
Software		Operating Systems, Virtualization Database/Database Management Middleware, Messaging, Security
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Technical Support (ops tech svcs) Planning and Process Management Administration (includes mgmt)

- **State of Washington**
  - 9,098 OS Instances
  - 5,871 Physical Servers
    - 1.55 OS Instances per Server

- **Peer**
  - Average 6,171 OS Instances
  - Average 3,249 Physical Servers
    - Average 1.93 OS Instances per Server
  - 10 Organizations
    - 2 Government, 2 Financial Services, 1 Utilities, 1 Software Development, 1 Health Services, 1 Retail, 1 Manufacturing, 1 Communications
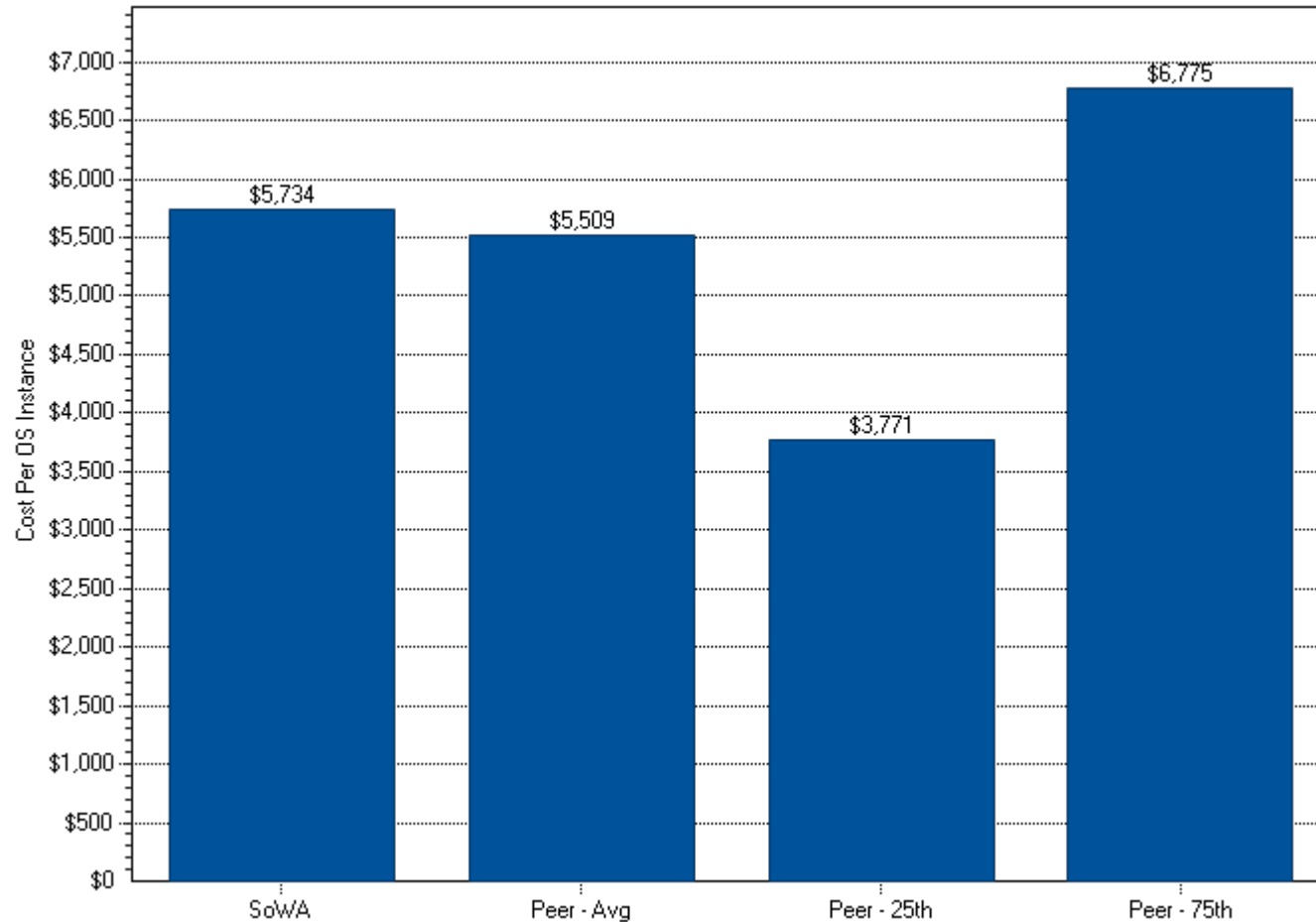
Gartner

Enterprise Computing – Windows Servers
Efficiency – Cost Per OS Instance

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Enterprise Computing – Windows Servers
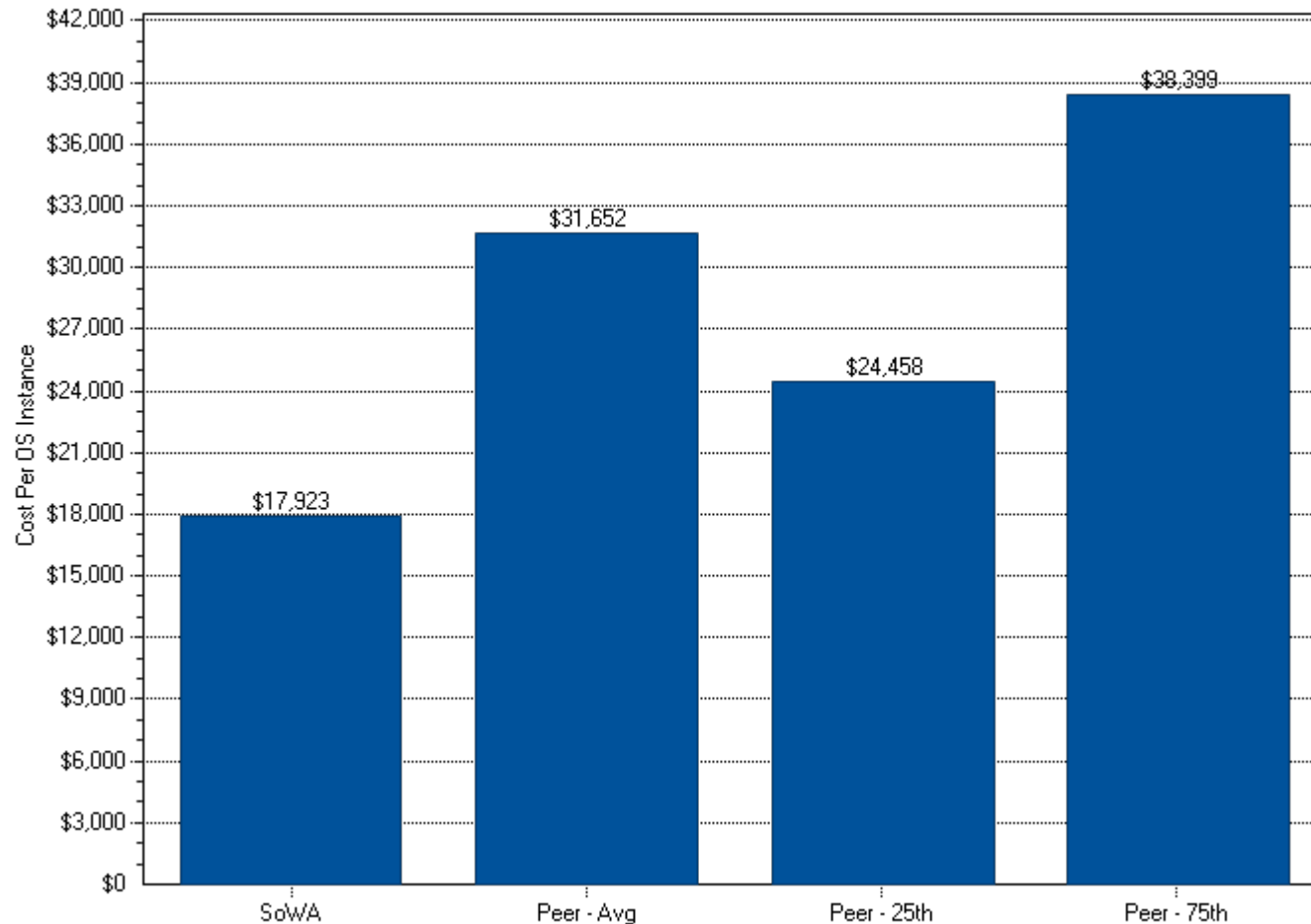## Efficiency – Cost Per OS Instance by Agency

Cost per OS Instance

Gartner
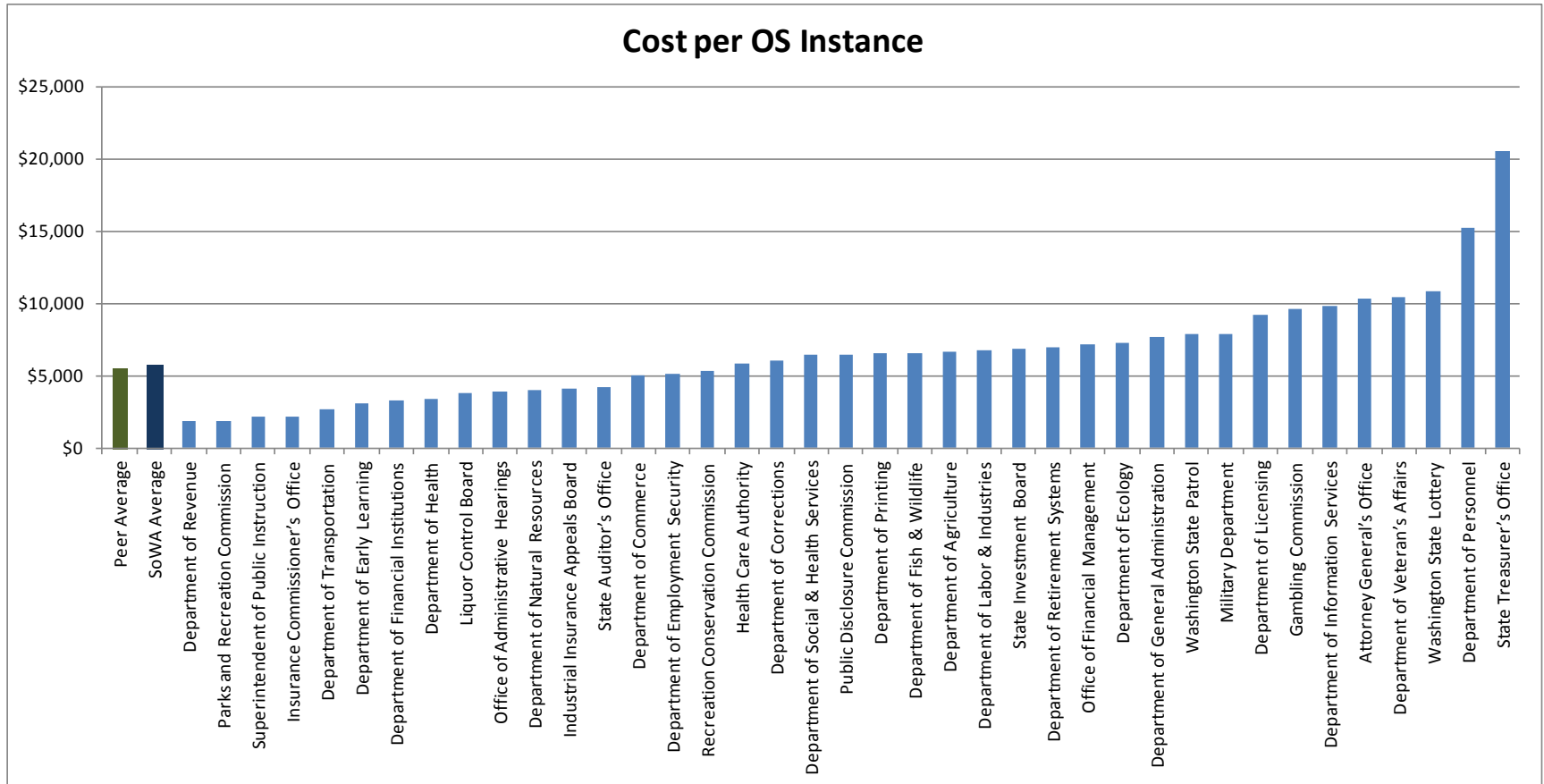
Enterprise Computing – Windows Servers
IT Spending by Cost Category
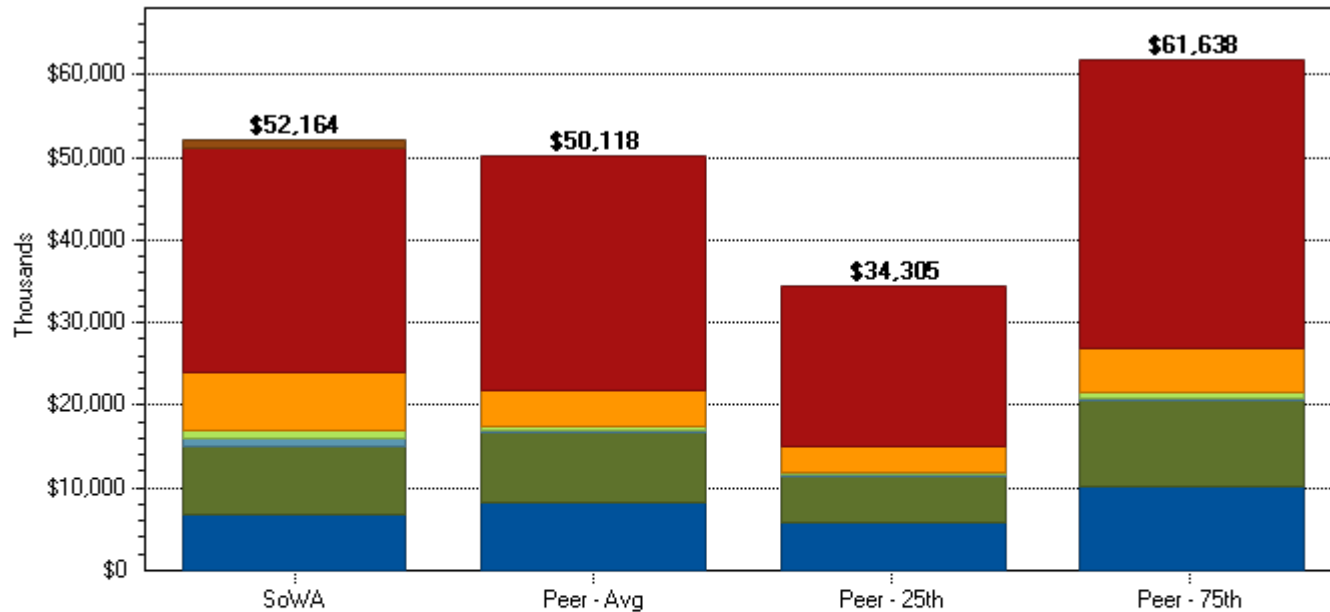
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$6,837	$8,318	$5,694	$10,230
Software	$8,156	$8,394	$5,746	$10,324
Connectivity	$1,073	$309	$212	$380
Disaster Recovery	$785	$462	$316	$568
Occupancy/Facilities	$7,220	$4,297	$2,941	$5,284
Personnel	$27,035	$28,338	$19,397	$34,852
Unallocated Total	$1,058			

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Enterprise Computing – Windows Servers
Total Spending Gap to Peer by Agency

Total Gap to Peer

Horizontal axis: Thousands (from -$4,000 to $2,000)

Agencies (top to bottom):
- Department of Information Services
- Department of Social & Health Services
- Department of Personnel
- Department of Licensing
- Attorney General's Office
- Department of Ecology
- Department of Labor & Industries
- State Treasurer's Office
- Washington State Patrol
- Office of Financial Management
- Department of Corrections
- Military Department
- Department of Retirement Systems
- Gambling Commission
- Department of Veteran's Affairs
- Washington State Lottery
- Department of General Administration
- Department of Fish & Wildlife
- Department of Agriculture
- Health Care Authority
- State Investment Board
- Department of Printing
- Public Disclosure Commission
- Recreation Conservation Commission
- Office of Administrative Hearings
- Industrial Insurance Appeals Board
- Department of Commerce
- State Auditor's Office
- Department of Early Learning
- Department of Financial Institutions
- Parks and Recreation Commission
- Liquor Control Board
- Department of Employment Security
- Department of Natural Resources
- Superintendent of Public Instruction
- Insurance Commissioner's Office
- Department of Revenue
- Department of Health
- Department of Transportation

98

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Enterprise Computing – Windows Servers
Productivity – Total OS Instances Per Adjusted FTE

Gartner
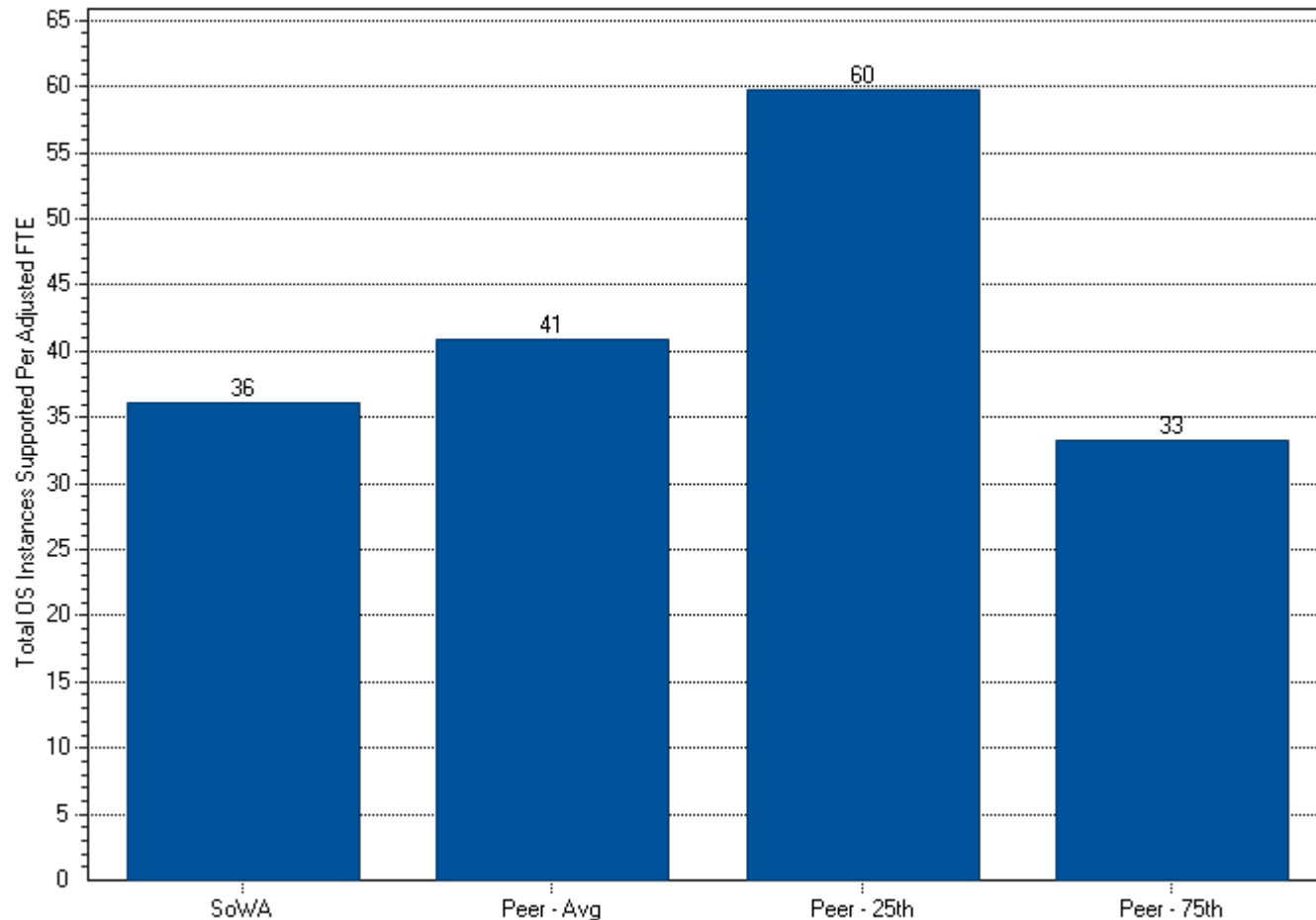
Enterprise Computing – Windows Servers
IT Headcount (FTE) Total

Gartner.
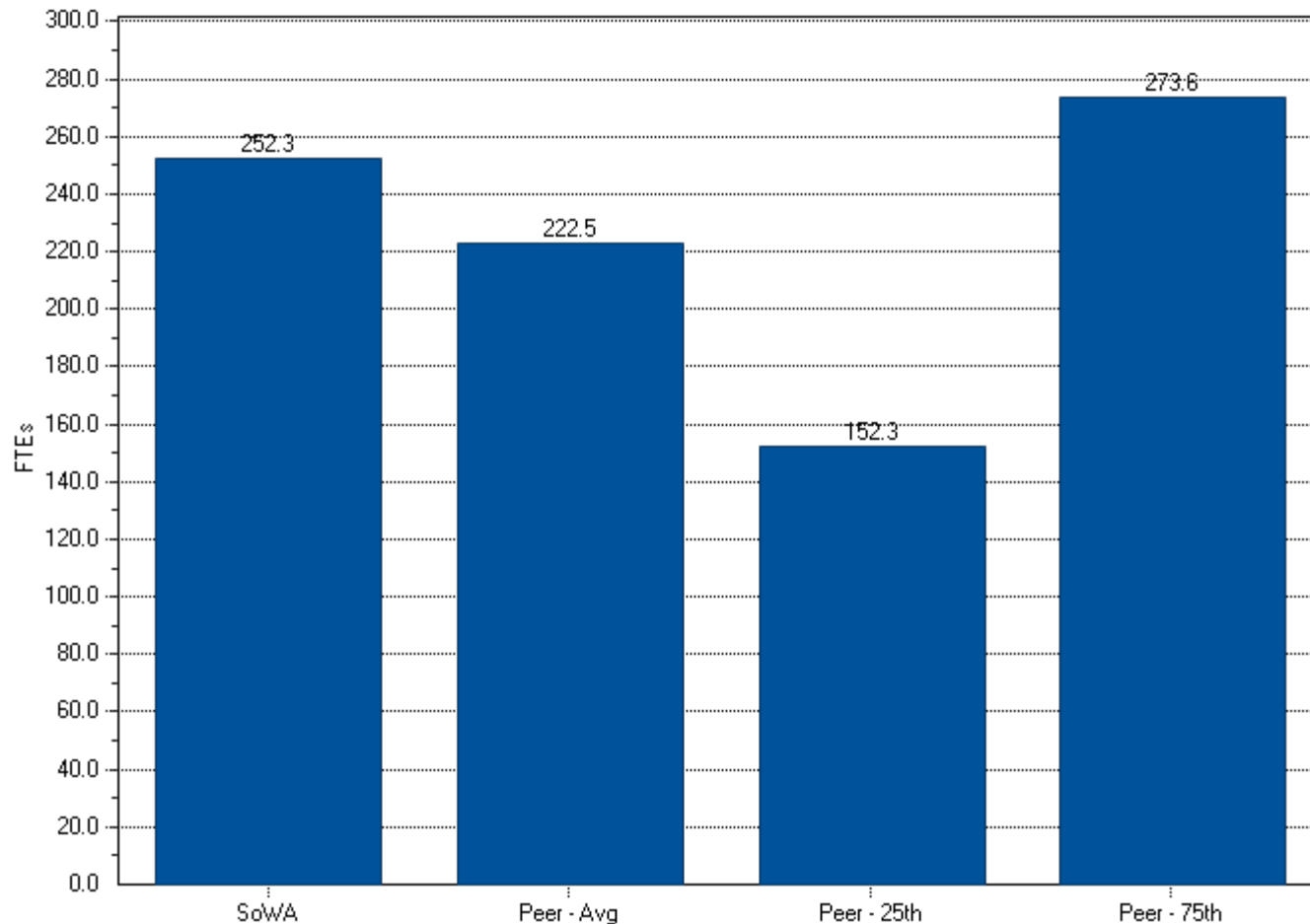
Enterprise Computing – Windows Servers
Cost Per FTE – Insourced & Contractor Blended Total

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Unix Servers

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Enterprise Computing – Unix Servers
Consensus Model & Demographics

Hardware		Processors (mainframe, servers) Internal Disk Storage
Software		Operating Systems, Virtualization Database/Database Management Middleware, Messaging, Security
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Technical Support (ops tech svcs) Planning and Process Management Administration (includes mgmt)

- **State of Washington**
  - 80 OS Instances
  - 78 Physical Servers
    - 1.03 OS Instances per Server

- **Peer**
  - Average 86 OS Instances
  - Average 61 Physical Servers
    - Average 1.43 OS Instances per Server
  - 7 Organizations
    - 6 Utilities, 1 Insurance

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Enterprise Computing – Unix Servers
Efficiency – Cost Per OS Instance

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Enterprise Computing – Unix Servers
Efficiency – Cost Per OS Instance by Agency

Cost per OS Instance

Gartner
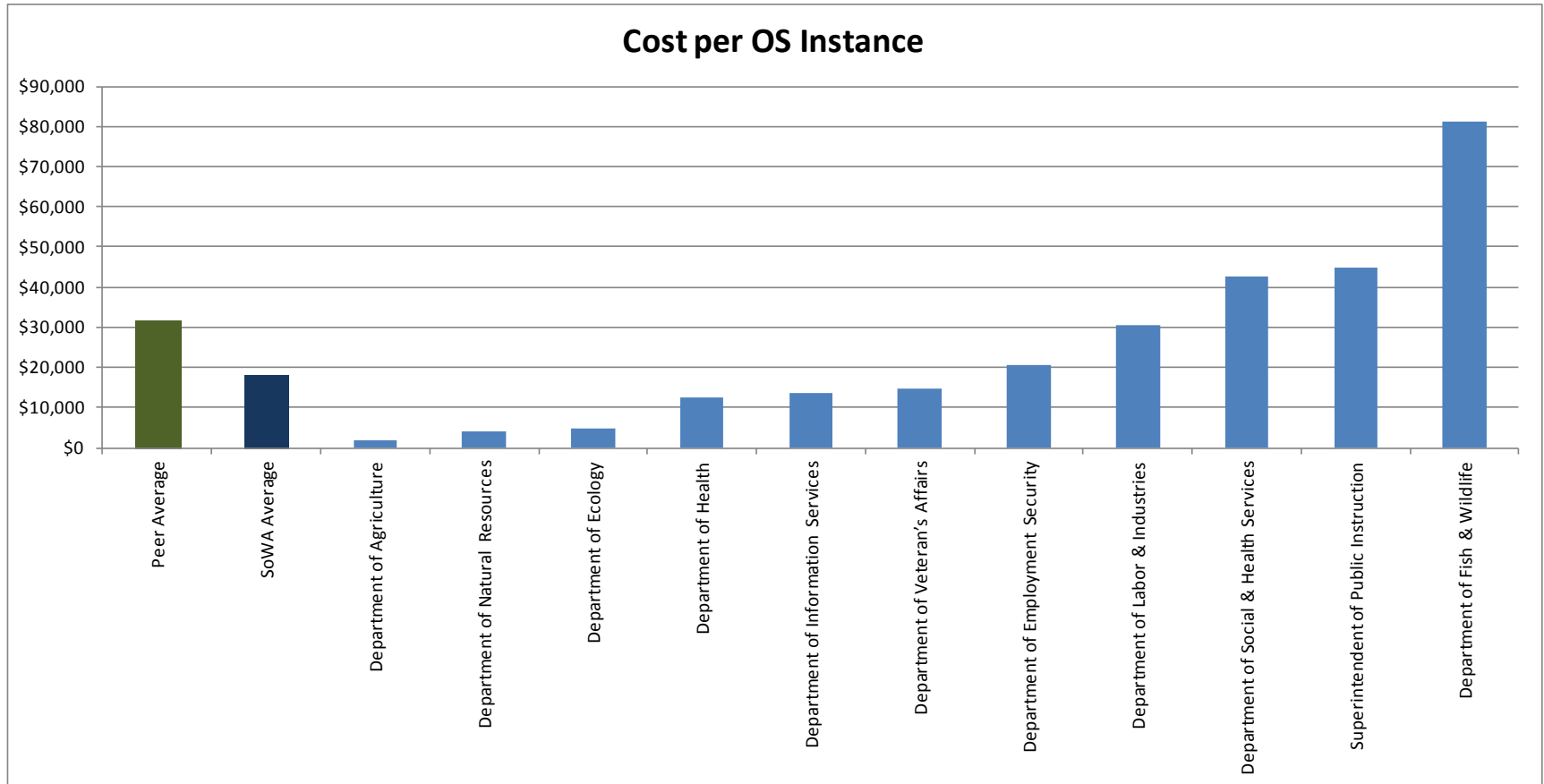
Enterprise Computing – Unix Servers
IT Spending by Cost Category
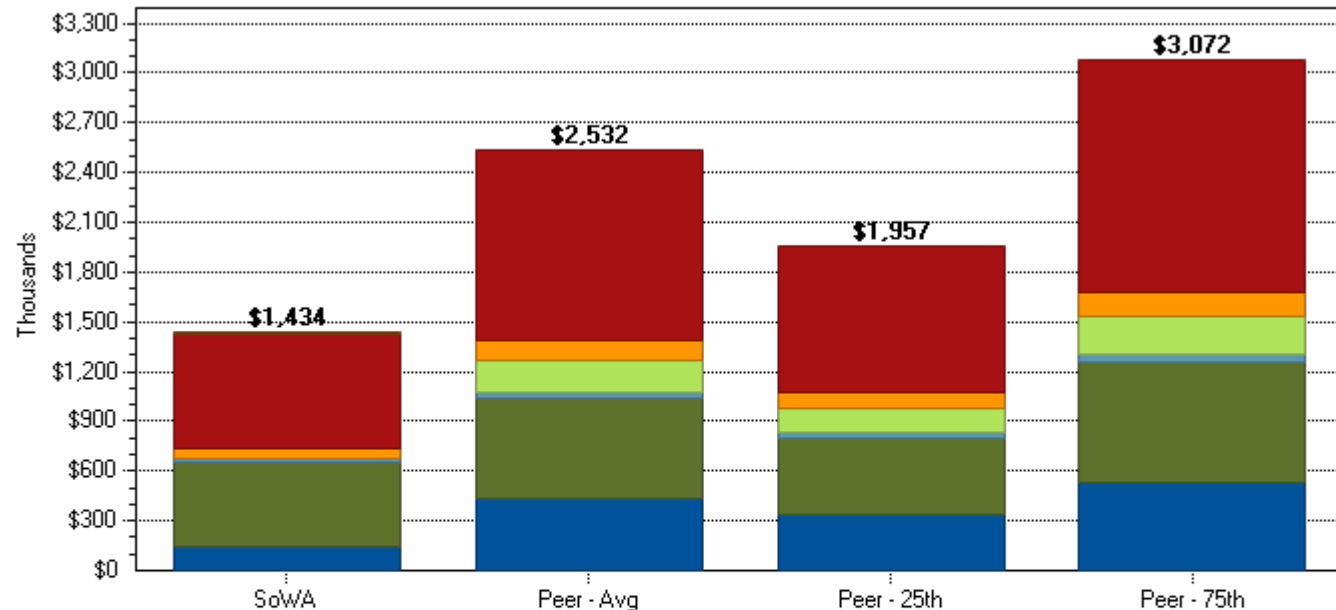
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$149	$440	$340	$533
Software	$508	$599	$462	$726
Connectivity	$24	$40	$31	$49
Disaster Recovery	$0	$185	$143	$225
Occupancy/Facilities	$58	$122	$94	$148
Personnel	$690	$1,146	$886	$1,390
Unallocated Total	$4			

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Enterprise Computing – Unix Servers
Total Spending Gap to Peer by Agency

Total Gap to Peer

Agency	
Liquor Control Board	
Department of Fish & Wildlife	
Superintendent of Public Instruction	
Department of Social & Health Services	
Department of Labor & Industries	
Department of Agriculture	
Department of Veteran's Affairs	
Department of Ecology	
Department of Health	
Department of Employment Security	
Department of Information Services	
Department of Natural Resources	

Thousands: -$1,200, -$1,000, -$800, -$600, -$400, -$200, $0, $200, $400, $600

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Enterprise Computing – Unix Servers
Productivity – Total OS Instances Per Adjusted FTE

Gartner®
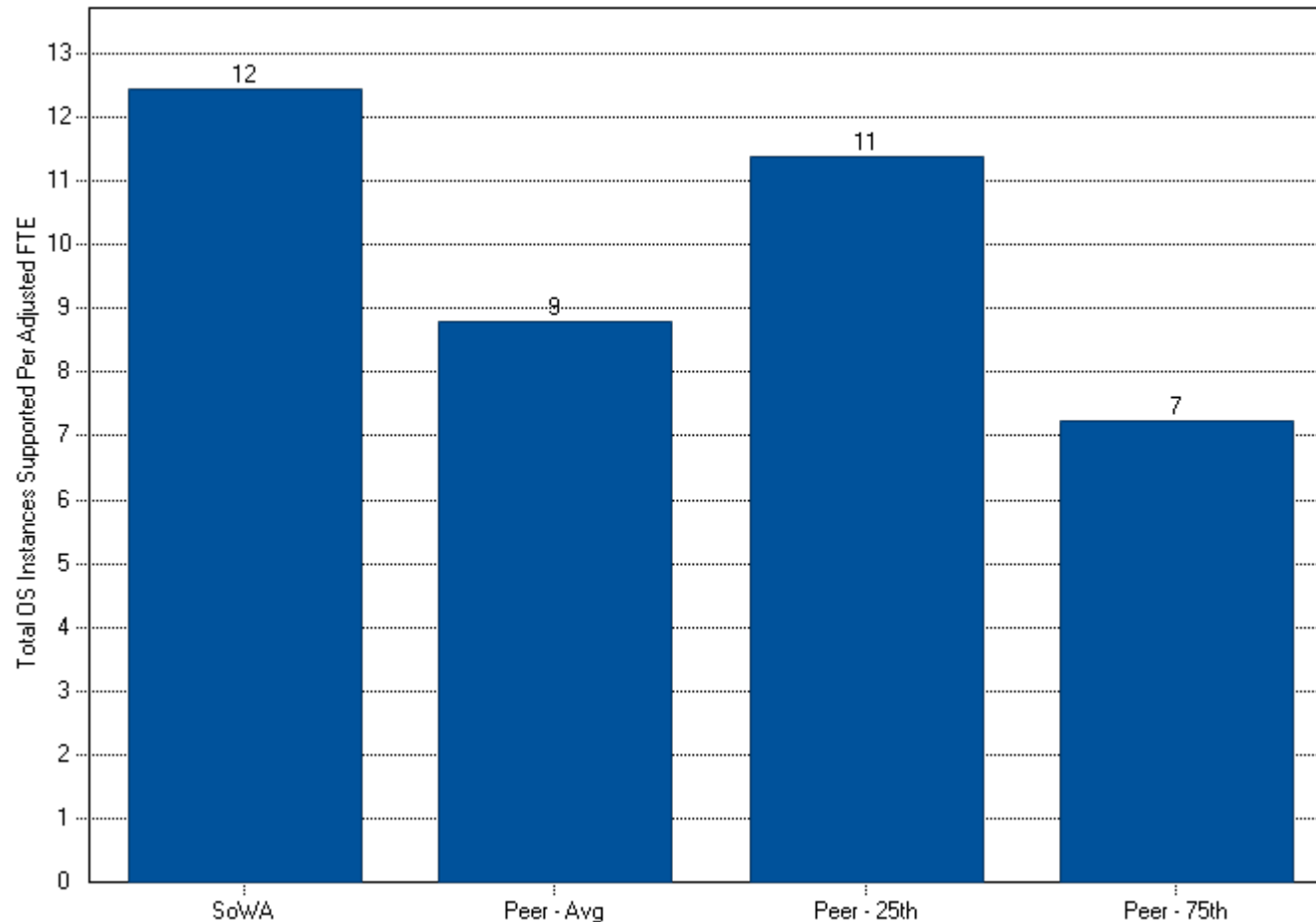
Enterprise Computing – Unix Servers
IT Headcount (FTE) Total

Gartner®
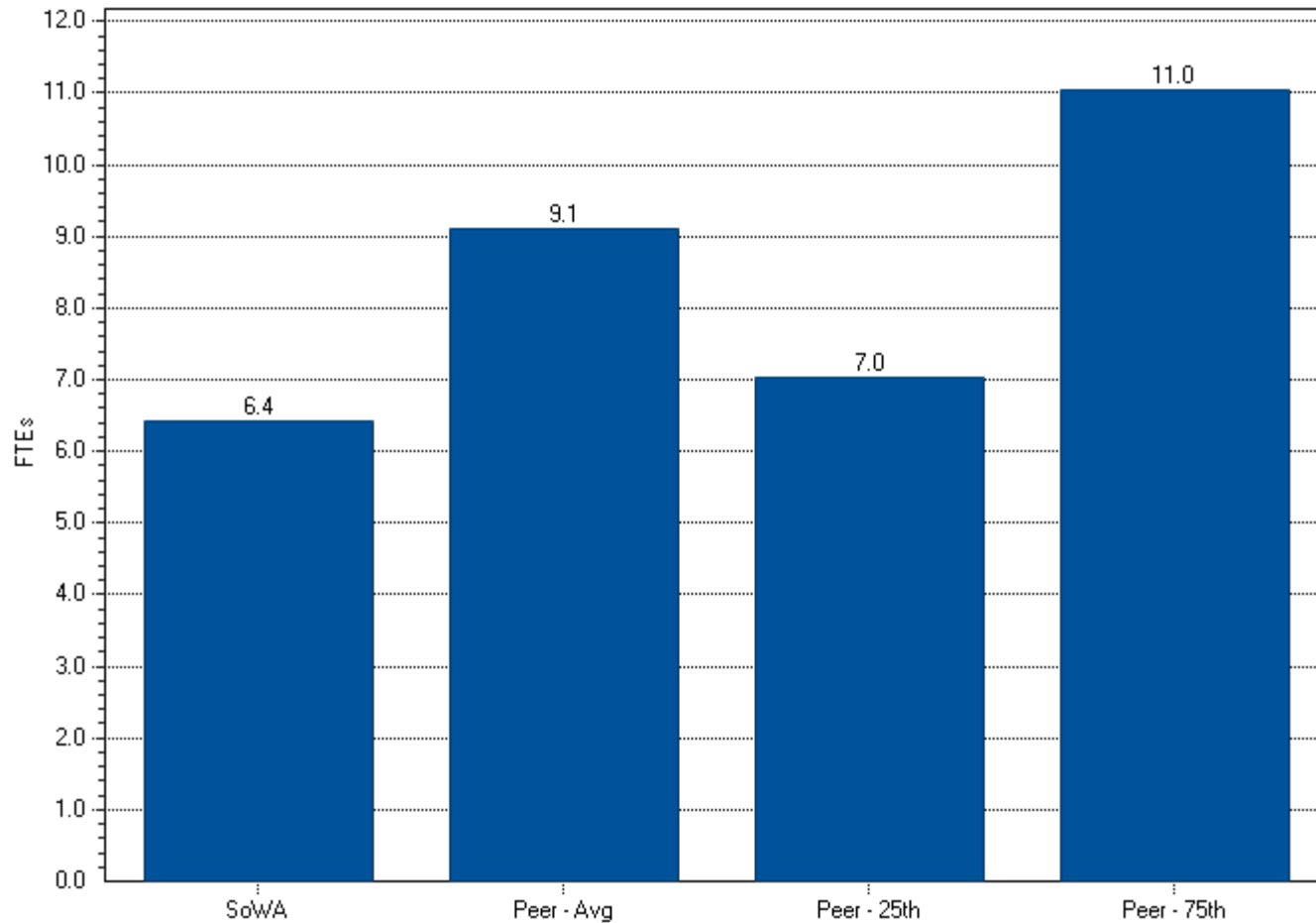
Enterprise Computing – Unix Servers
Cost Per FTE – Insourced & Contractor Blended Total

Gartner
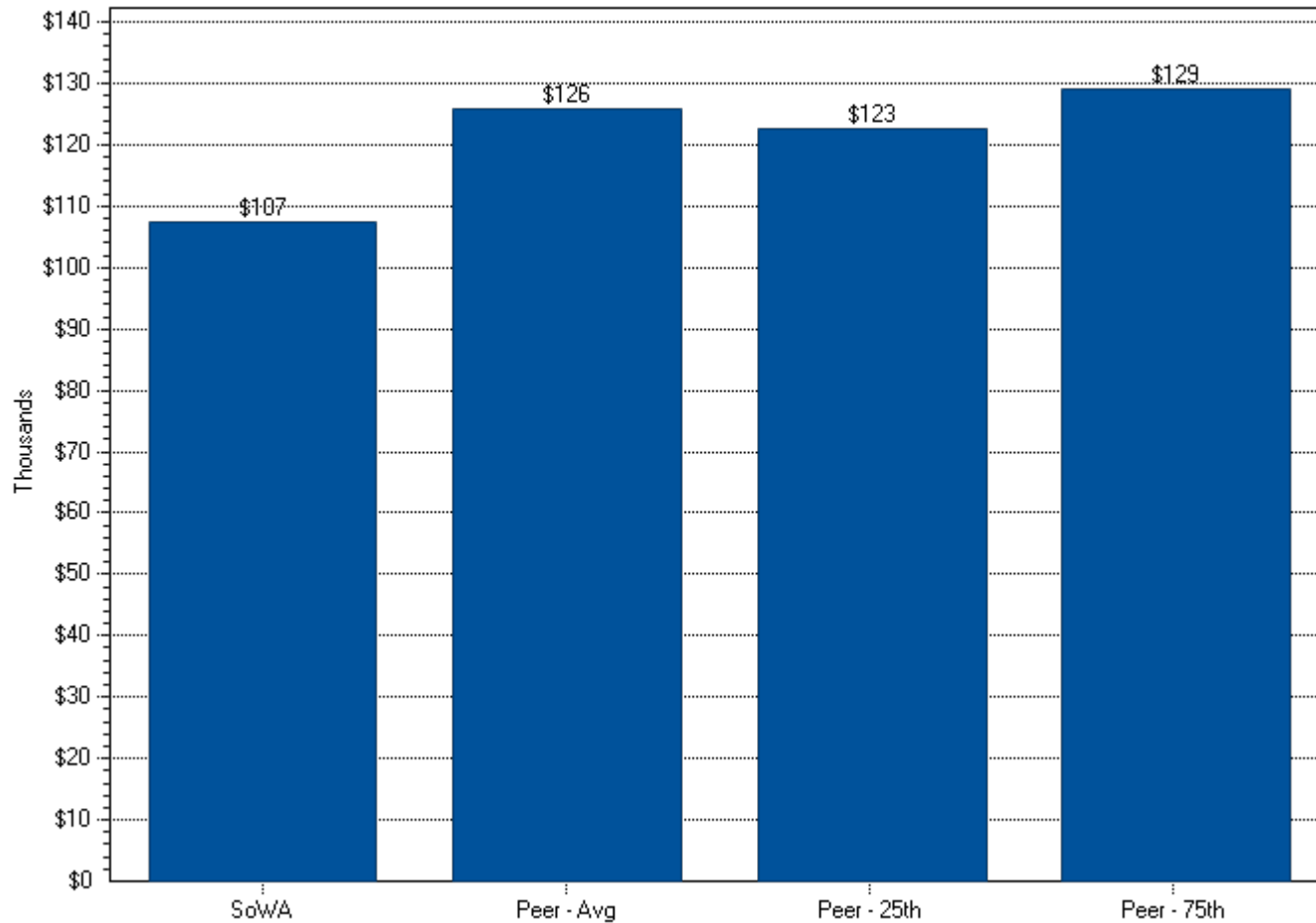
HP Guardian Servers

Gartner

Enterprise Computing – HP Guardian Consensus Model & Demographics

Hardware		Processors (mainframe, servers) Internal Disk Storage
Software		Operating Systems, Virtualization Database/Database Management Middleware, Messaging, Security
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Technical Support (ops tech svcs) Planning and Process Management Administration (includes mgmt)

- **State of Washington**
  - 7 Physical Servers

- **Peer (Database Average)**
  - Average 11 Physical Servers
  - 15 Organizations
    - 12 Financial Services, 2 Business Services, 1 Transportation

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Enterprise Computing – HP Guardian
Efficiency – Cost Per Physical Server

Gartner®
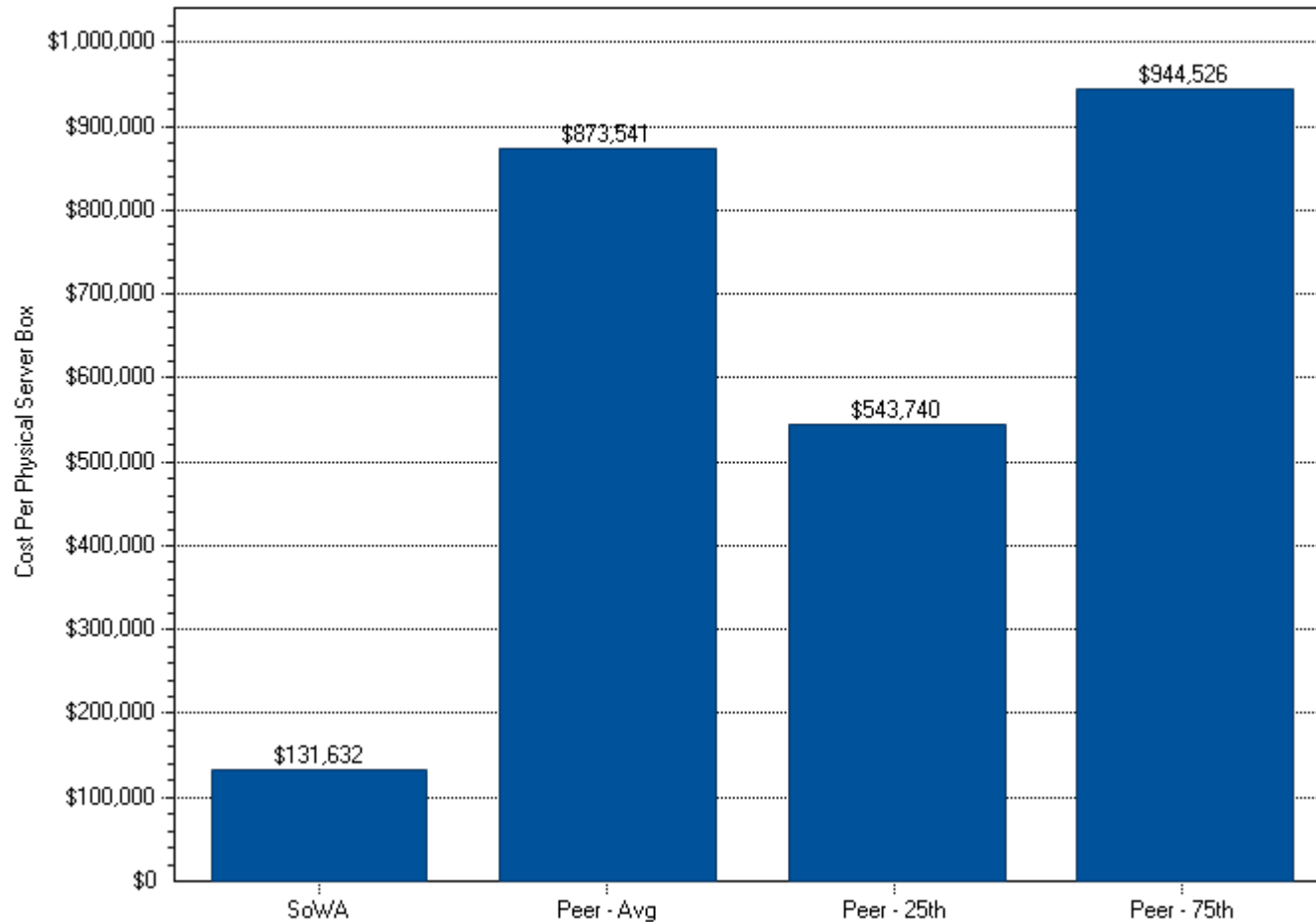
Enterprise Computing – HP Guardian
Efficiency – Cost Per Physical Server by Agency

Cost per Physical Server

Gartner
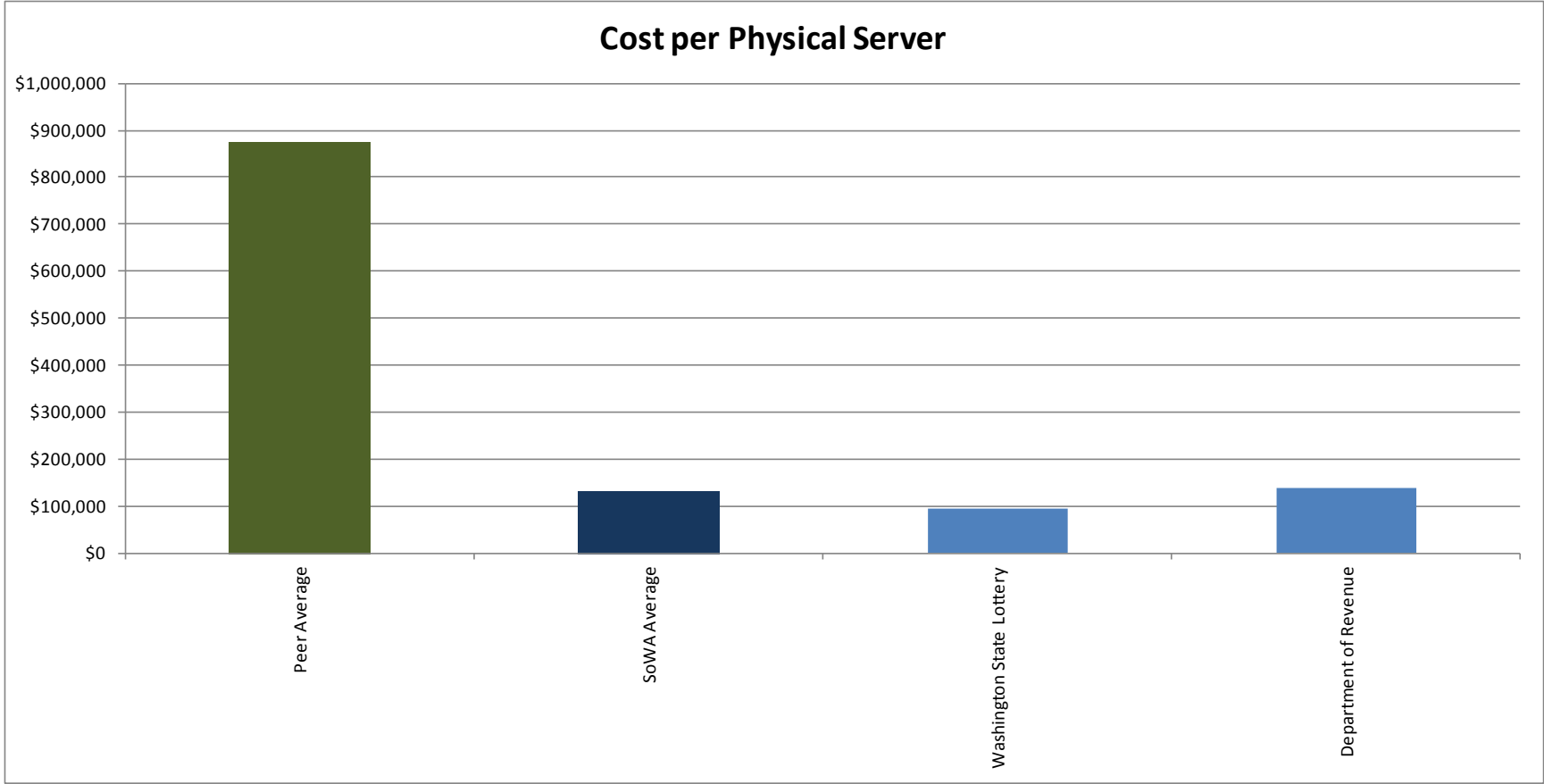
Enterprise Computing – HP Guardian
IT Spending by Cost Category
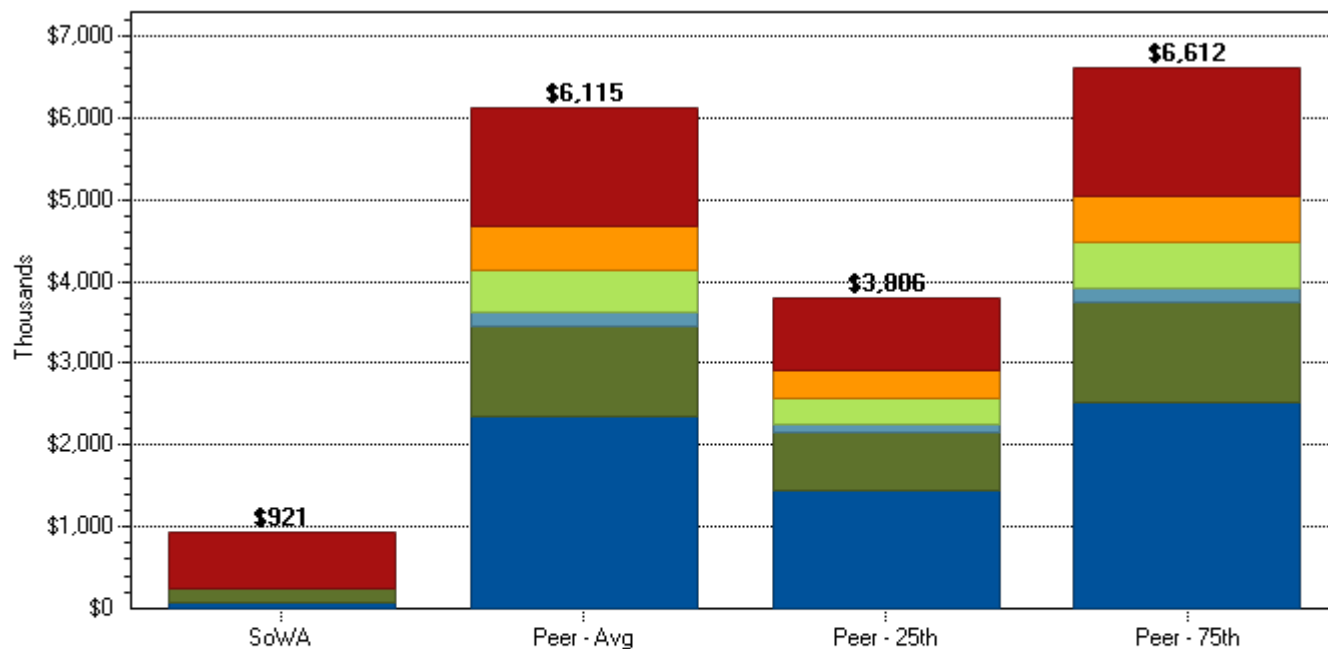
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$79	$2,339	$1,456	$2,529
Software	$154	$1,116	$695	$1,207
Connectivity	$0	$160	$100	$174
Disaster Recovery	$0	$524	$326	$567
Occupancy/Facilities	$18	$530	$330	$573
Personnel	$670	$1,445	$899	$1,562

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Enterprise Computing – HP Guardian
Total Spending Gap to Peer by Agency

Total Gap to Peer

Department of Revenue

Washington State Lottery

-$5,000   -$4,500   -$4,000   -$3,500   -$3,000   -$2,500   -$2,000   -$1,500   -$1,000   -$500 $0

Thousands

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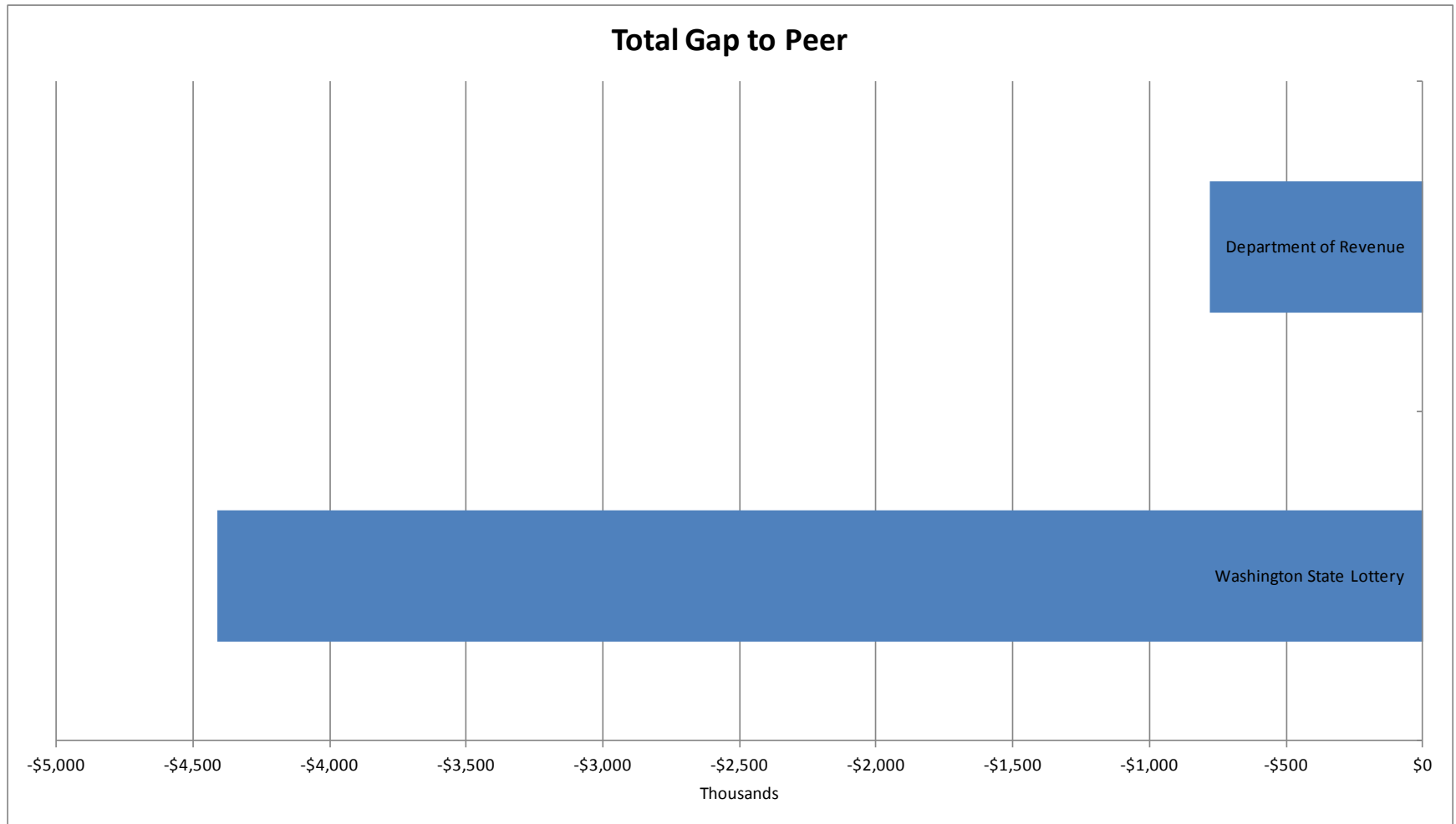
Enterprise Computing – HP Guardian
Productivity – Physical Servers Per Adjusted FTE

Gartner
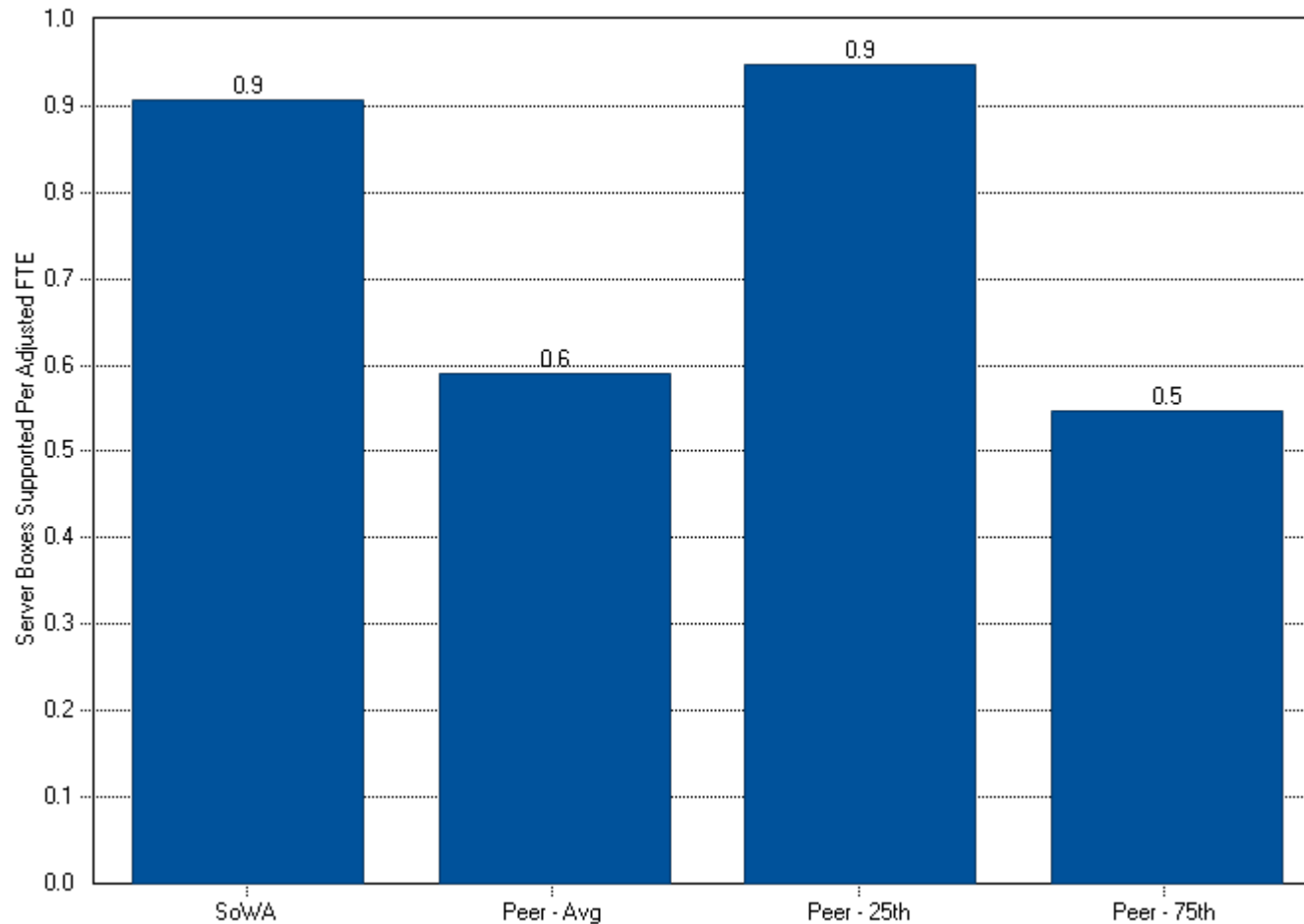
Enterprise Computing – HP Guardian
IT Headcount (FTE) Total

Gartner®
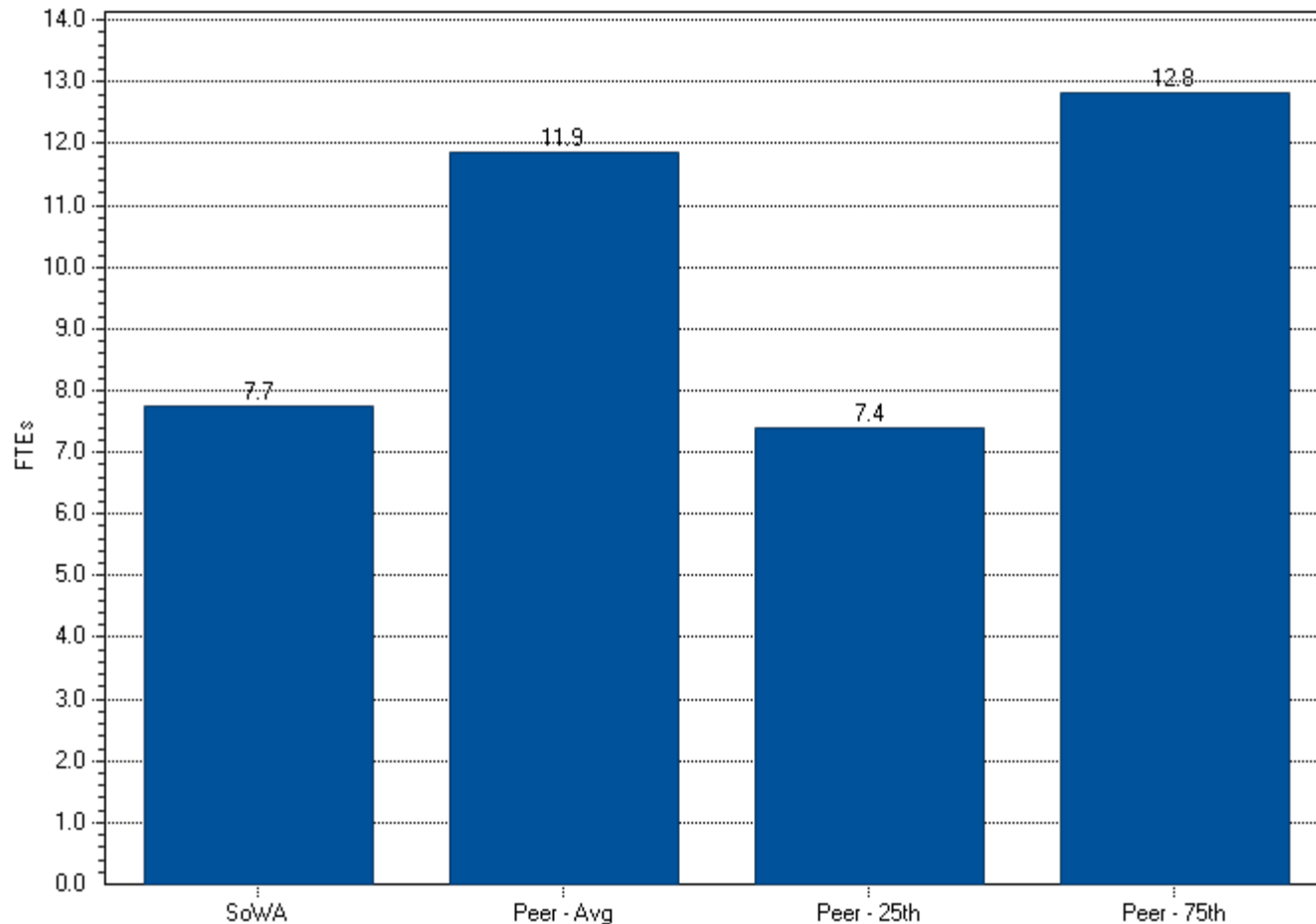
Enterprise Computing – HP Guardian
Cost Per FTE – Insourced & Contractor Blended Total

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Linux Servers

Gartner.

Enterprise Computing – Linux Servers
Consensus Model & Demographics

Category		Details
Hardware		Processors (mainframe, servers) Internal Disk Storage
Software		Operating Systems, Virtualization Database/Database Management Middleware, Messaging, Security
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Technical Support (ops tech svcs) Planning and Process Management Administration (includes mgmt)

- **State of Washington**
  - 71 OS Instances
  - 58 Physical Servers
    - 1.22 OS Instances per Server

- **Peer**
  - Average 268 OS Instances
  - Average 101 Physical Servers
    - Average 2.90 OS Instances per Server
  - 8 Organizations
    - 5 Government, 2 Financial Services, 1 Publishing

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Enterprise Computing – Linux Servers
Efficiency – Cost Per OS Instance

Enterprise Computing – Linux Servers
Efficiency – Cost Per OS Instance by Agency
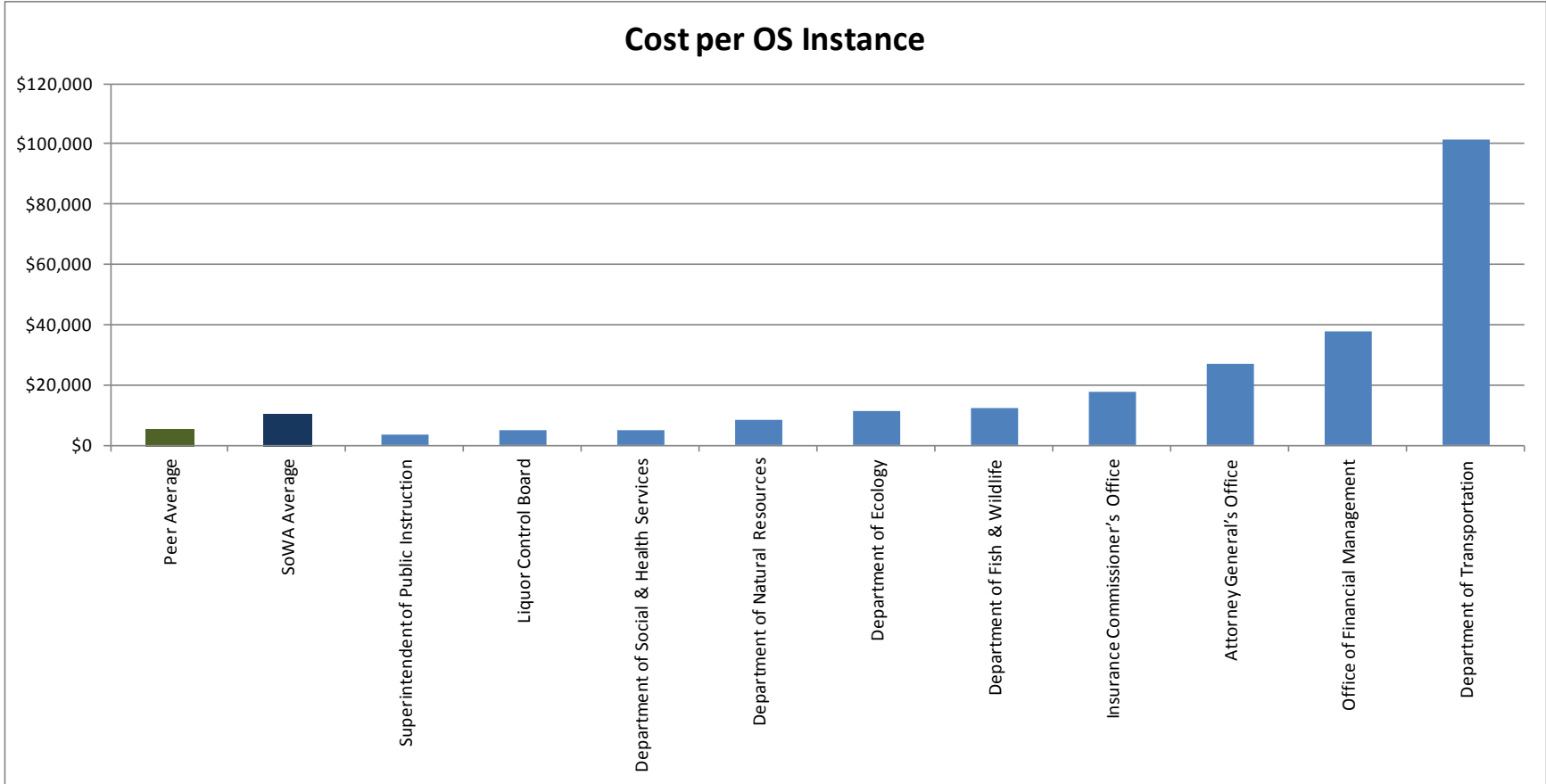
Cost per OS Instance

Gartner®
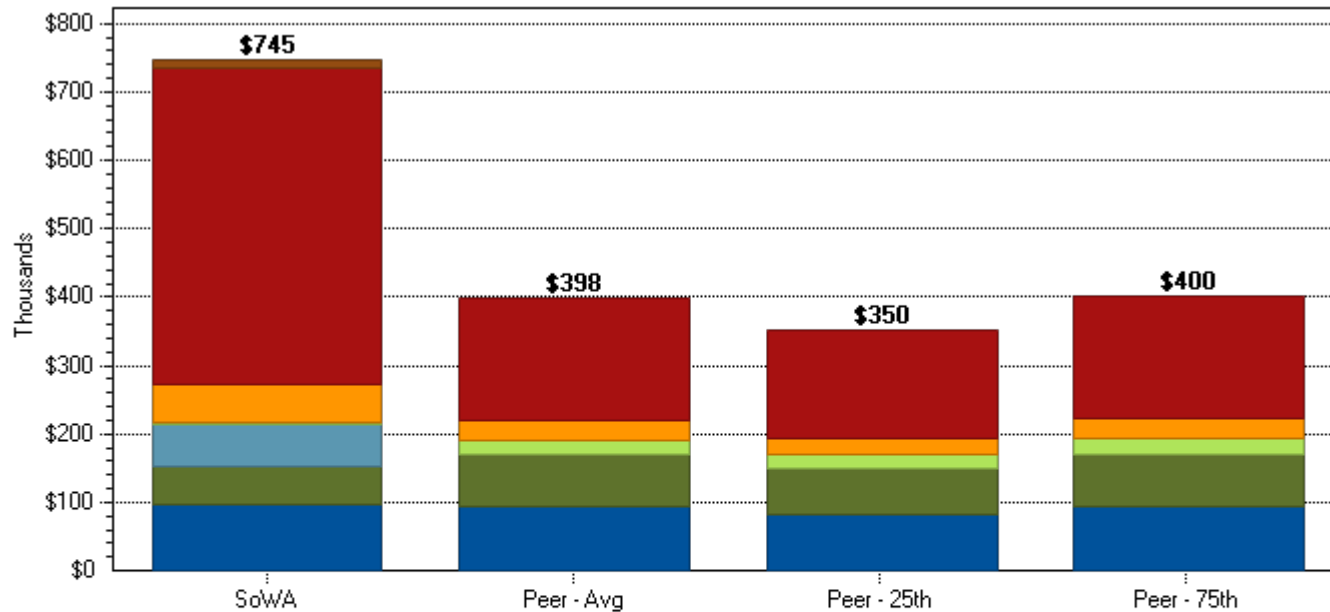
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$96	$94	$83	$95
Software	$58	$74	$65	$74
Connectivity	$62	$0	$0	$0
Disaster Recovery	$1	$23	$20	$23
Occupancy/Facilities	$56	$29	$25	$29
Personnel	$464	$178	$156	$179
Unallocated Total	$9			

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Enterprise Computing – Linux Servers
Total Spending Gap to Peer by Agency

Total Gap to Peer

Agency	
Attorney General's Office	~$129
Department of Transportation	~$95
Department of Fish & Wildlife	~$71
Office of Financial Management	~$64
Insurance Commissioner's Office	~$24
Department of Natural Resources	~$5
Department of Ecology	~$5
Liquor Control Board	~-$3
Department of Social & Health Services	~-$14
Superintendent of Public Instruction	~-$34

Thousands

Gartner®
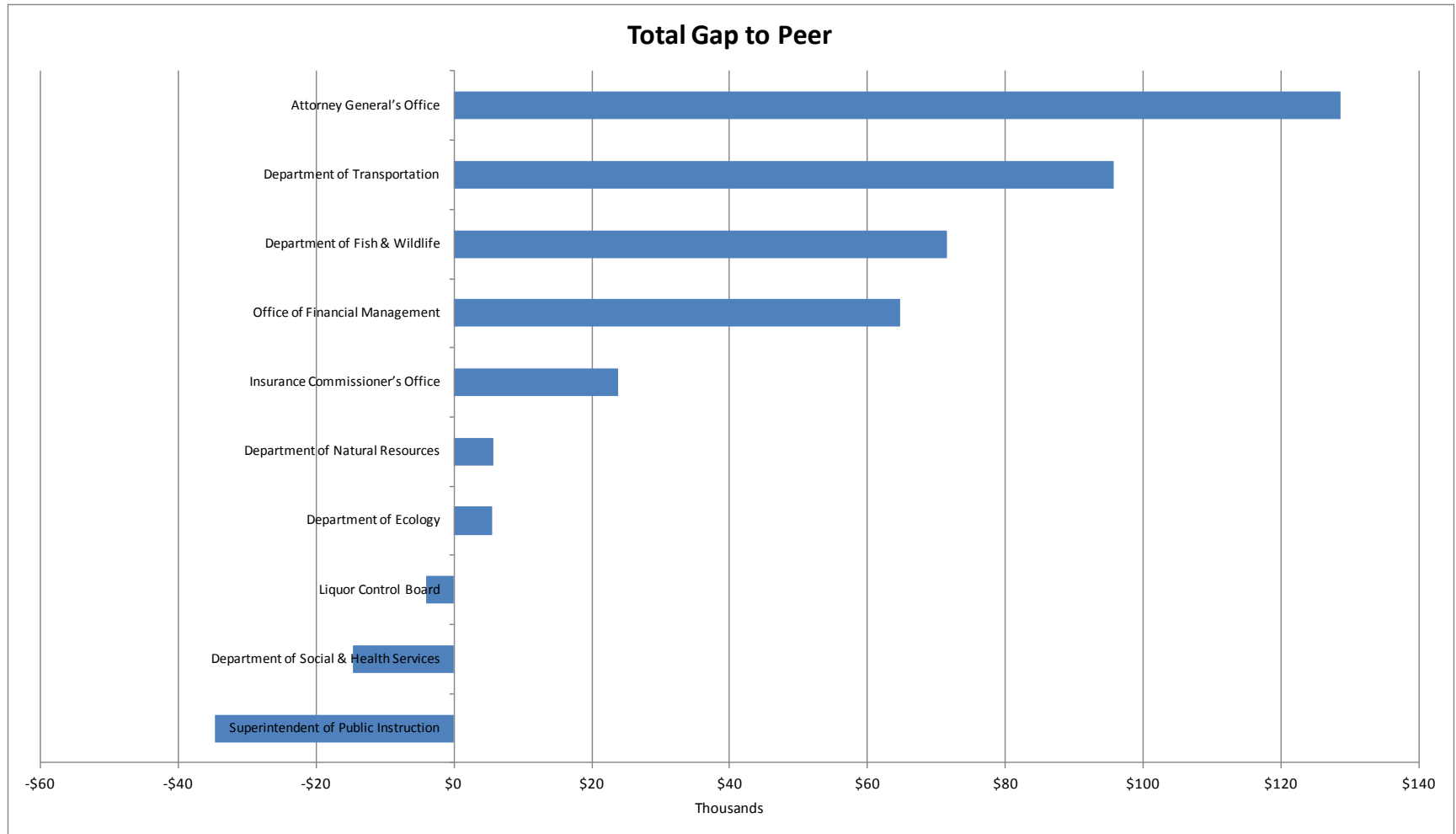
Enterprise Computing – Linux Servers omputing Productivity – Total OS Instances Per Adjusted FTE

Gartner.
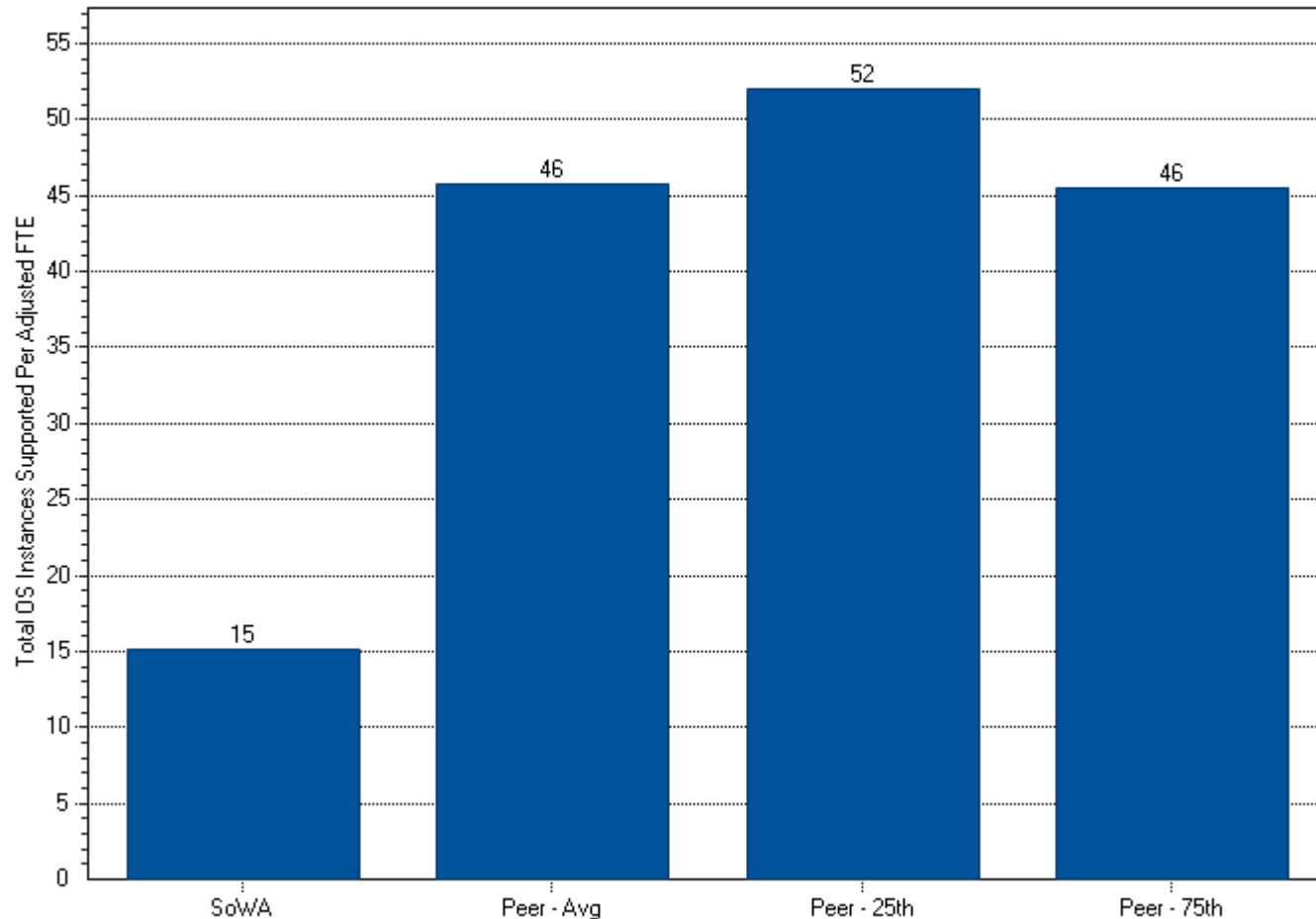
Enterprise Computing – Linux Servers
IT Headcount (FTE) Total

Gartner®
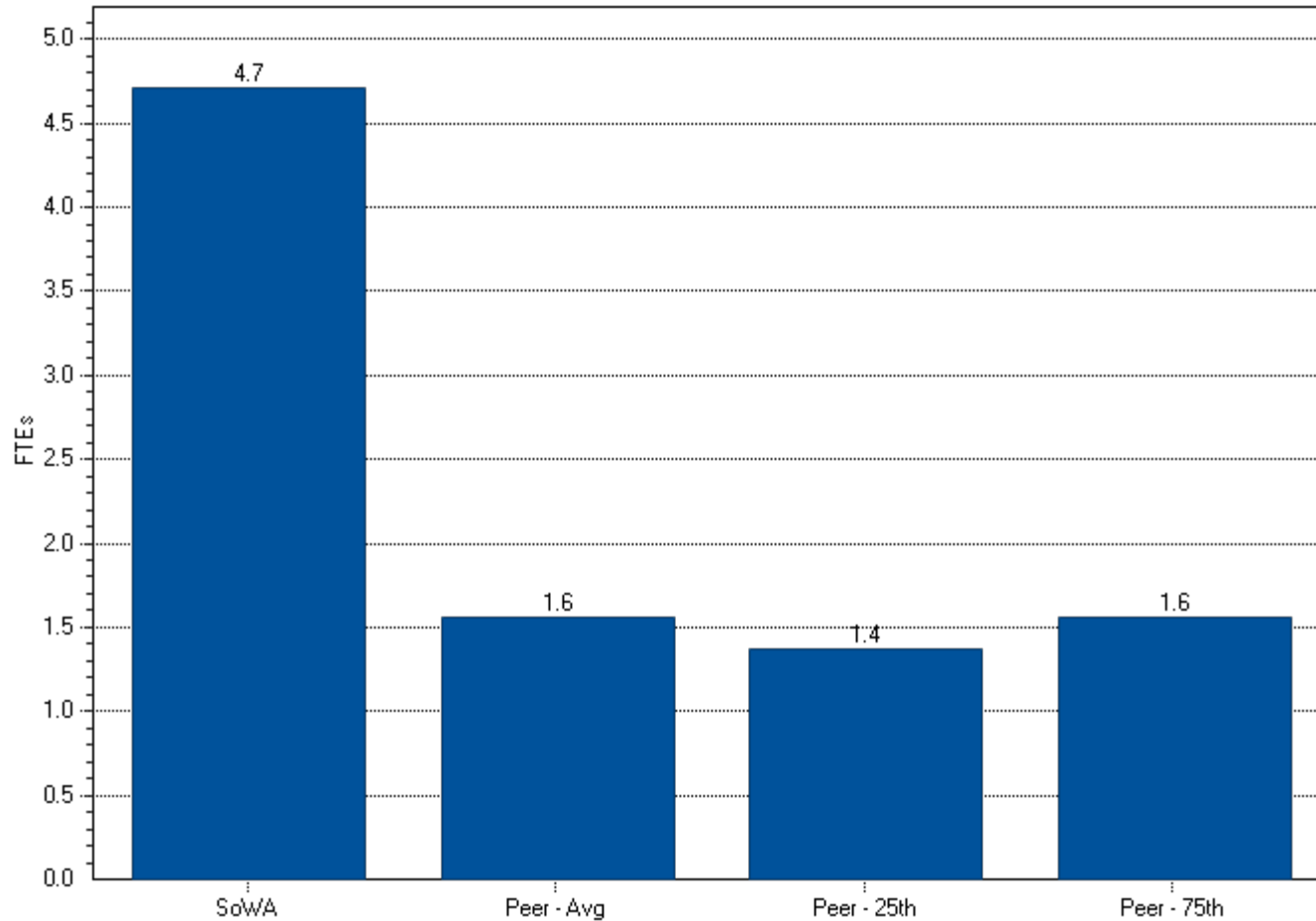
Enterprise Computing – Linux Servers
Cost Per FTE – Insourced & Contractor Blended Total

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iSeries Servers

Gartner®

Enterprise Computing – iSeries Servers
Consensus Model & Demographics

Hardware		Processors (mainframe, servers) Internal Disk Storage
Software		Operating Systems, Virtualization Database/Database Management Middleware, Messaging, Security
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Technical Support (ops tech svcs) Planning and Process Management Administration (includes mgmt)

- **State of Washington**
  - 17,680 CPWs
  - 3 Physical Servers
    - 5,893 CPWs per Server
- **Peer**
  - Average 39,848 CPWs
  - Average 18 Physical Servers
    - Average 2,192 CPWs per Server
  - 8 Organizations
    - 3 Financial Services, 2 Government, 2 Manufacturing, 1 Chemicals

Gartner

Enterprise Computing – iSeries Servers
Efficiency – Cost Per CPW

Gartner
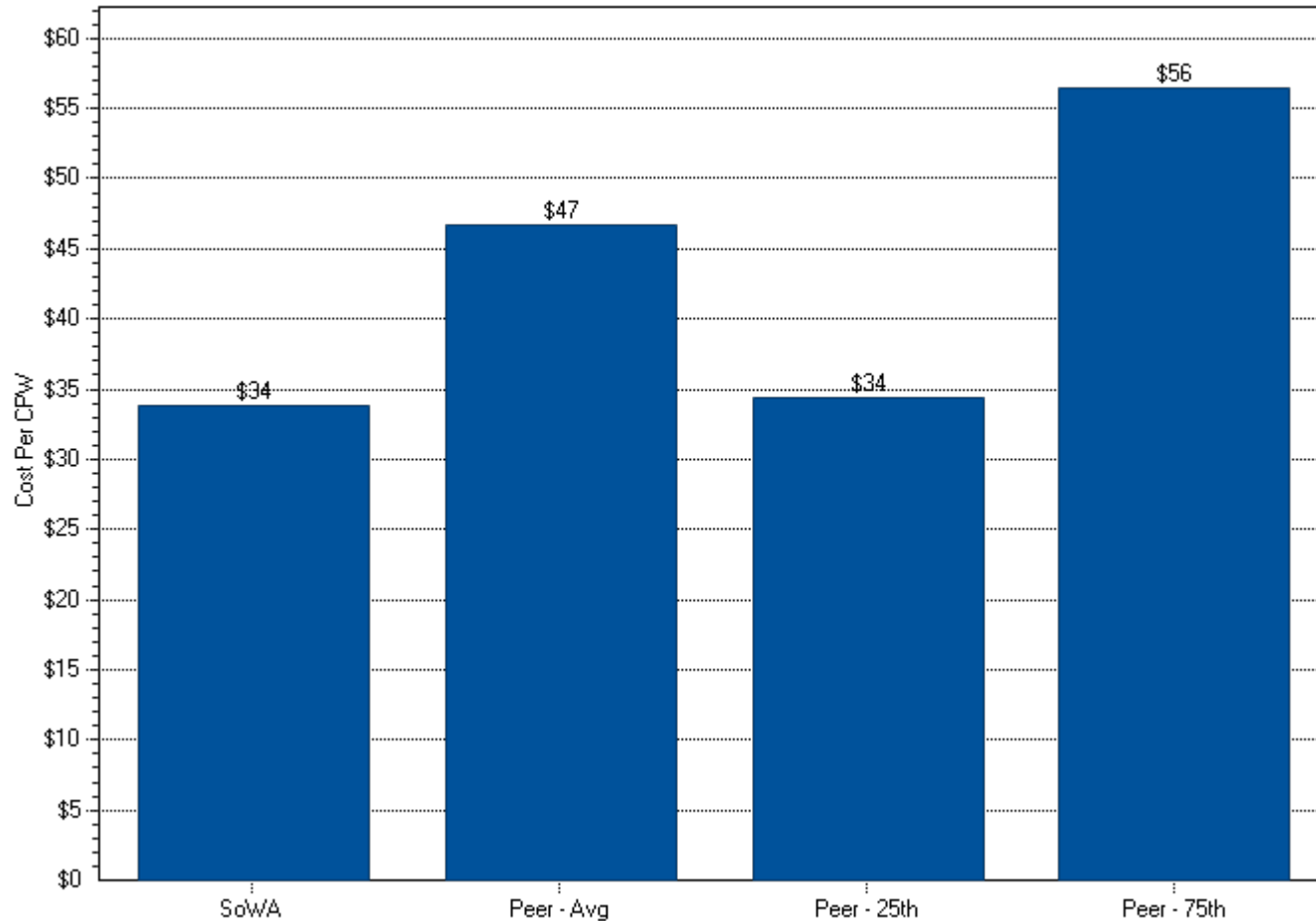
Enterprise Computing – iSeries Servers
Efficiency – Cost Per CPW by Agency

Cost per CPW

Gartner
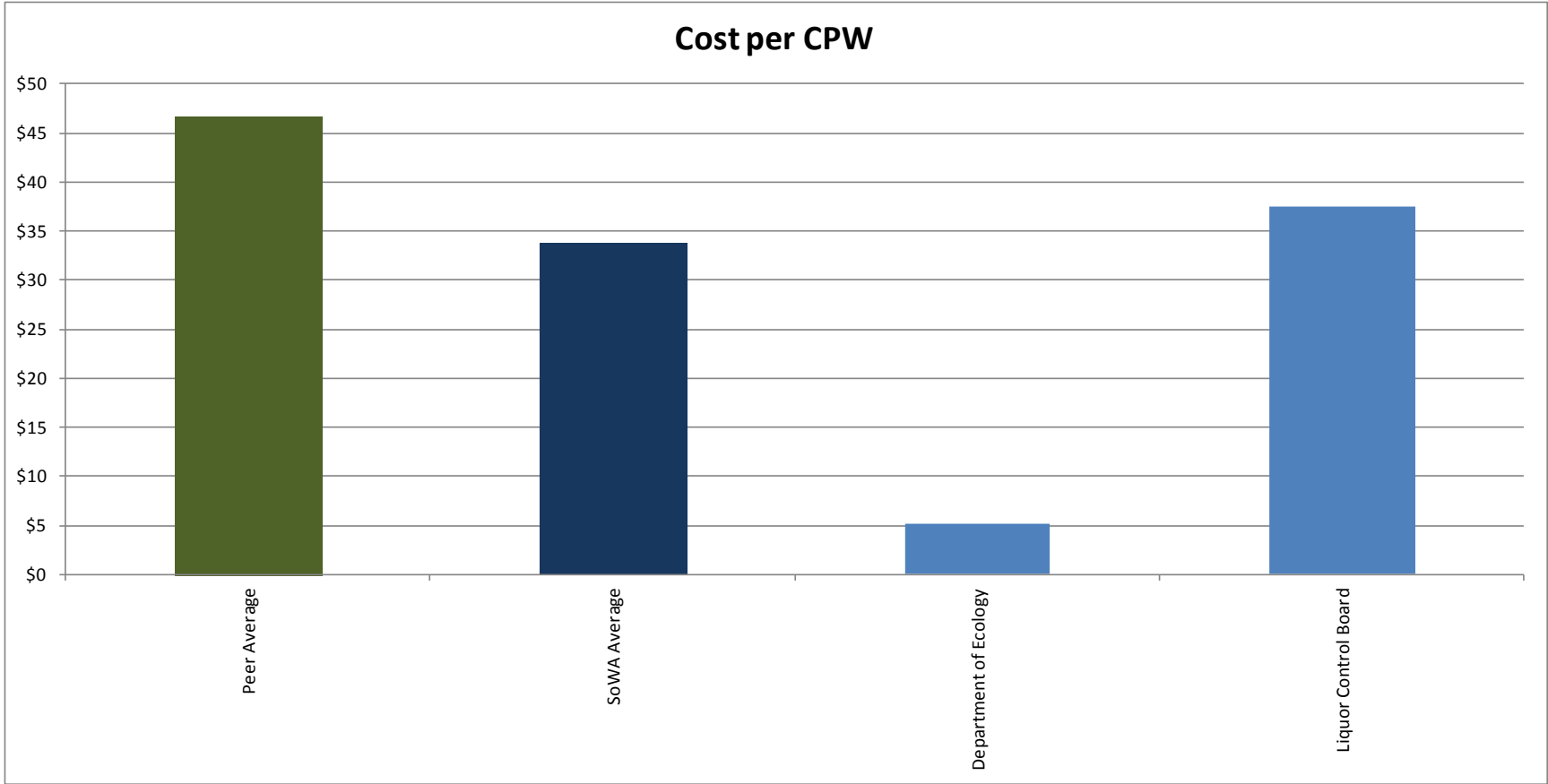
Enterprise Computing – iSeries Servers
IT Spending by Cost Category
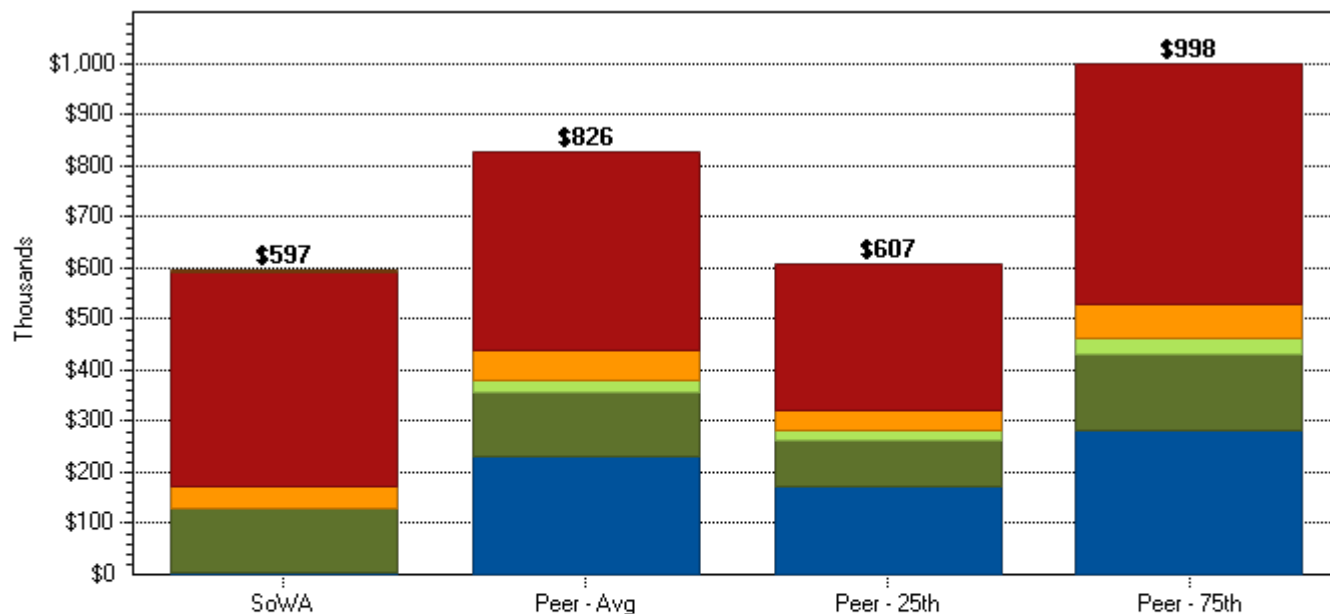
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$2	$233	$171	$282
Software	$128	$124	$91	$150
Connectivity	$0	$0	$0	$0
Disaster Recovery	$0	$24	$18	$29
Occupancy/Facilities	$42	$56	$41	$68
Personnel	$420	$388	$285	$468
Unallocated Total	$4			

Enterprise Computing – iSeries Servers
Total Spending Gap to Peer by Agency

Total Gap to Peer

Liquor Control Board

Department of Ecology

-$100 -$90 -$80 -$70 -$60 -$50 -$40 -$30 -$20 -$10 $0

Thousands

Gartner®
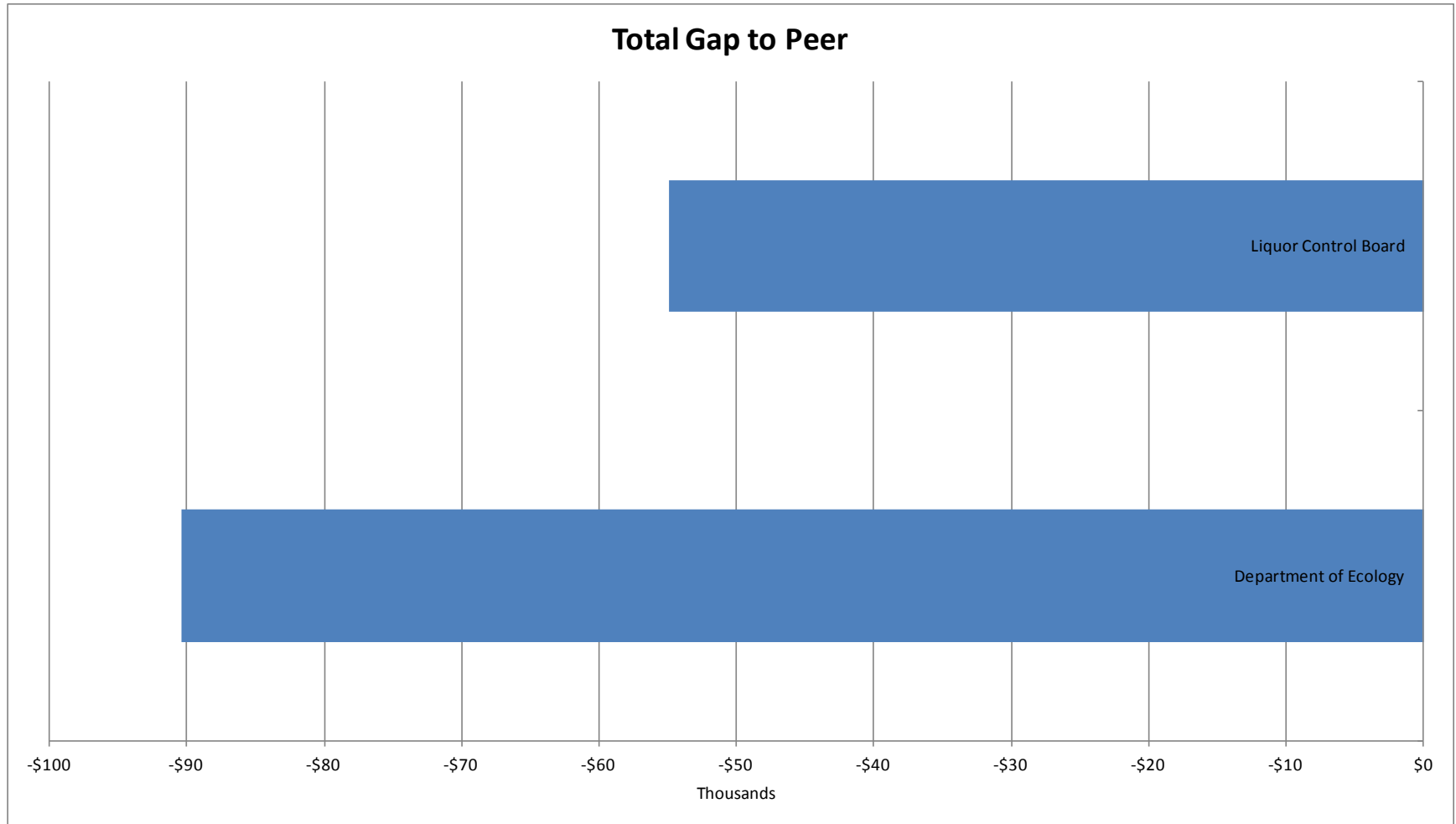
Enterprise Computing – iSeries Servers
Productivity – Total CPW Per Adjusted FTE
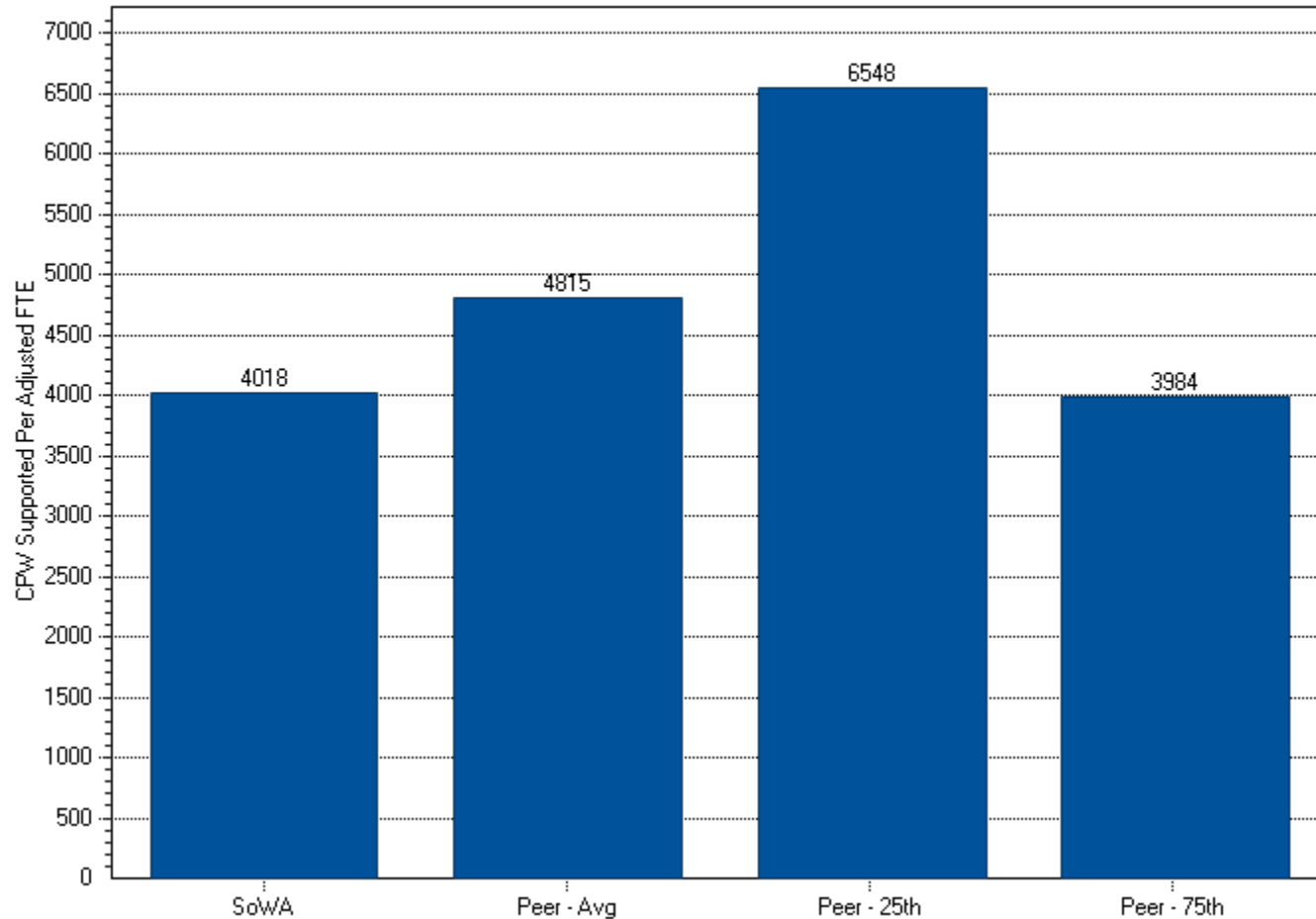
Enterprise Computing – iSeries Servers
IT Headcount (FTE) Total

Gartner®
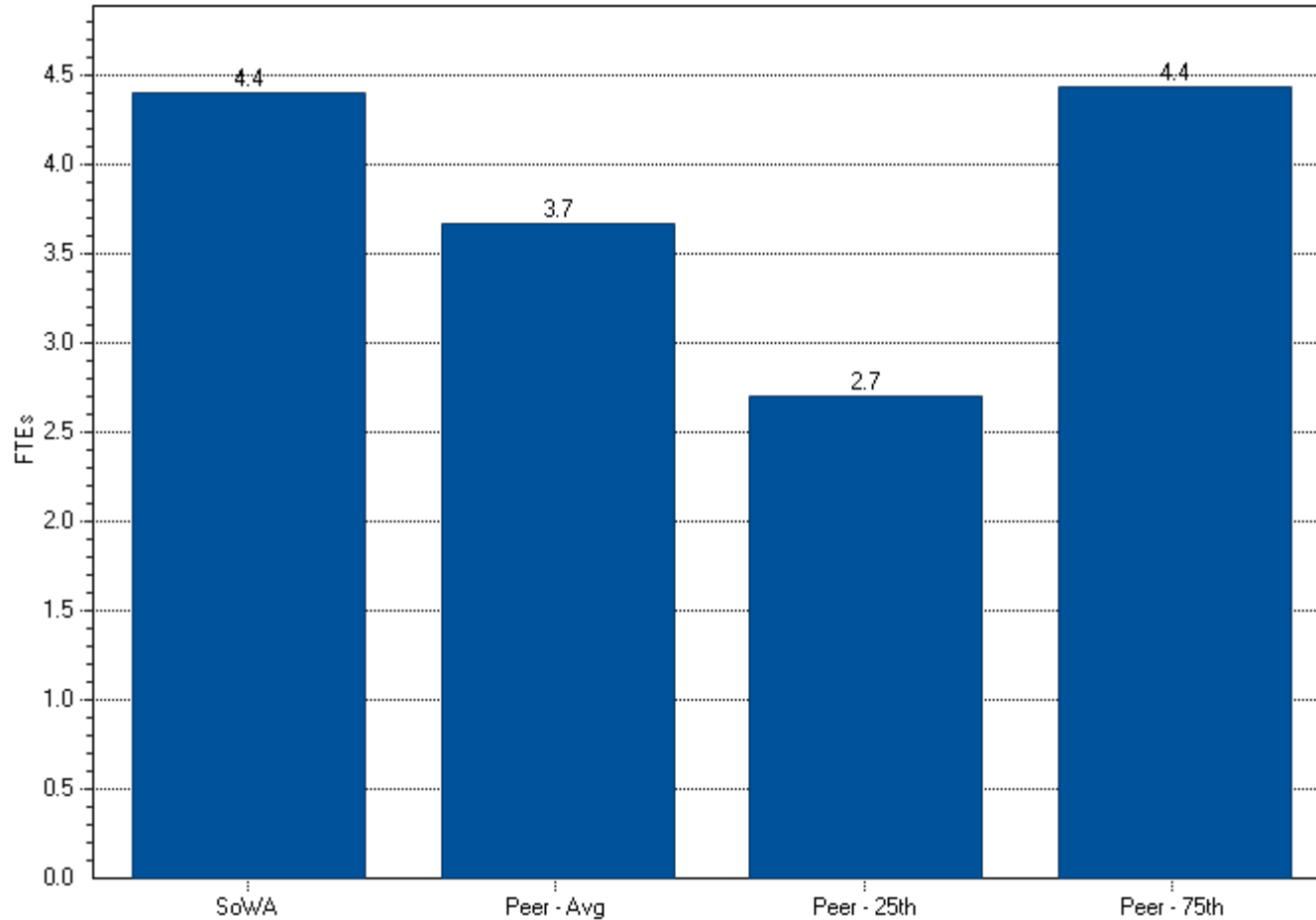
Enterprise Computing – iSeries Servers
Cost Per FTE – Insourced & Contractor Blended Total

Gartner

Enterprise Storage

Gartner.
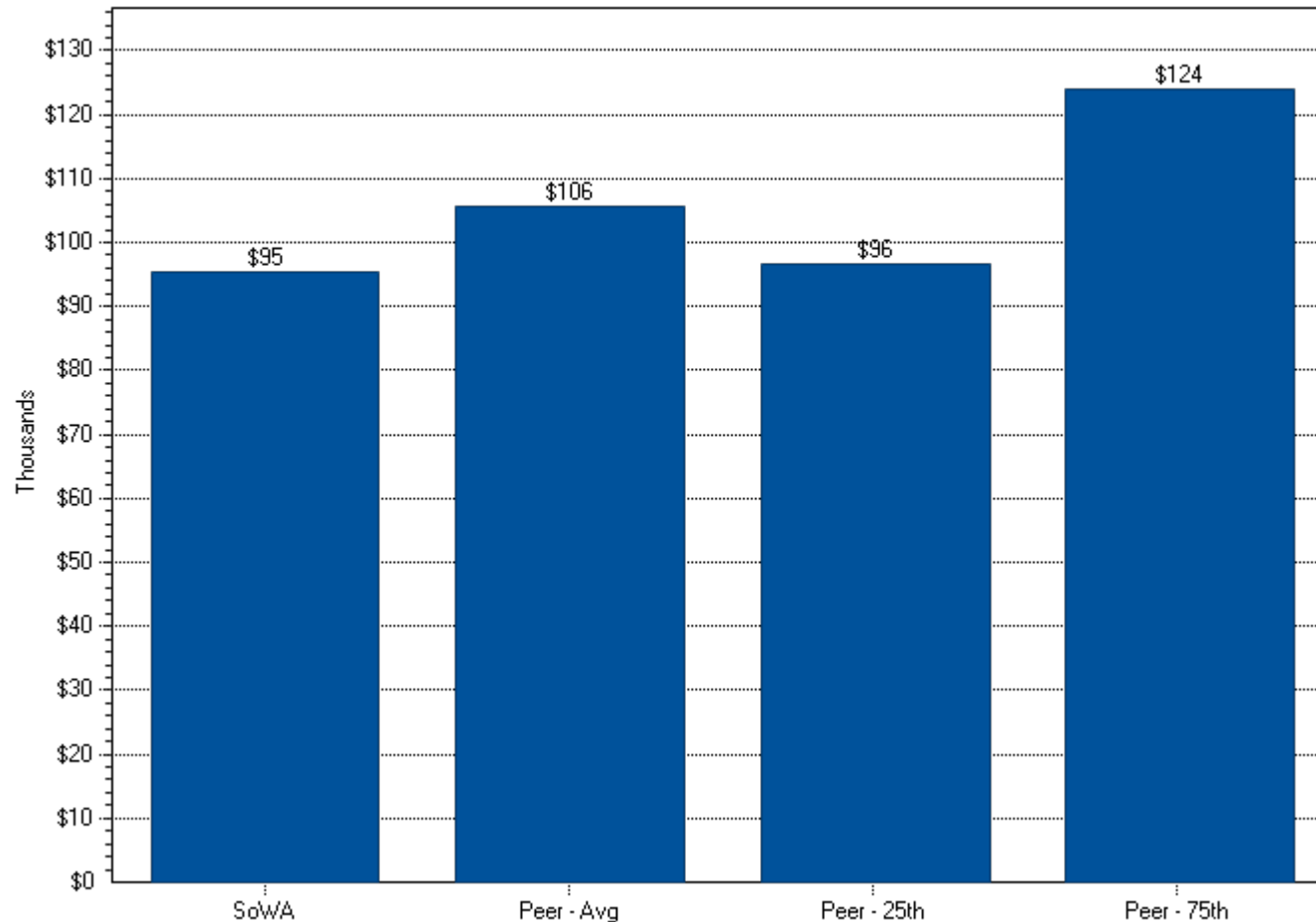
Enterprise Storage
Consensus Model & Demographics

Hardware		Storage Controllers Storage Servers Offline Supplies
Software		Storage Maintenance, Reporting, Security, Monitoring, Backup/Restore, Archival, Replication, Media Handling/Migration
Connectivity		Intra-Data Center Connectivity Inter-Data Center Connectivity
Disaster Recovery		Hardware, Software DR "Hot Site" DR Connectivity
Facilities/ Occupancy		Power/Heat Management Raised Floor Office Space
Personnel		Disk and Tape Management Planning and Process Management Administration (includes mgmt)

■ State of Washington

- – 4,958 Raw Configured TB
- – 2,508 Used TB

■ Peer

- – Average 4,801 Raw Configured TB
- – Average 2,160 Used TB
- – 11 Organizations
  - • 5 Utilities, 3 Government, 1 Health Services, 1 Insurance, 1 Publishing

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Enterprise Storage
Efficiency – Cost Per Raw Configured TB

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Cost per Raw TB

Gartner®
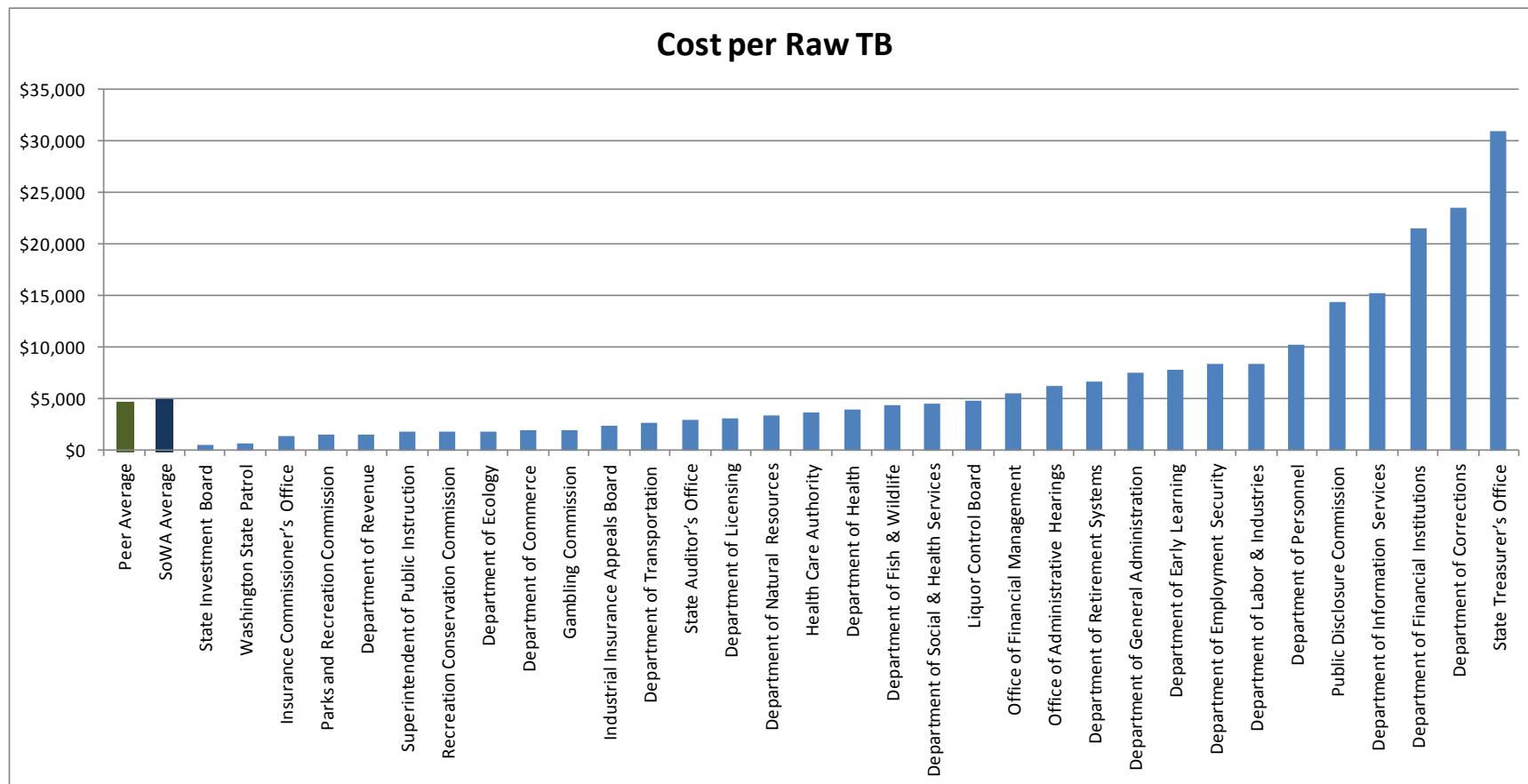
Enterprise Storage
IT Spending by Cost Category
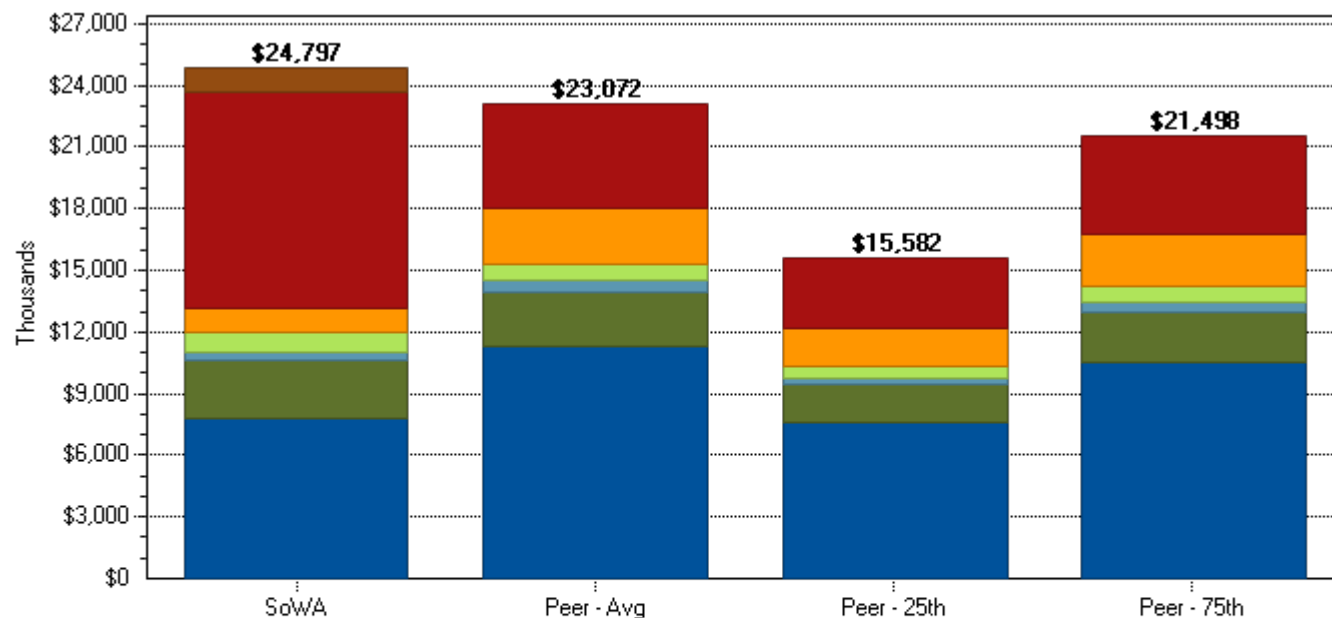
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$7,826	$11,323	$7,647	$10,551
Software	$2,757	$2,602	$1,757	$2,424
Connectivity	$392	$550	$372	$513
Disaster Recovery	$1,025	$815	$551	$760
Occupancy	$1,165	$2,712	$1,832	$2,527
Personnel	$10,474	$5,069	$3,423	$4,723
Unallocated Total	$1,158			

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Enterprise Storage
Total Spending Gap to Peer by Agency

Gap to Peer

Chart (horizontal bar), x-axis in Thousands from -$2,000 to $4,000.

Agencies (top to bottom):
- Department of Information Services
- Department of Employment Security
- Department of Labor & Industries
- Department of Corrections
- Department of Personnel
- Department of Financial Institutions
- Department of Early Learning
- State Treasurer's Office
- Office of Financial Management
- Department of Retirement Systems
- Department of General Administration
- Public Disclosure Commission
- Office of Administrative Hearings
- Liquor Control Board
- Department of Fish & Wildlife
- Industrial Insurance Appeals Board
- State Auditor's Office
- State Investment Board
- Parks and Recreation Commission
- Department of Health
- Recreation Conservation Commission
- Health Care Authority
- Department of Commerce
- Department of Social & Health Services
- Gambling Commission
- Department of Natural Resources
- Superintendent of Public Instruction
- Insurance Commissioner's Office
- Department of Licensing
- Department of Revenue
- Department of Ecology
- Washington State Patrol
- Department of Transportation

Enterprise Storage
Productivity – Raw Configured TB Per Adjusted FTE

Gartner®
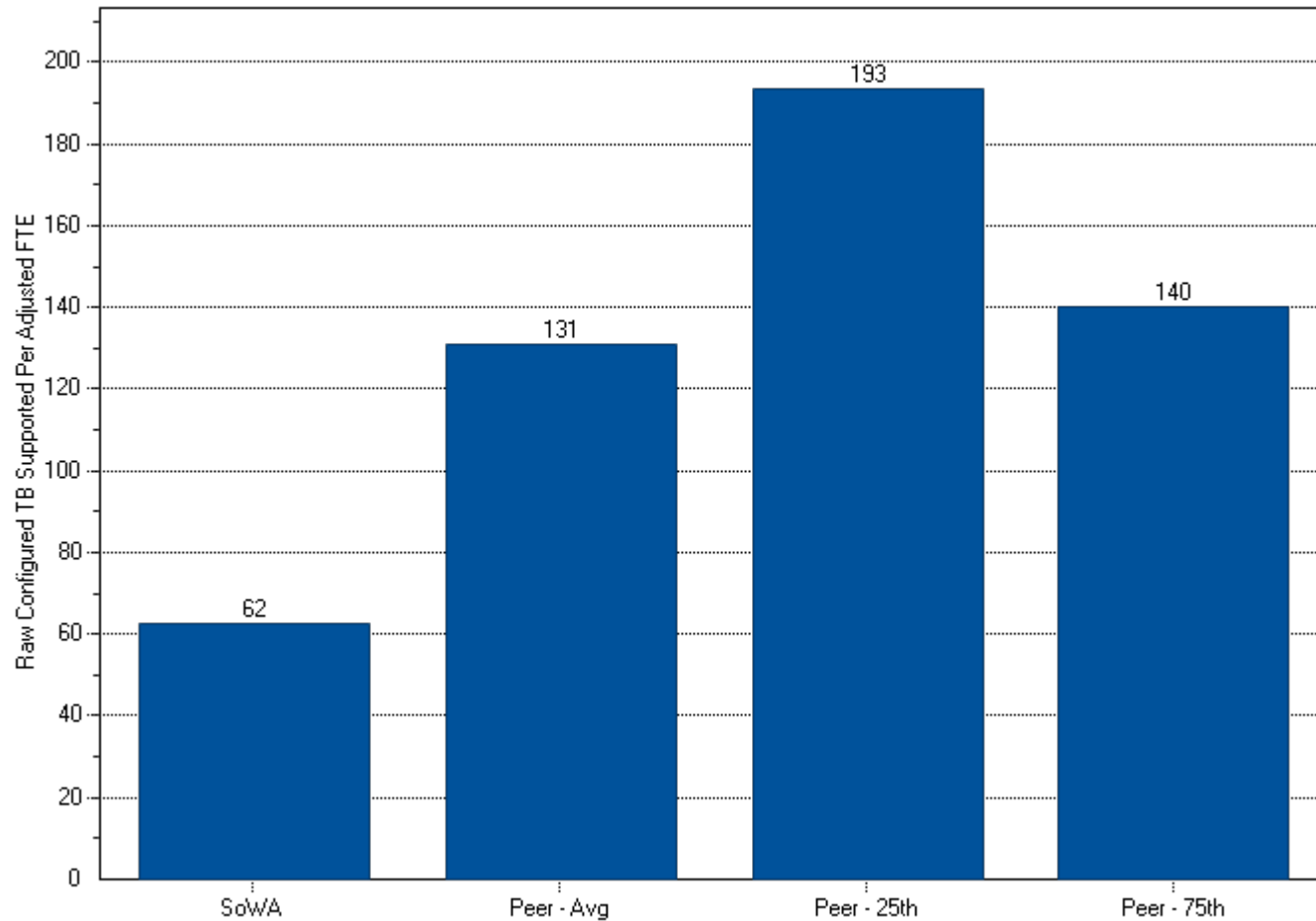
Enterprise Storage
IT Headcount (FTE) Total

Gartner
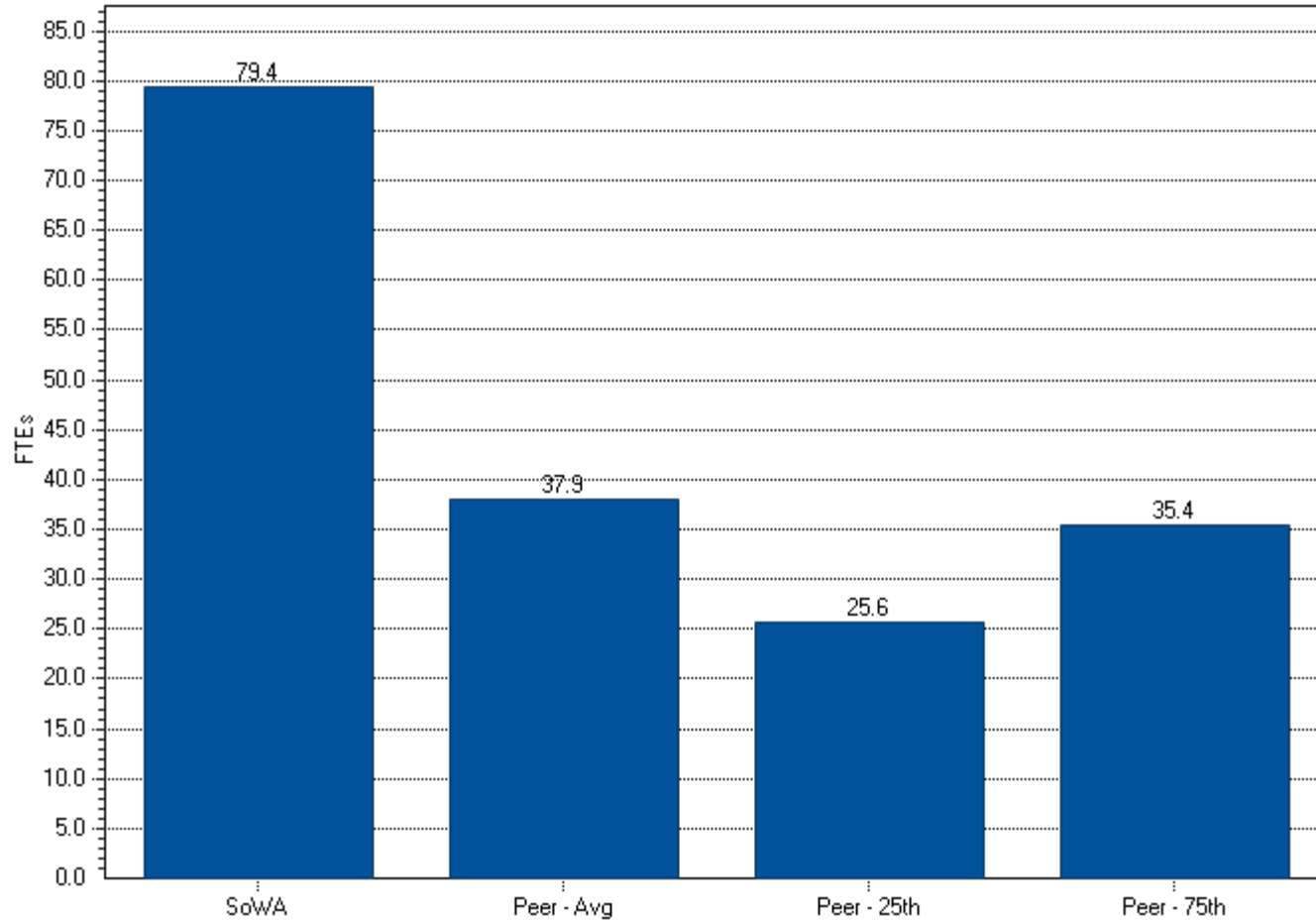
Enterprise Storage
Cost Per FTE – Insourced & Contractor Blended Total

Gartner.

End User Computing

Gartner.
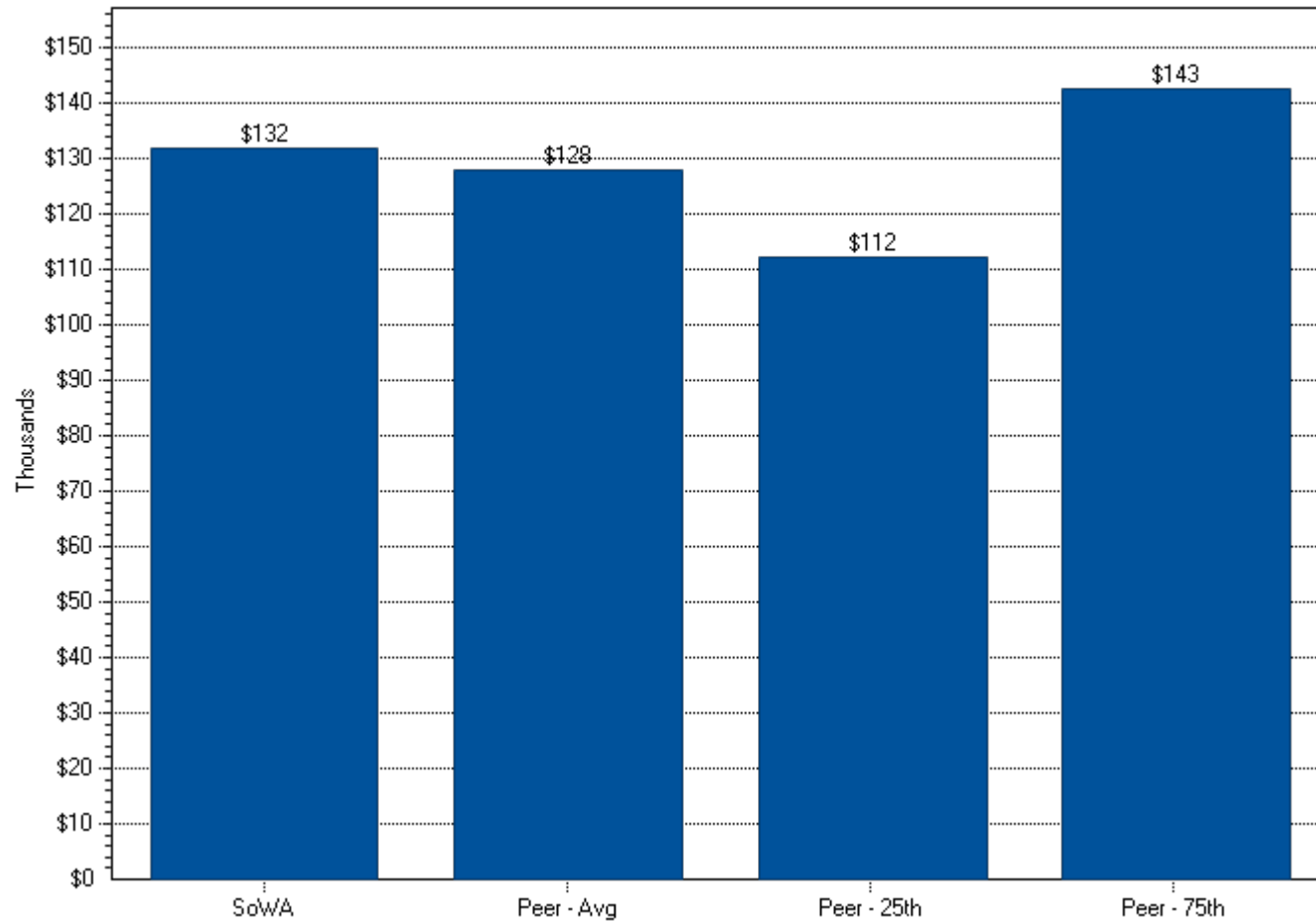
End User Computing
Consensus Model
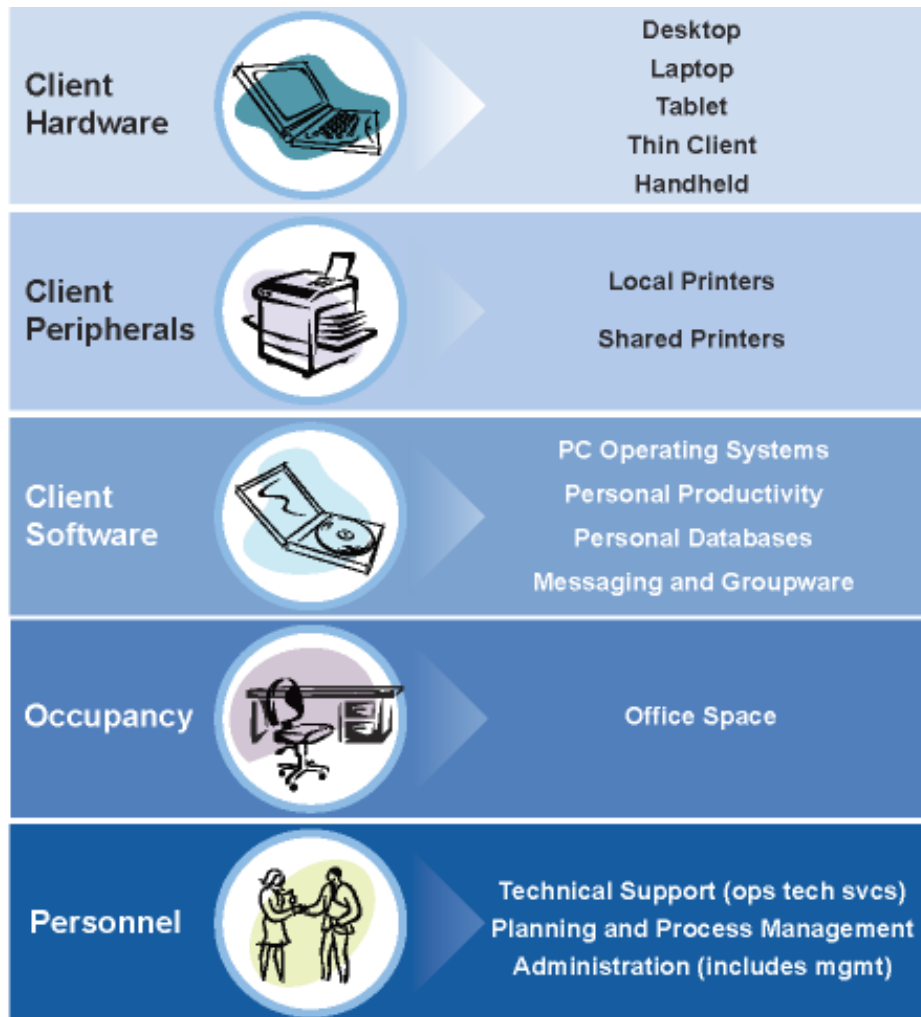
- **State of Washington**
  - 78,576 Personal Computing Devices (Desktop, Laptop, Thin Client and Tablet)
    - 23% Laptops
  - 65,357 Users
    - 1.20 PCDs per User

- **Peer**
  - Average 70,200 Personal Computing Devices
    - Average 27% Laptops
  - Average 59,176 Users
    - 1.18 PCDs per User
  - 10 Organizations
    - 7 Government, 1 Financial Services, 1 Pharmaceuticals, 1 Retail

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End User Computing
Efficiency – Cost Per Personal Computing Device

Gartner®
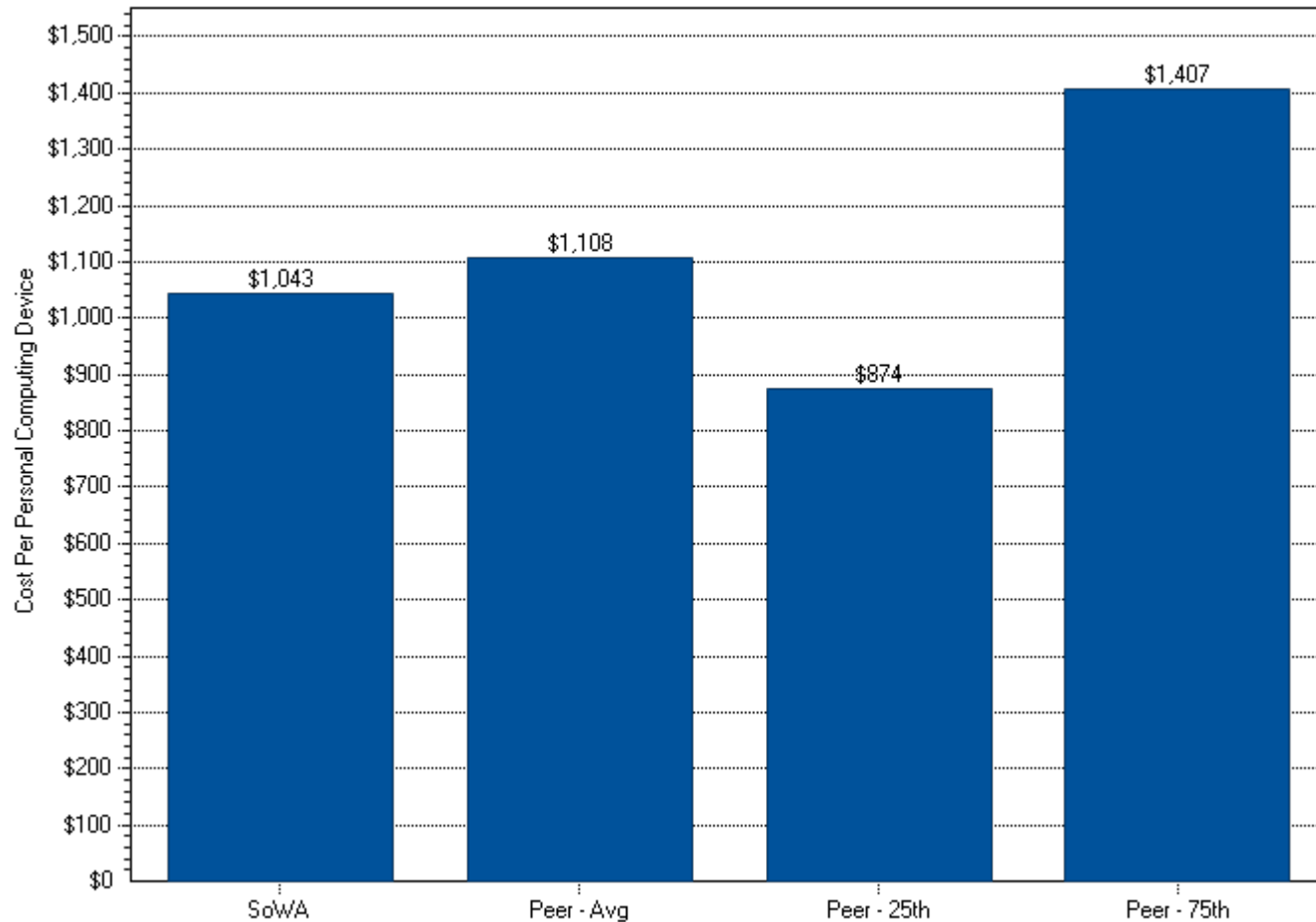
End User Computing
Efficiency – Cost Per Personal Computing Device by Agency

Cost per PCD

Gartner
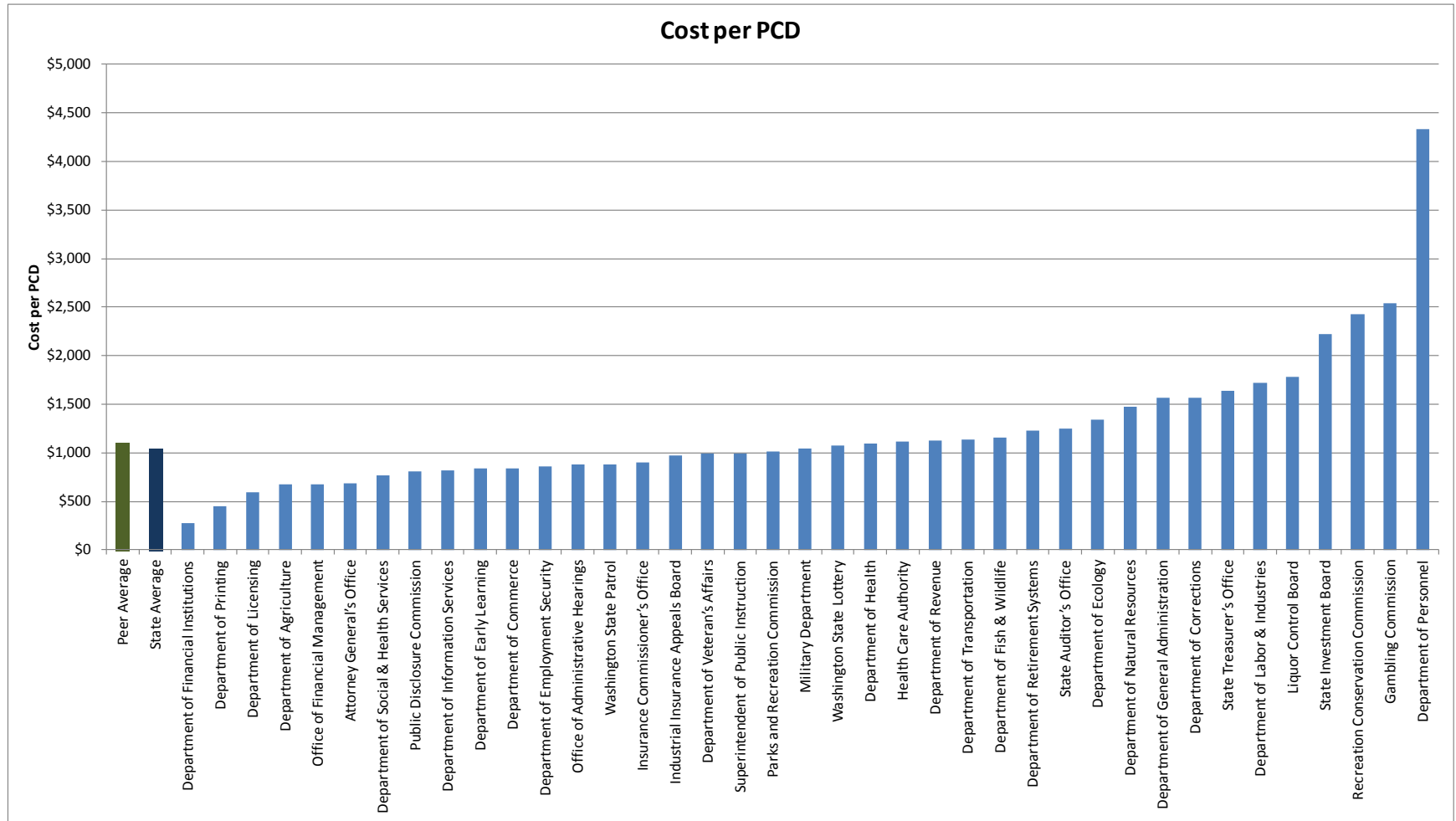
End User Computing
IT Spending by Cost Category
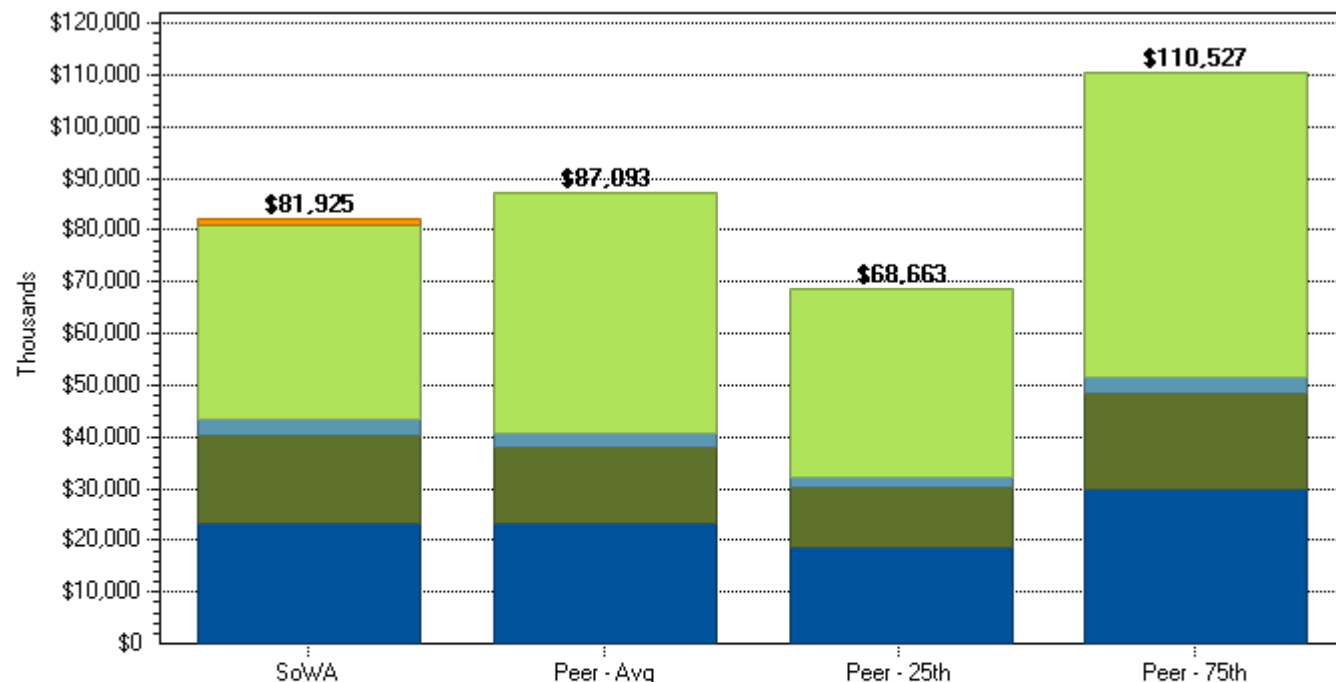
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$23,057	$23,423	$18,466	$29,725
Software	$17,211	$14,671	$11,566	$18,618
Occupancy	$3,067	$2,621	$2,066	$3,326
Personnel	$37,599	$46,379	$36,564	$58,858
Unallocated Total	$992			

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End User Computing
Total Spending Gap to Peer by Agency

Spending Gap to Peer

Agency	
Department of Corrections	
Department of Labor & Industries	
Liquor Control Board	
Department of Personnel	
Department of Natural Resources	
Department of Ecology	
Gambling Commission	
Department of General Administration	
Department of Transportation	
State Investment Board	
Recreation Conservation Commission	
Department of Fish & Wildlife	
State Treasurer's Office	
State Auditor's Office	
Department of Retirement Systems	
Department of Revenue	
Health Care Authority	
Washington State Lottery	
Public Disclosure Commission	
Industrial Insurance Appeals Board	
Military Department	
Department of Veteran's Affairs	
Parks and Recreation Commission	
Department of Early Learning	
Office of Administrative Hearings	
Superintendent of Public Instruction	
Department of Health	
Department of Printing	
Insurance Commissioner's Office	
Department of Commerce	
Department of Information Services	
Office of Financial Management	
Department of Agriculture	
Department of Financial Institutions	
Washington State Patrol	
Attorney General's Office	
Department of Employment Security	
Department of Licensing	
Department of Social & Health Services	

Thousands: -$8,000, -$6,000, -$4,000, -$2,000, $0, $2,000, $4,000

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End User Computing
Personal Computing Devices Per Adjusted FTE

Gartner®
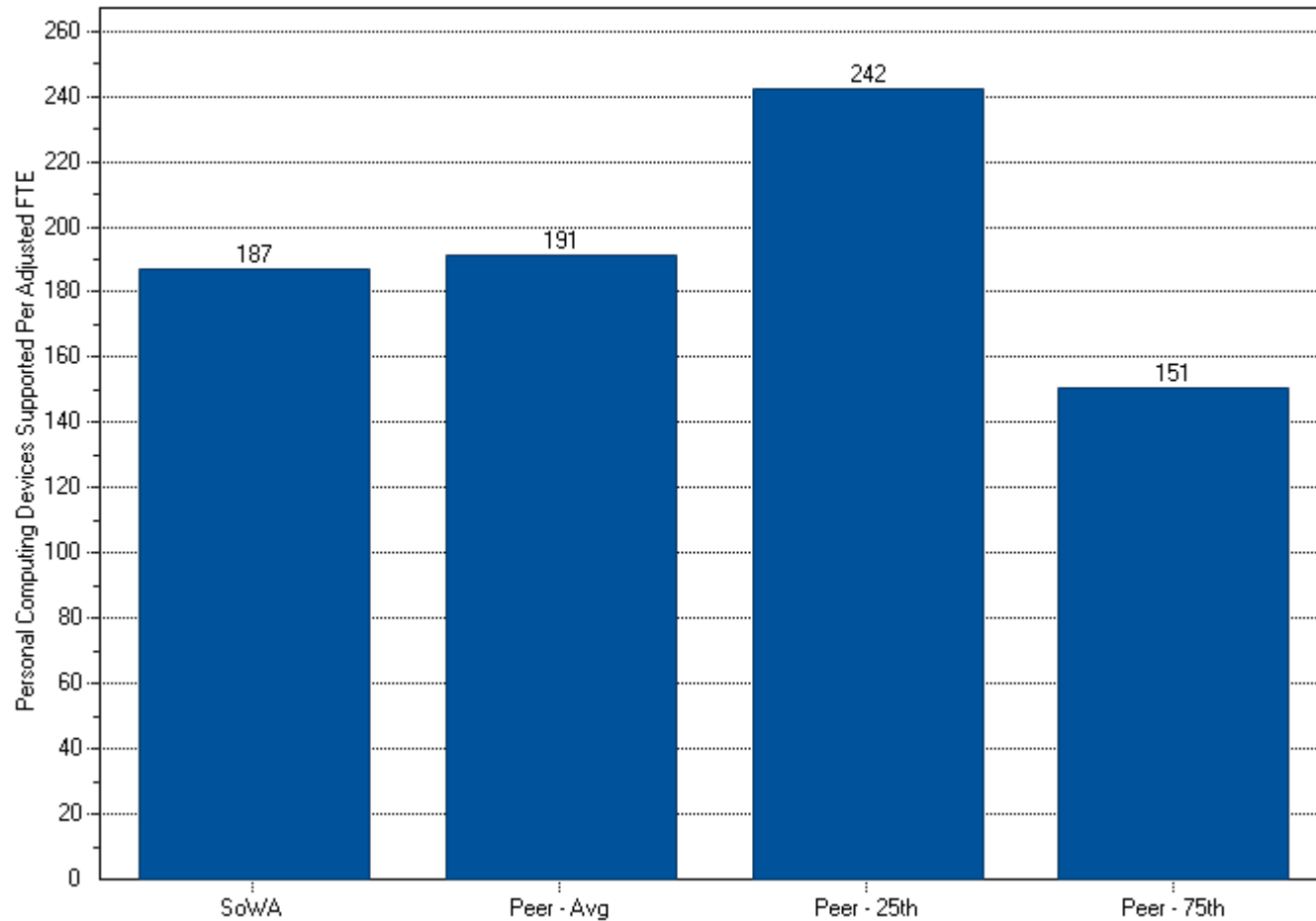
End User Computing
IT Headcount (FTE) Total

Gartner
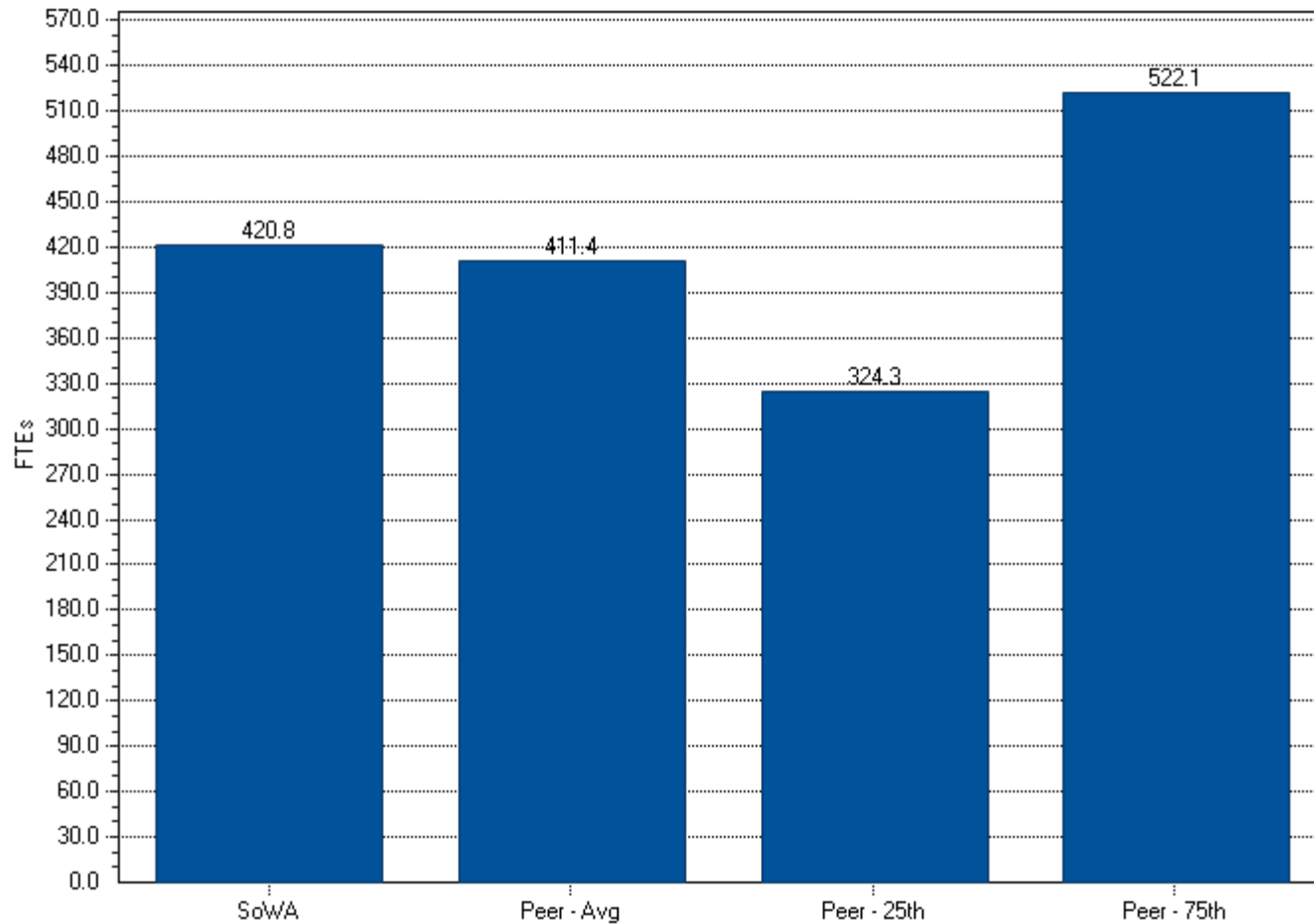
End User Computing
Cost Per FTE – Insourced & Contractor Blended Total

Gartner.

IT Help Desk

Gartner.
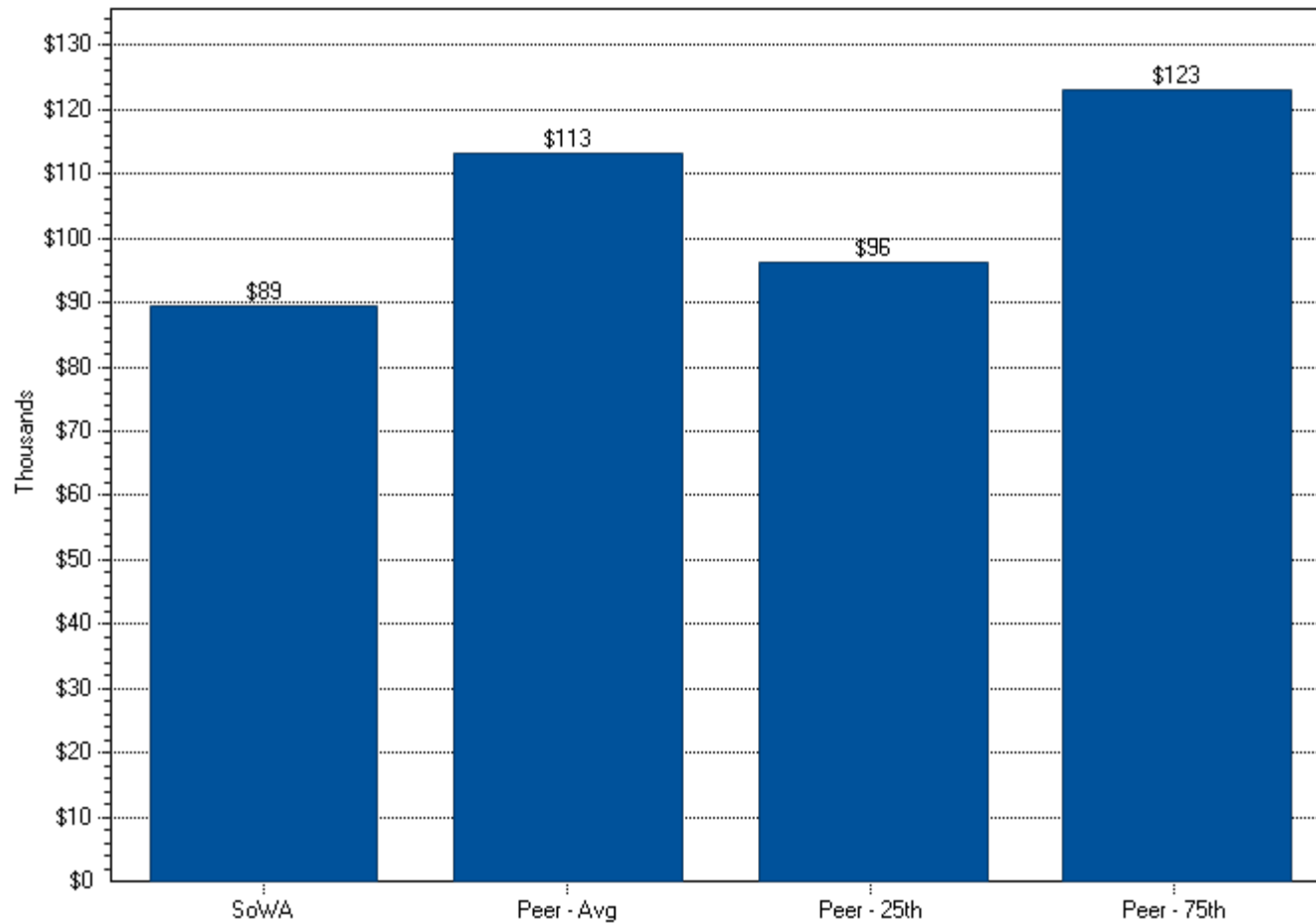
IT Help Desk
Consensus Model & Demographics

Hardware	Automated Call Distribution Private Branch Exchange Interactive Voice Response Computer Telephony Integration Agent Equipment
Software	Expert Knowledge Tools Management Tools Chat Software Voice/IVR Software
Transmission	Inbound 800 Dedicated Trunking Outbound Long Distance
Occupancy	Office Space
Personnel	Operations/Maintenance Planning & Process Management Administration (includes mgmt)

- **State of Washington**
  - 976,163 Handled Contacts
  - 123,579 Users
    - 7.9 Contacts per User per Year

- **Peer**
  - Average 694,101 Handled Contacts
  - Average 56,668 Users
    - Average 14.2 Contacts per User per Year
  - 8 Organizations
    - 5 Government, 2 Health Services, 1 Retail

Gartner

IT Help Desk
Efficiency – Total Cost Per Handled Contact

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Cost per Handled Contact

Gartner®
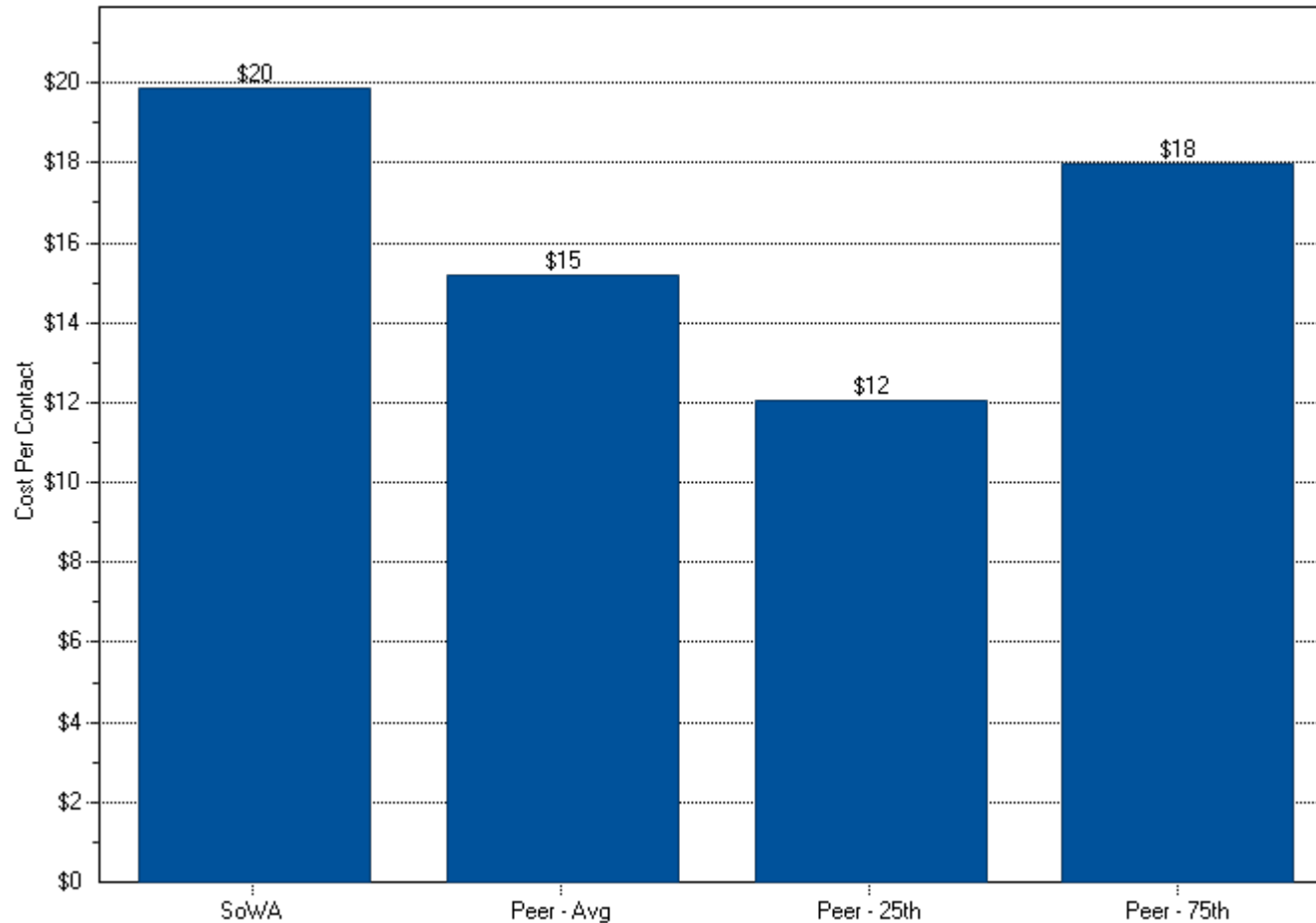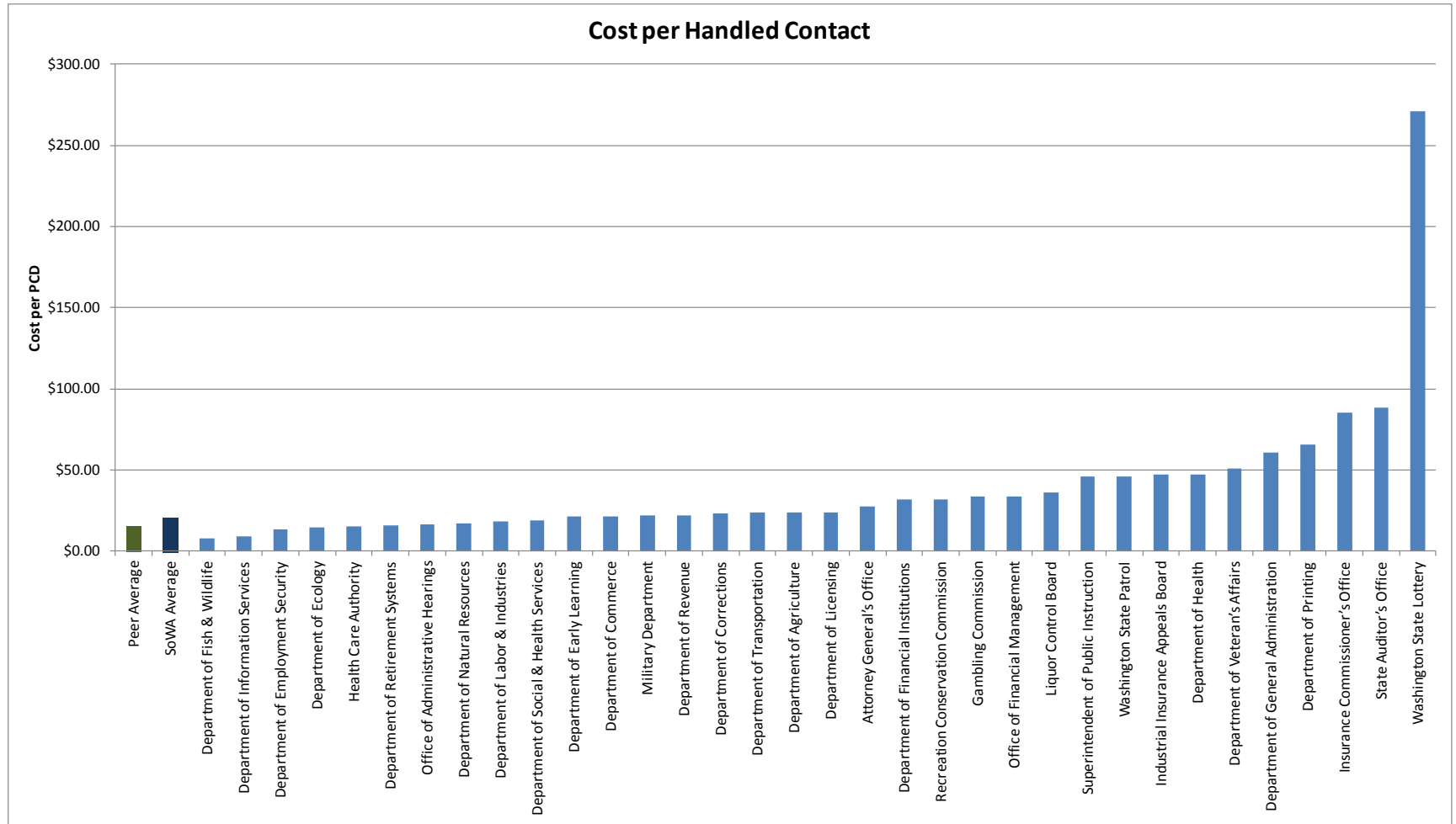
IT Help Desk
IT Spending by Cost Category
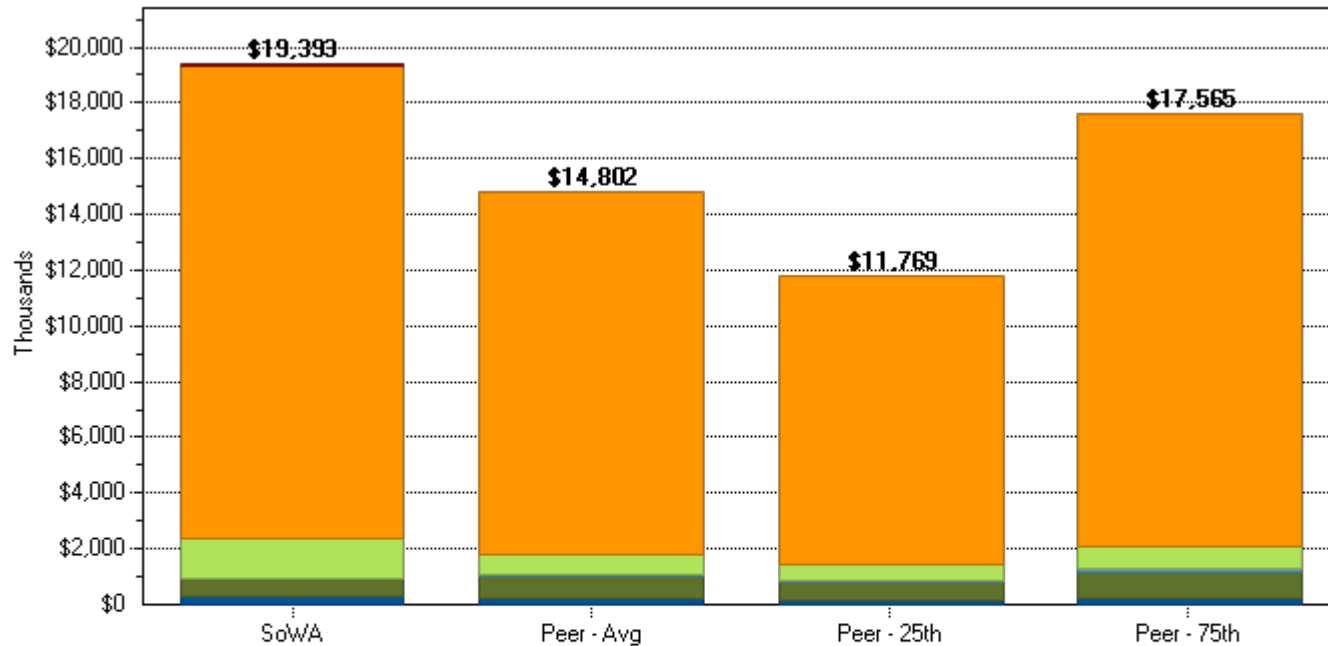
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$320	$183	$145	$217
Software	$609	$806	$641	$957
Transmission	$9	$102	$81	$121
Occupancy	$1,425	$677	$538	$803
Personnel	$16,982	$13,035	$10,364	$15,468
Unallocated Total	$48			

Gartner

IT Help Desk
Total Spending Gap to Peer by Agency

Total Gap to Peer

Gartner
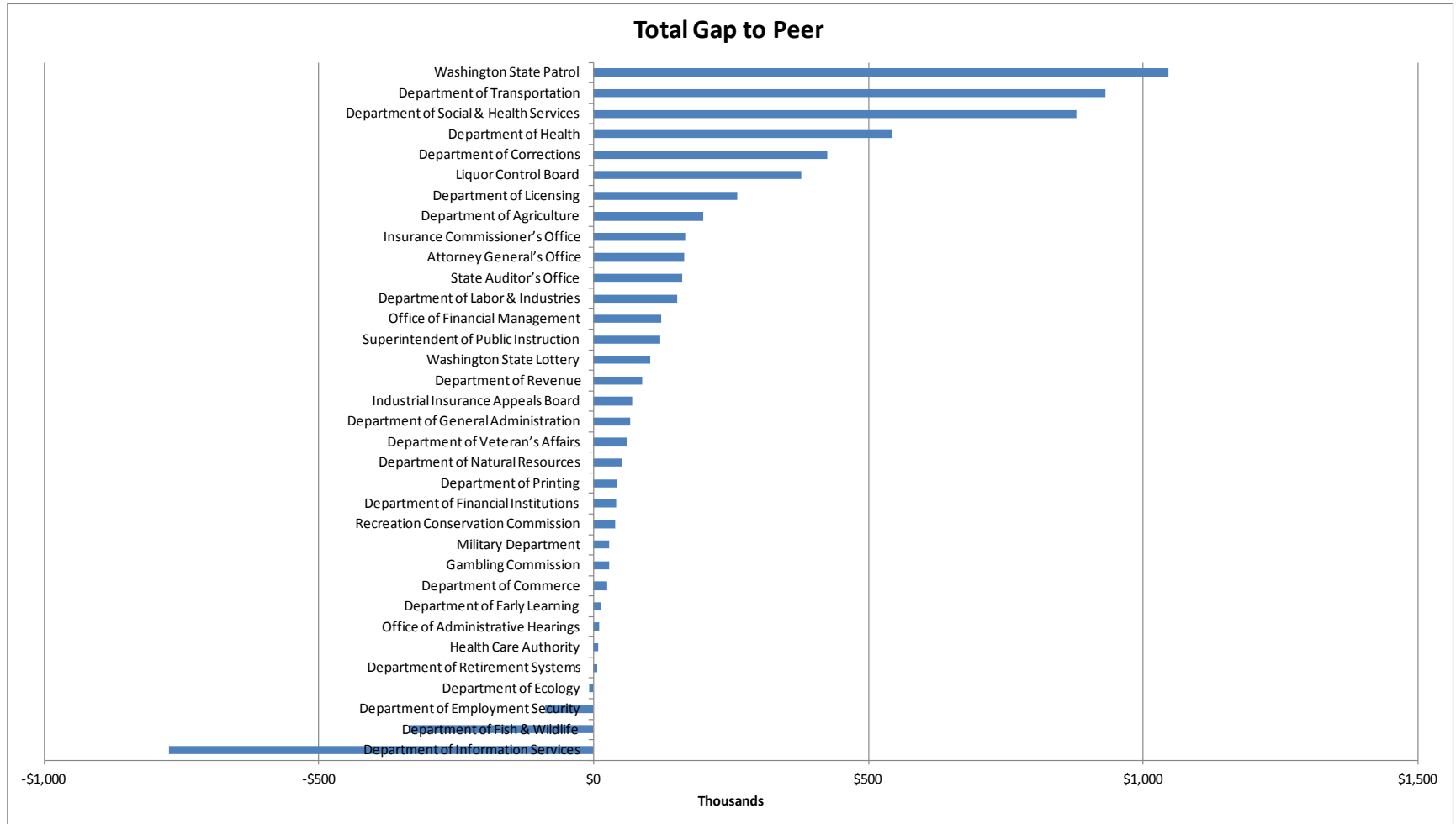
IT Help Desk
Productivity – Handled Contacts Per Adjusted FTE

Gartner®
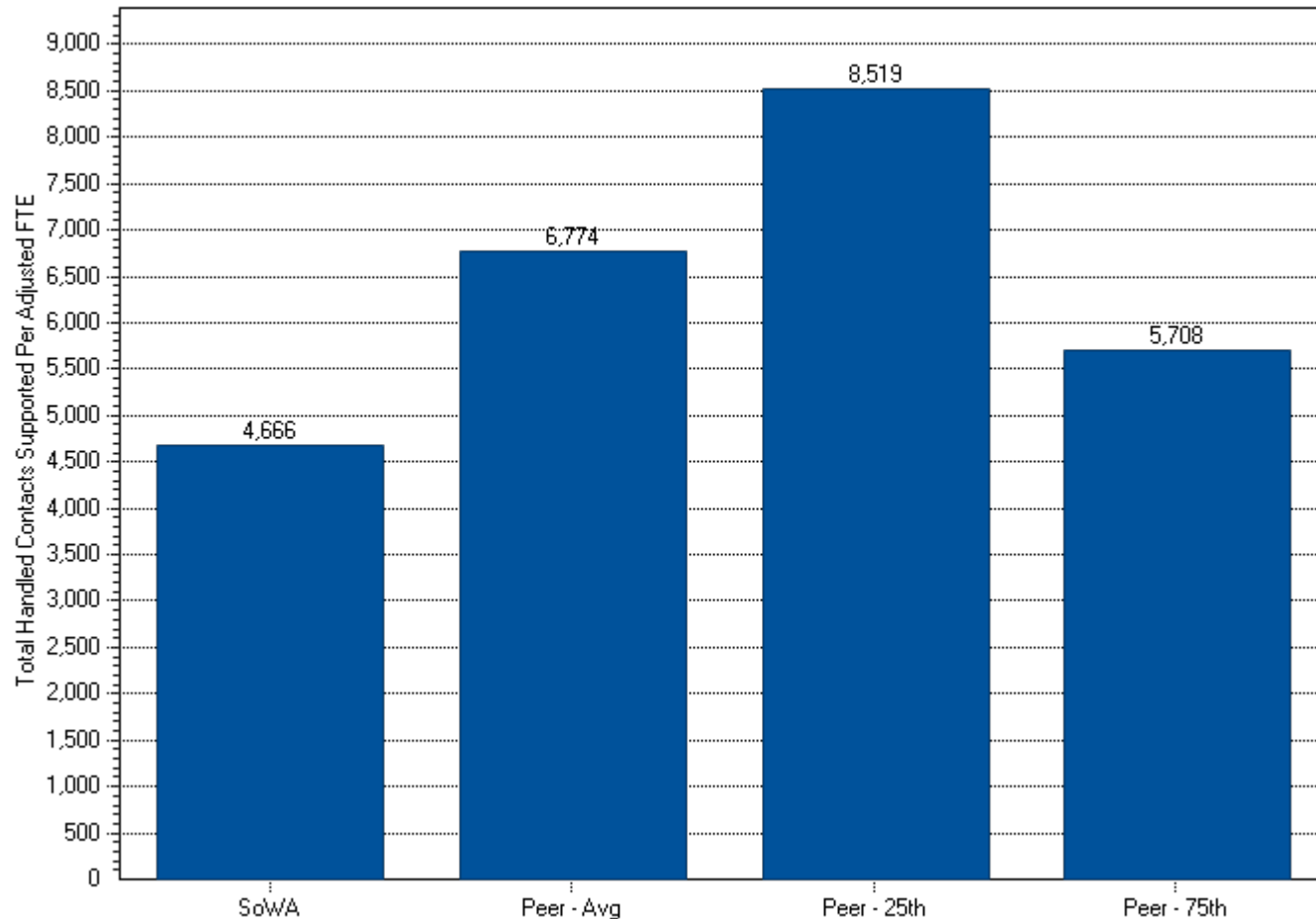
IT Help Desk
IT Headcount (FTE) Total

Gartner®
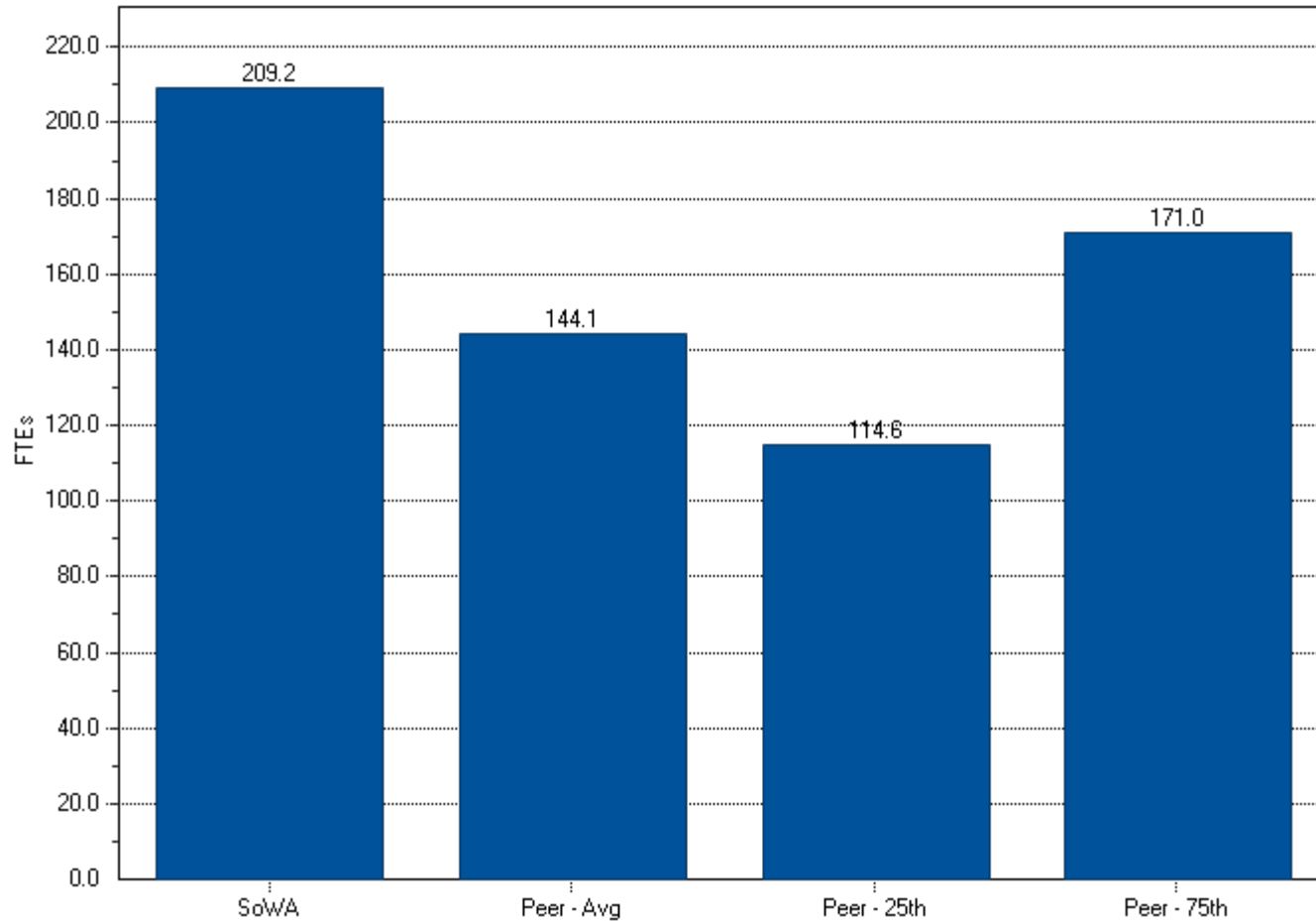
IT Help Desk
Cost Per FTE – Insourced & Contractor Blended Total

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Wide Area Data Network

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Wide Area Data Network
Consensus Model

Hardware — Routers, Firewalls, DNS, DHCP, Network Management/NOC

Software — Security, Network Management

Transmission — MPLS, ATM, Frame Relay, Leased Lines, VPN

Occupancy — Office Space

Personnel — Technical Support (ops tech svcs), Planning and Process Management Administration (includes mgmt)
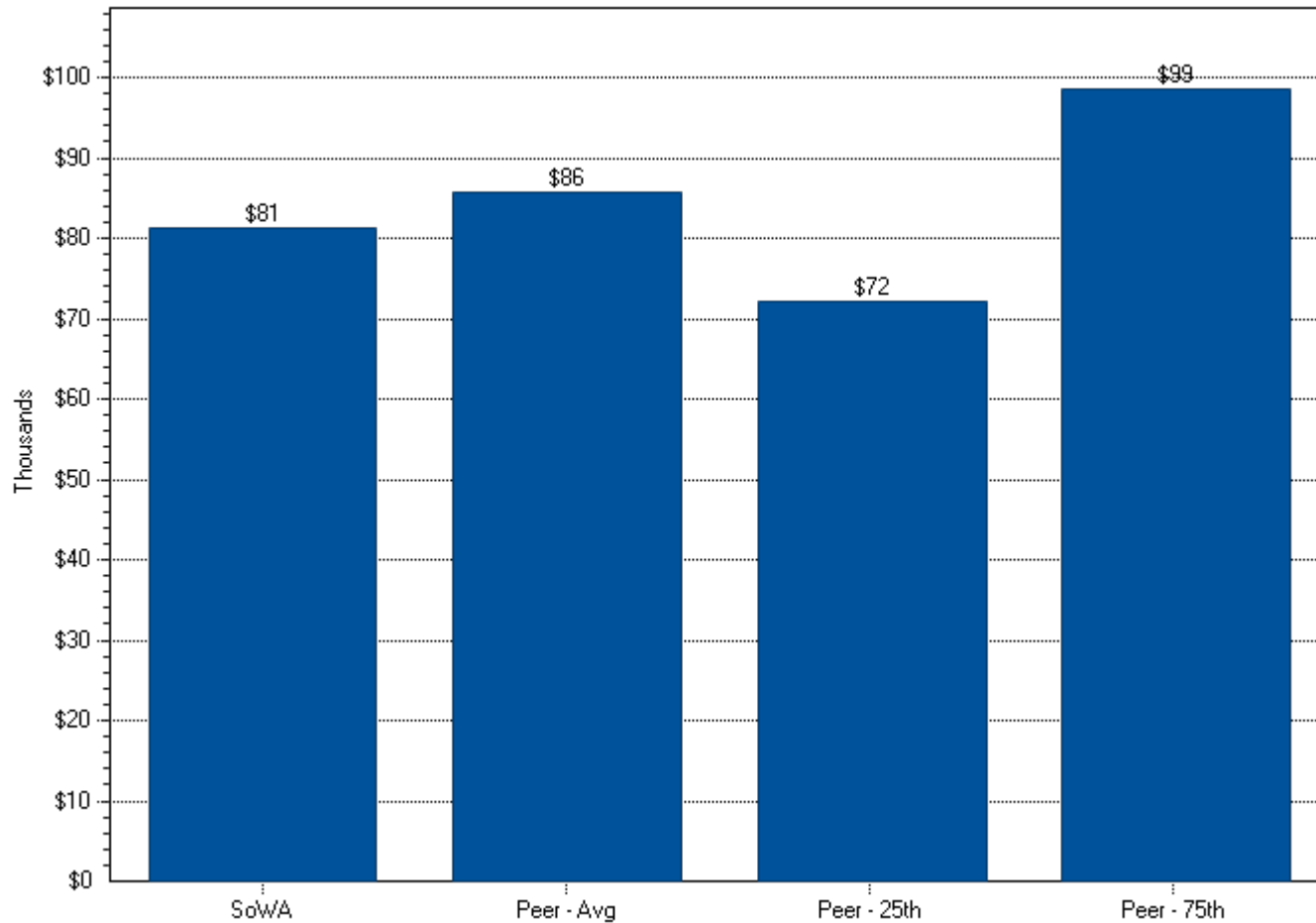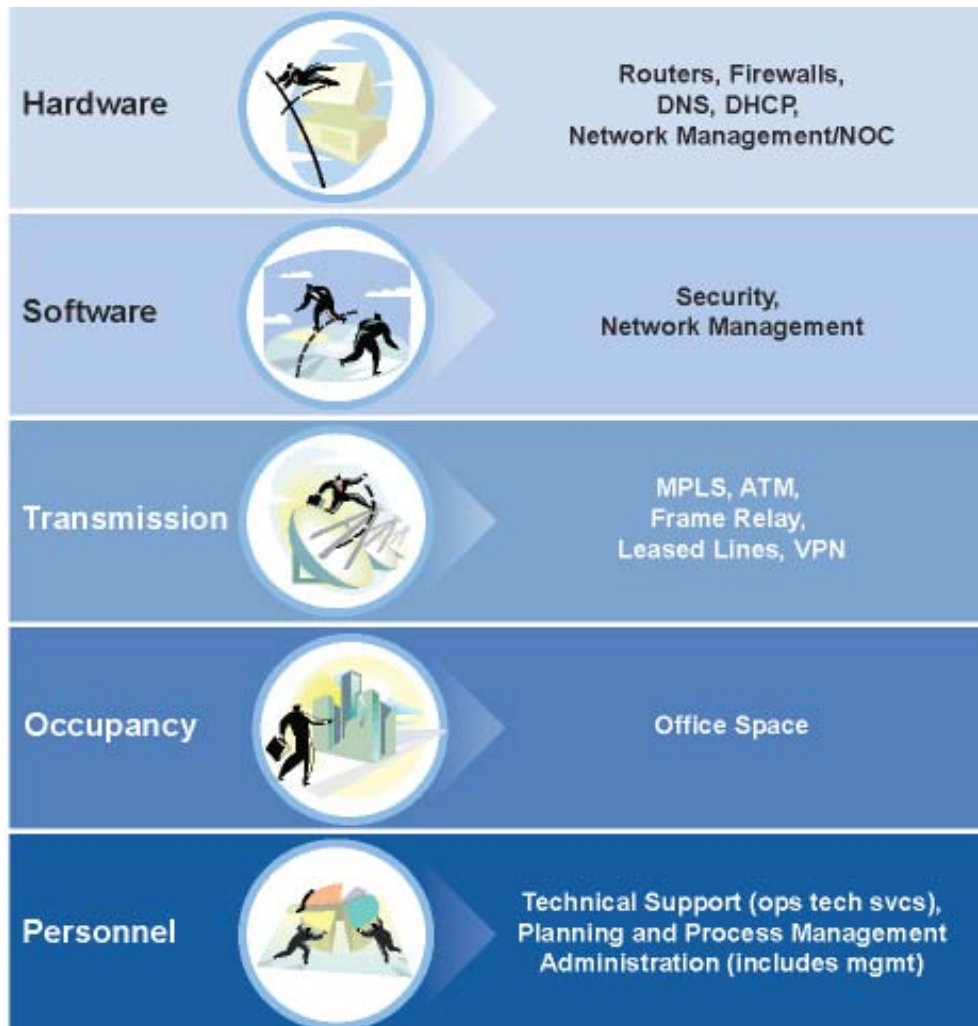
- State of Washington
  - 98,091 End Devices
  - 1,648 Sites

- Peer
  - Average 110,892 End Devices
  - Average 1,810 Sites
  - 11 Organizations
    - 8 Government, 1 Financial Services, 1 Utilities, 1 Pharmaceuticals

Gartner

Wide Area Data Network
Efficiency – Cost Per Device

Gartner®
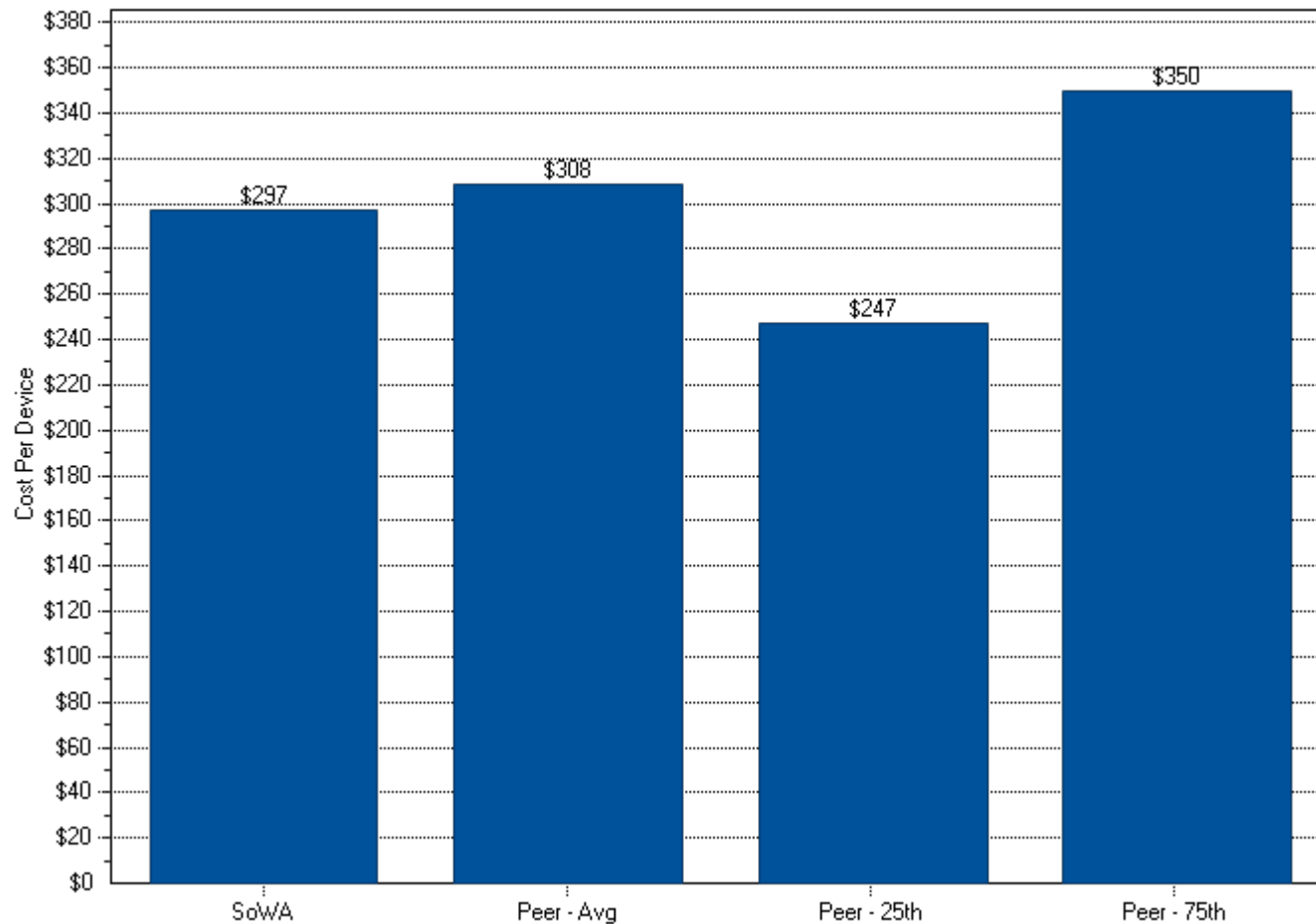
Wide Area Data Network
Efficiency – Cost Per Device by Agency

Cost per Device

Gartner®
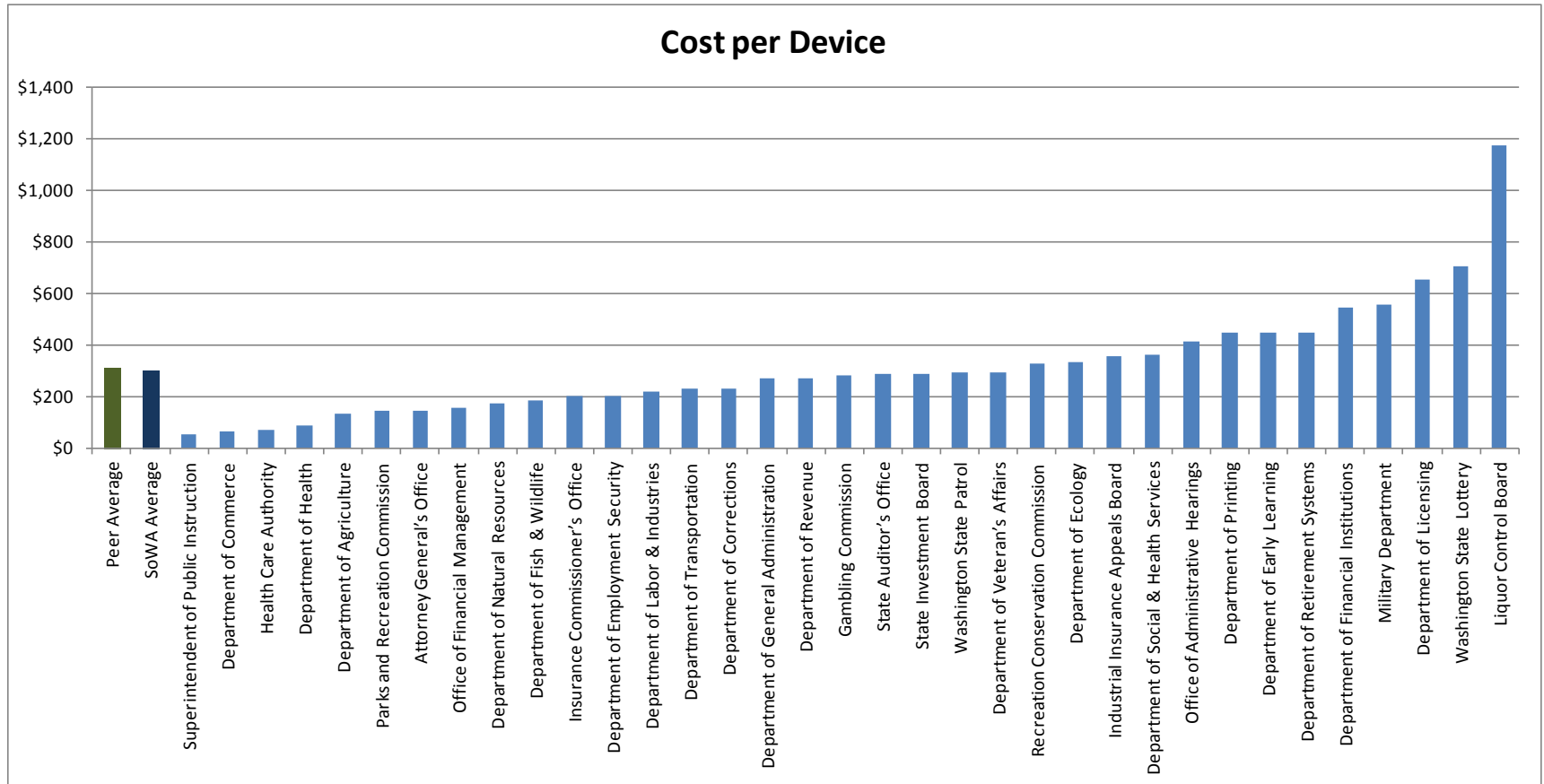
Wide Area Data Network
IT Spending by Cost Category
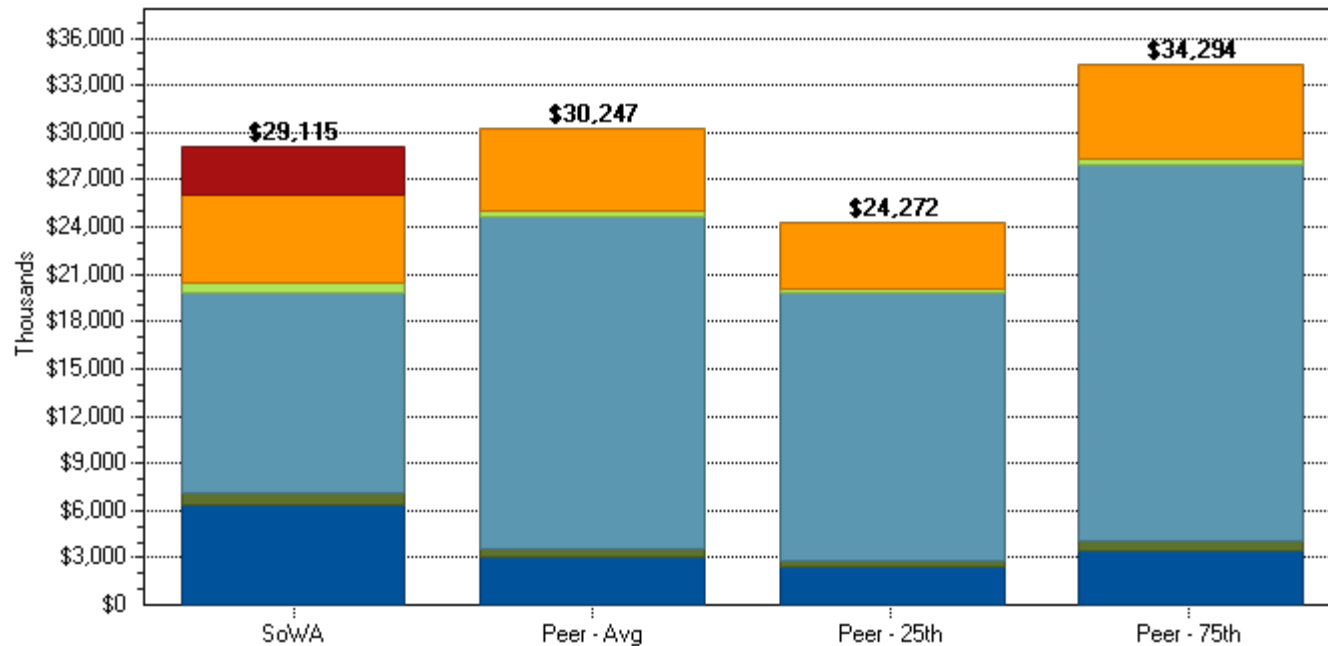
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$6,308	$2,986	$2,396	$3,386
Software	$789	$572	$459	$648
Transmission	$12,681	$21,130	$16,956	$23,958
Occupancy	$679	$284	$228	$322
Personnel	$5,535	$5,275	$4,233	$5,981
Unallocated Total	$3,123			

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Wide Area Data Network
Total Spending Gap to Peer by Agency

Total Gap to Peer

Gartner
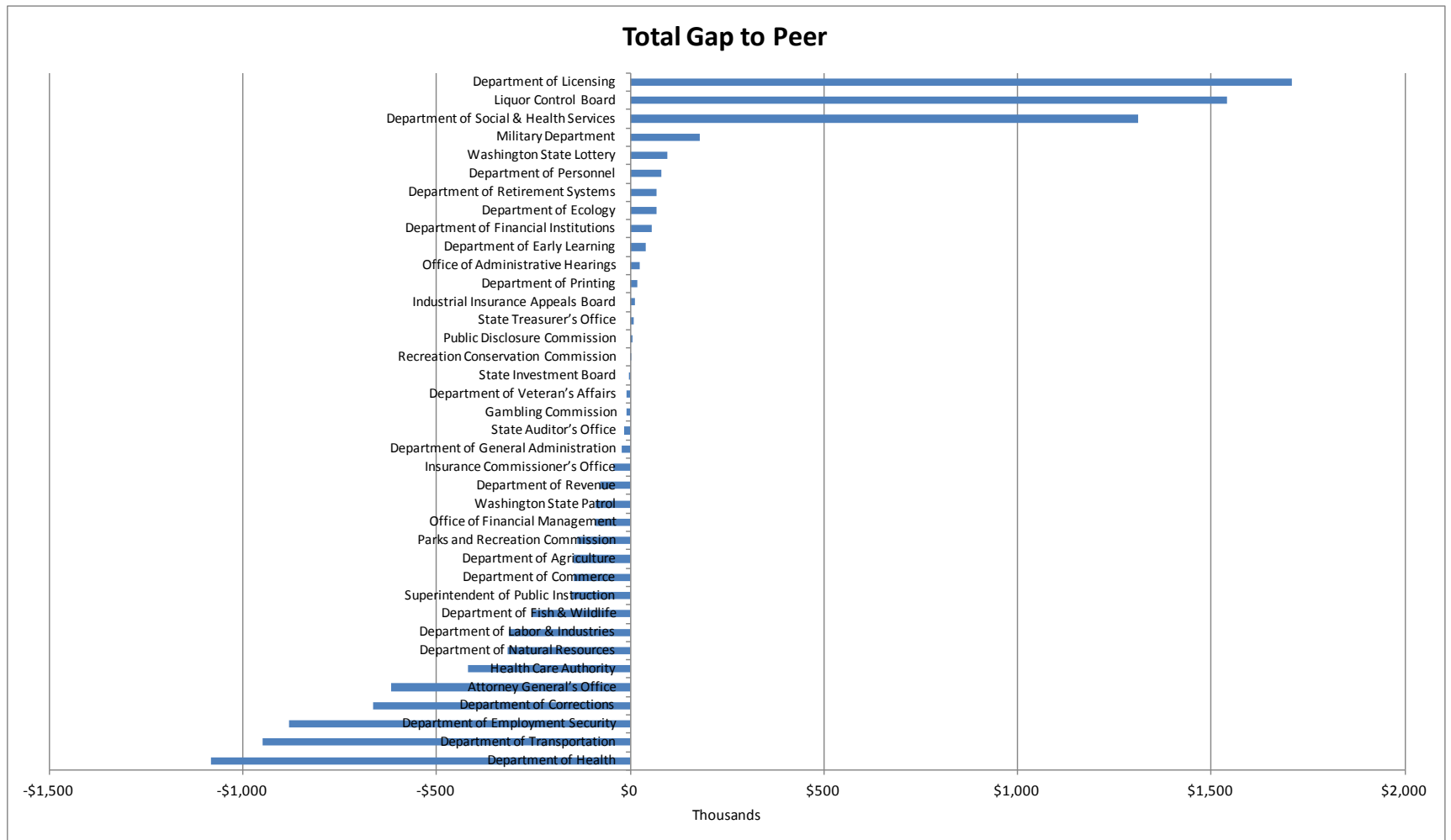
Wide Area Data Network
Productivity – Devices Per Adjusted FTE

Gartner®
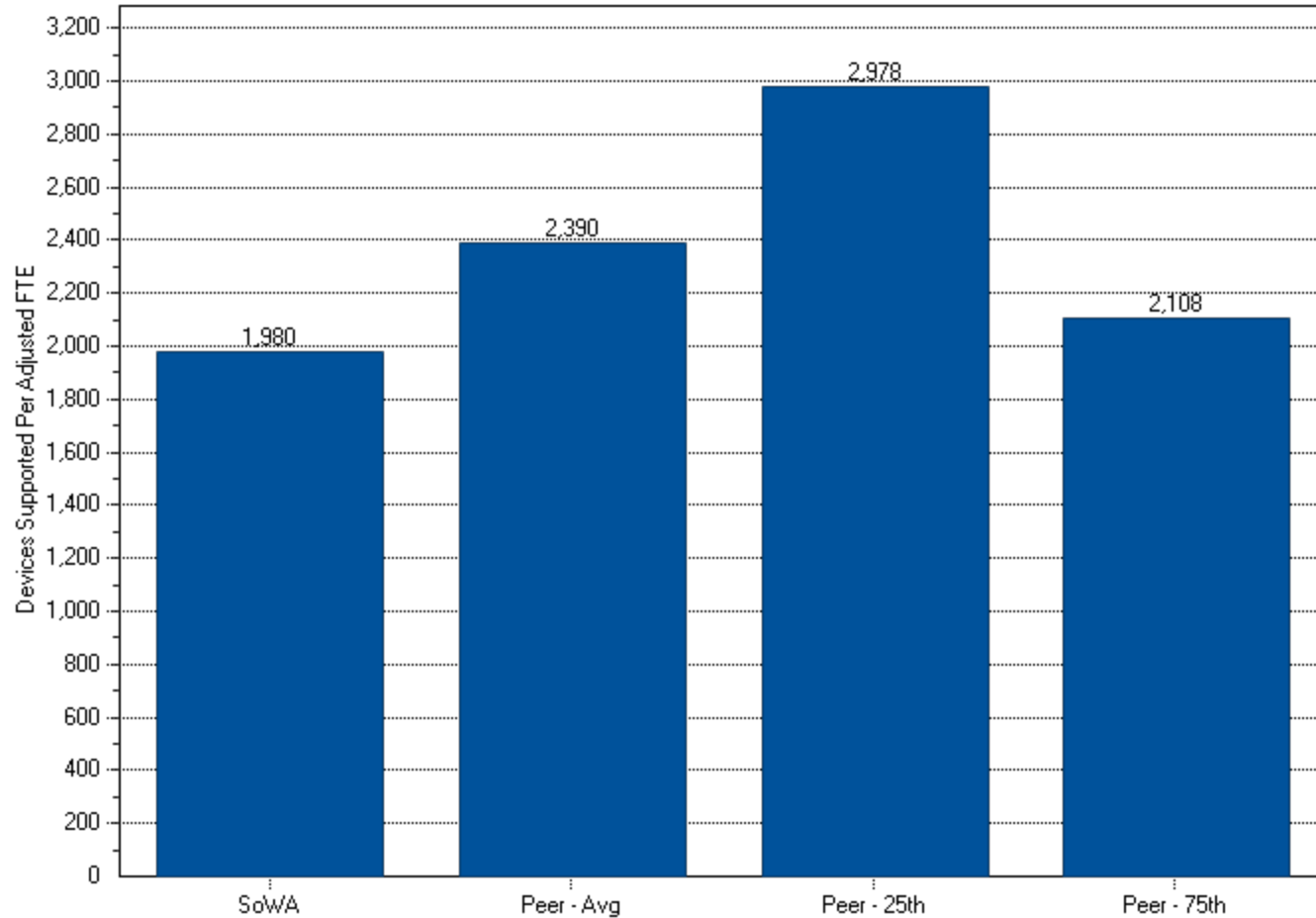
Wide Area Data Network
IT Headcount (FTE) Total

Gartner
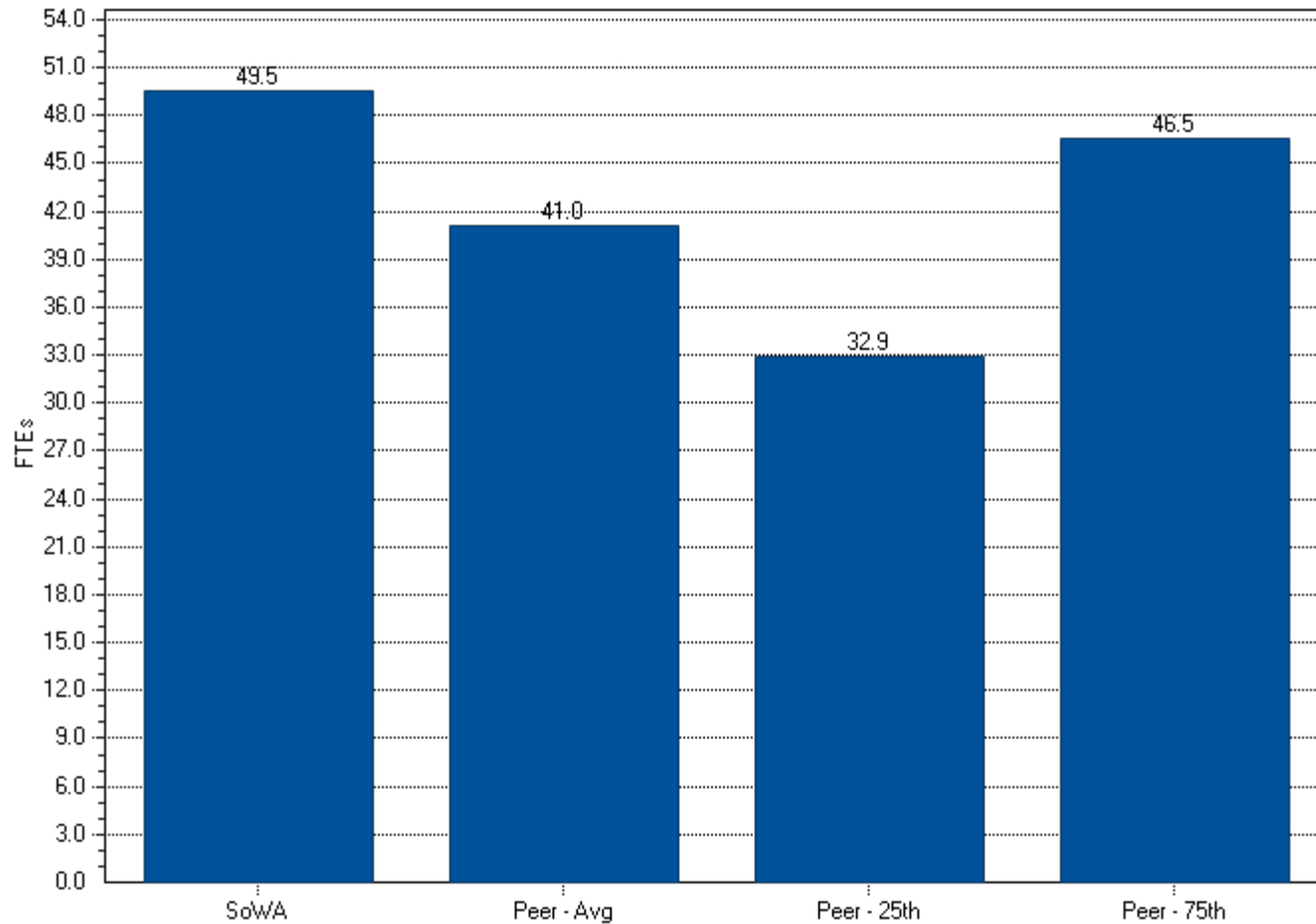
Wide Area Data Network
Cost Per FTE – Insourced & Contractor Blended Total

Gartner.

Local Area Network

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Local Area Network
Consensus Model

Hardware	Switches, Routers, Firewalls, Wireless Access Points, DNS, DHCP, Network Management/NOC
Software	Security, Network Management
Occupancy	Office Space
Personnel	Technical Support (ops tech svcs), Planning and Process Management Administration (includes mgmt)
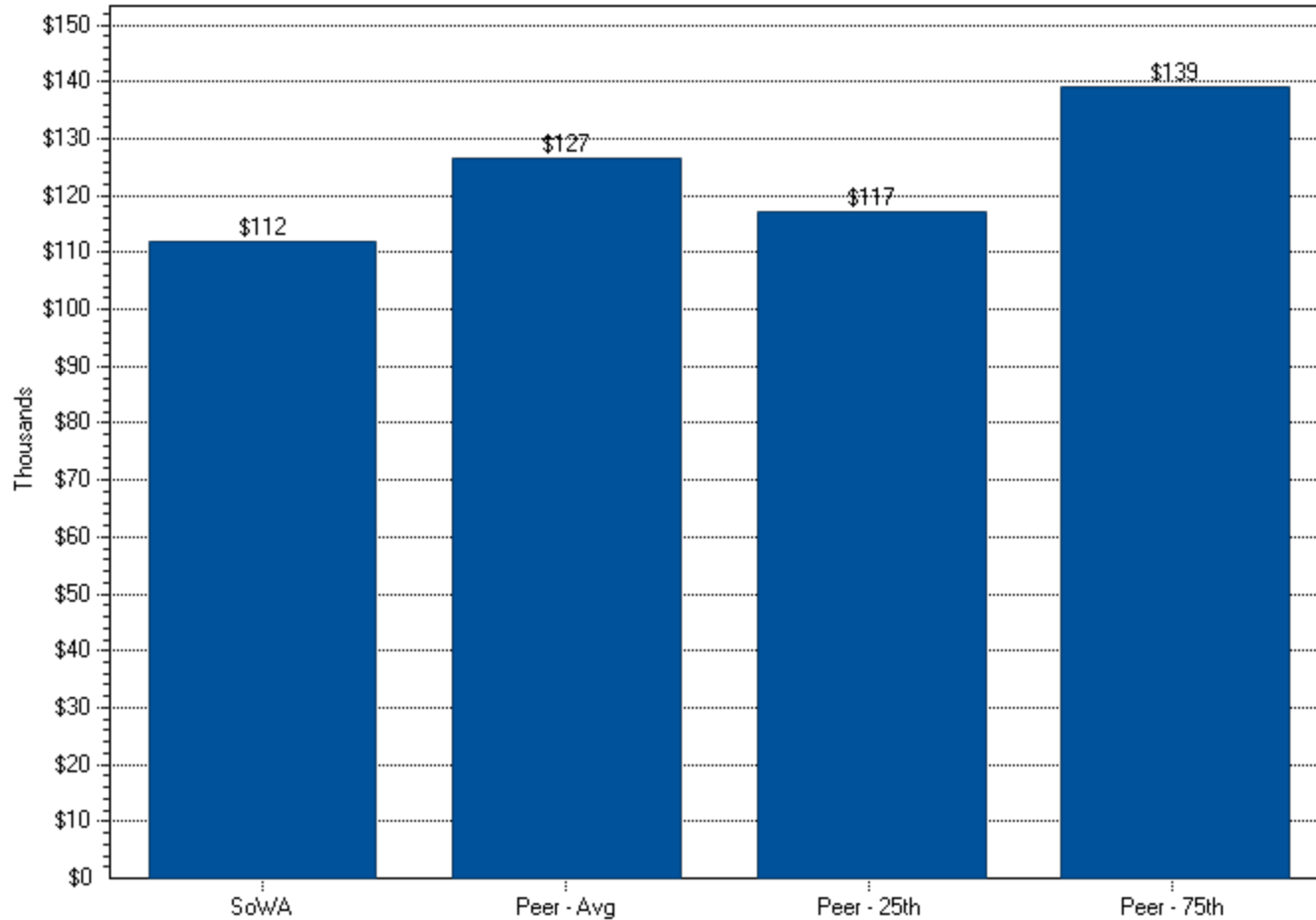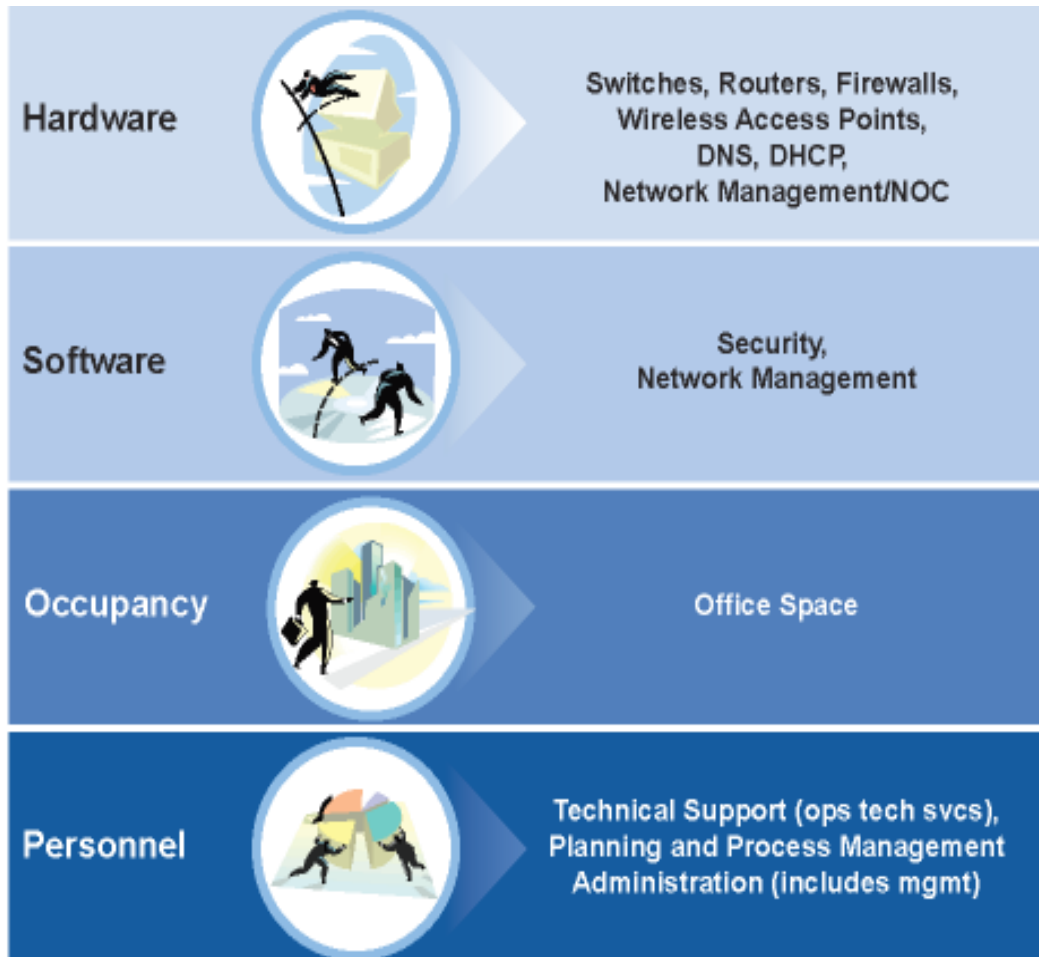
- **State of Washington**
  - 136,847 Active Ports
  - 56,235 Users
    - 2.43 Ports per User

- **Peer**
  - Average 130,693 Active Ports
  - Average 60,577 Users
    - Average 2.44 Ports per User
  - 10 Organizations
    - 6 Government, 2 Health Services, 1 Financial Services, 1 Transportation

Gartner

Local Area Network
Efficiency – Cost Per Active Port

Gartner.
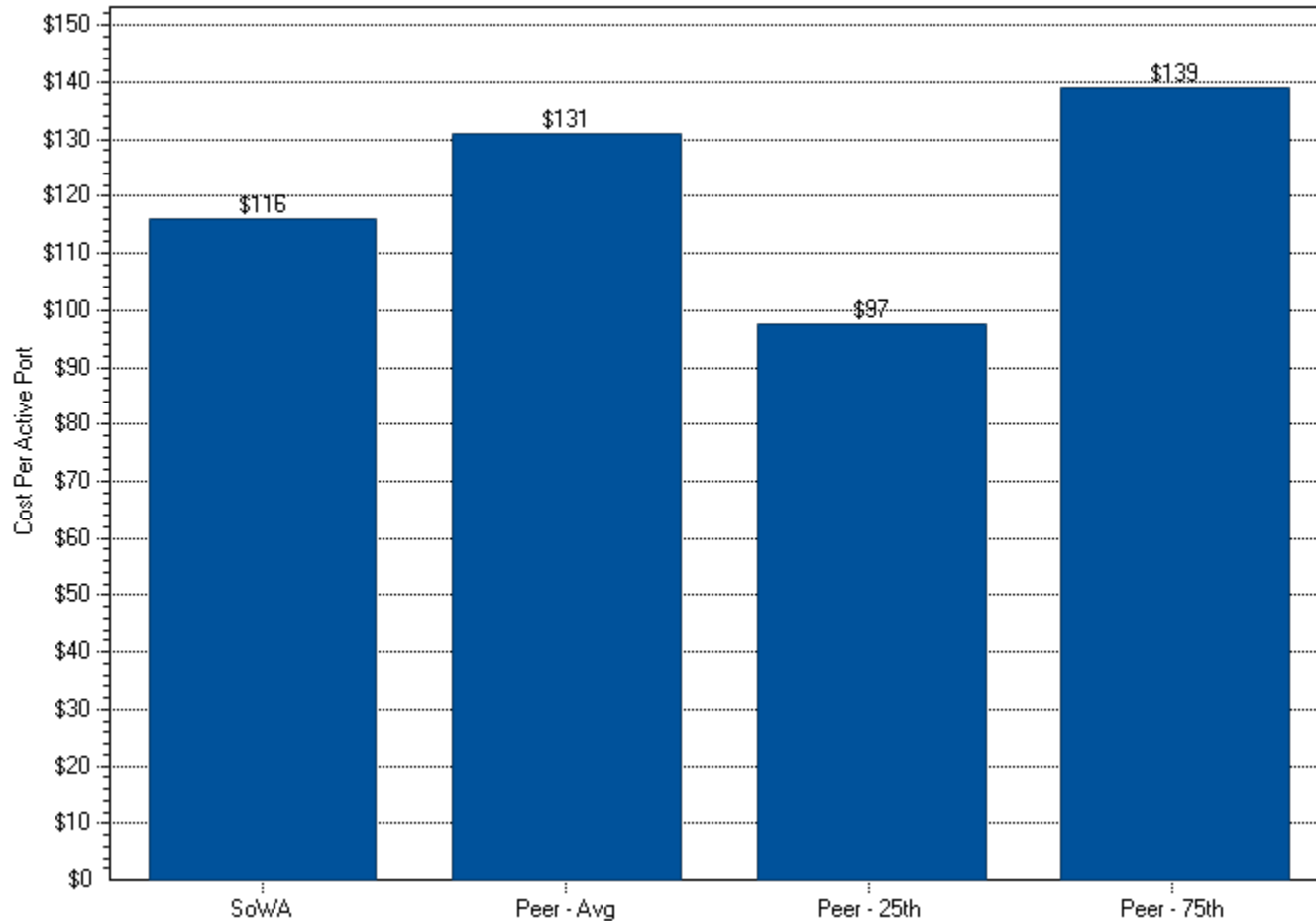
Local Area Network
Efficiency – Cost Per Active Port by Agency

Cost per Active Port

Gartner®
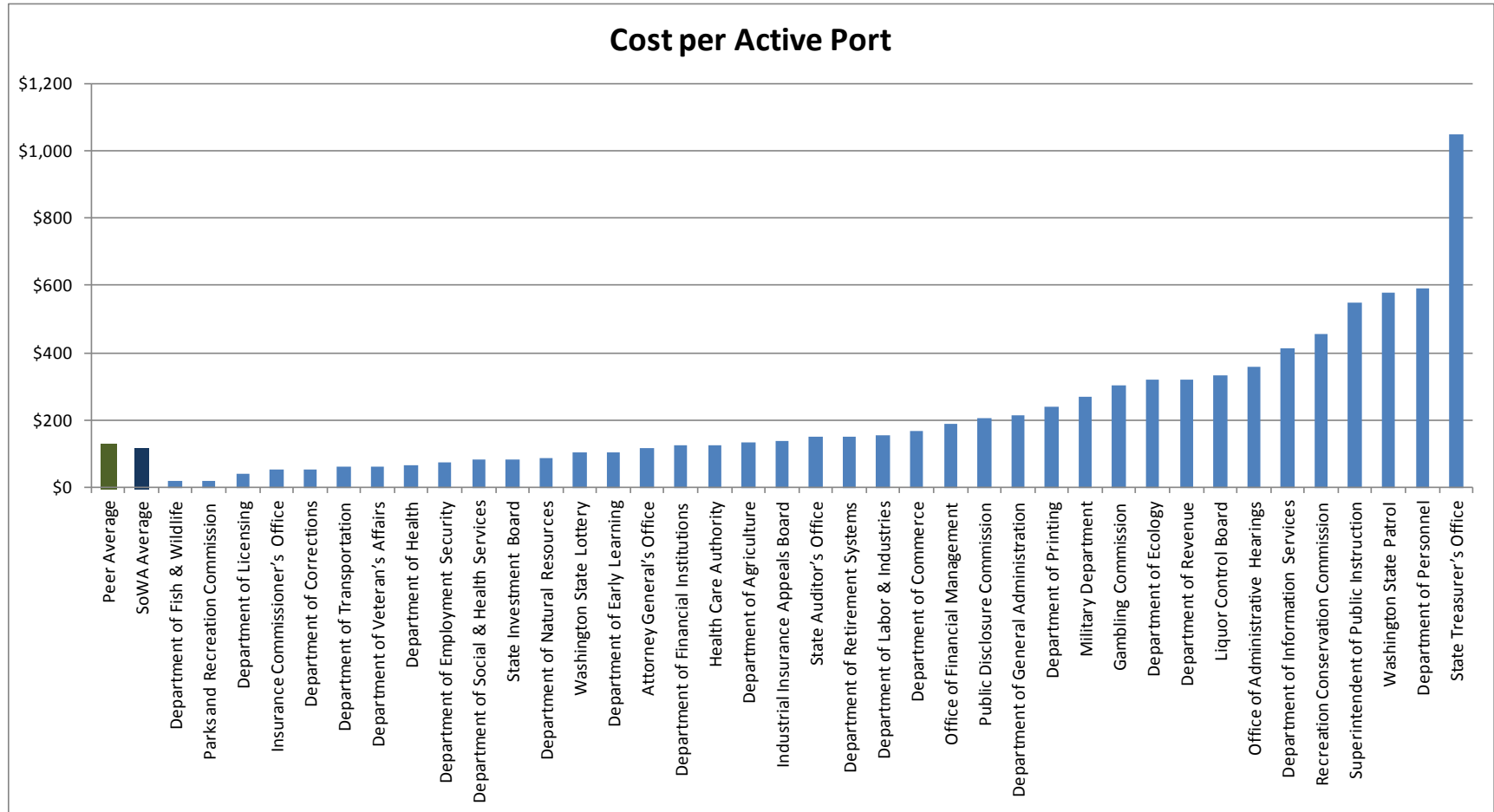
Local Area Network
IT Spending by Cost Category
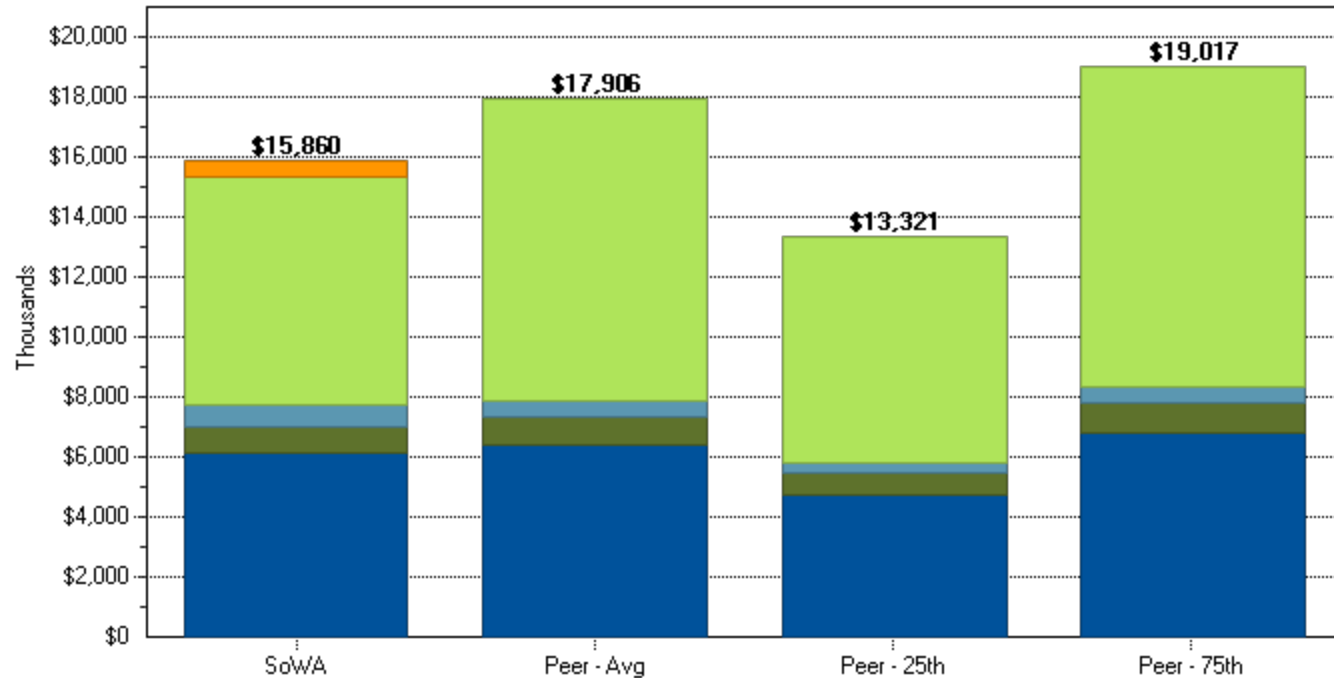
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$6,117	$6,393	$4,756	$6,790
Software	$855	$961	$715	$1,021
Occupancy	$737	$474	$353	$503
Personnel	$7,585	$10,077	$7,497	$10,703
Unallocated Total	$565			

Gartner

Local Area Network
Total Spending Gap to Peer by Agency

Total Gap to Peer

Washington State Patrol
Department of Ecology
Department of Information Services
Department of Revenue
Military Department
Department of Personnel
State Treasurer's Office
Liquor Control Board
Department of Labor & Industries
Superintendent of Public Instruction
Office of Administrative Hearings
Department of General Administration
Office of Financial Management
Recreation Conservation Commission
Gambling Commission
Department of Retirement Systems
Department of Commerce
Department of Printing
State Auditor's Office
Public Disclosure Commission
Industrial Insurance Appeals Board
Department of Agriculture
Department of Financial Institutions
Department of Early Learning
Washington State Lottery
State Investment Board
Health Care Authority
Insurance Commissioner's Office
Attorney General's Office
Department of Veteran's Affairs
Department of Natural Resources
Parks and Recreation Commission
Department of Health
Department of Employment Security
Department of Fish & Wildlife
Department of Licensing
Department of Corrections
Department of Social & Health Services
Department of Transportation

-$2,000   -$1,500   -$1,000   -$500 $0 $500 $1,000 $1,500 $2,000

Thousands

Gartner®

Local Area Network
Productivity – Active Ports Per Adjusted FTE

Gartner
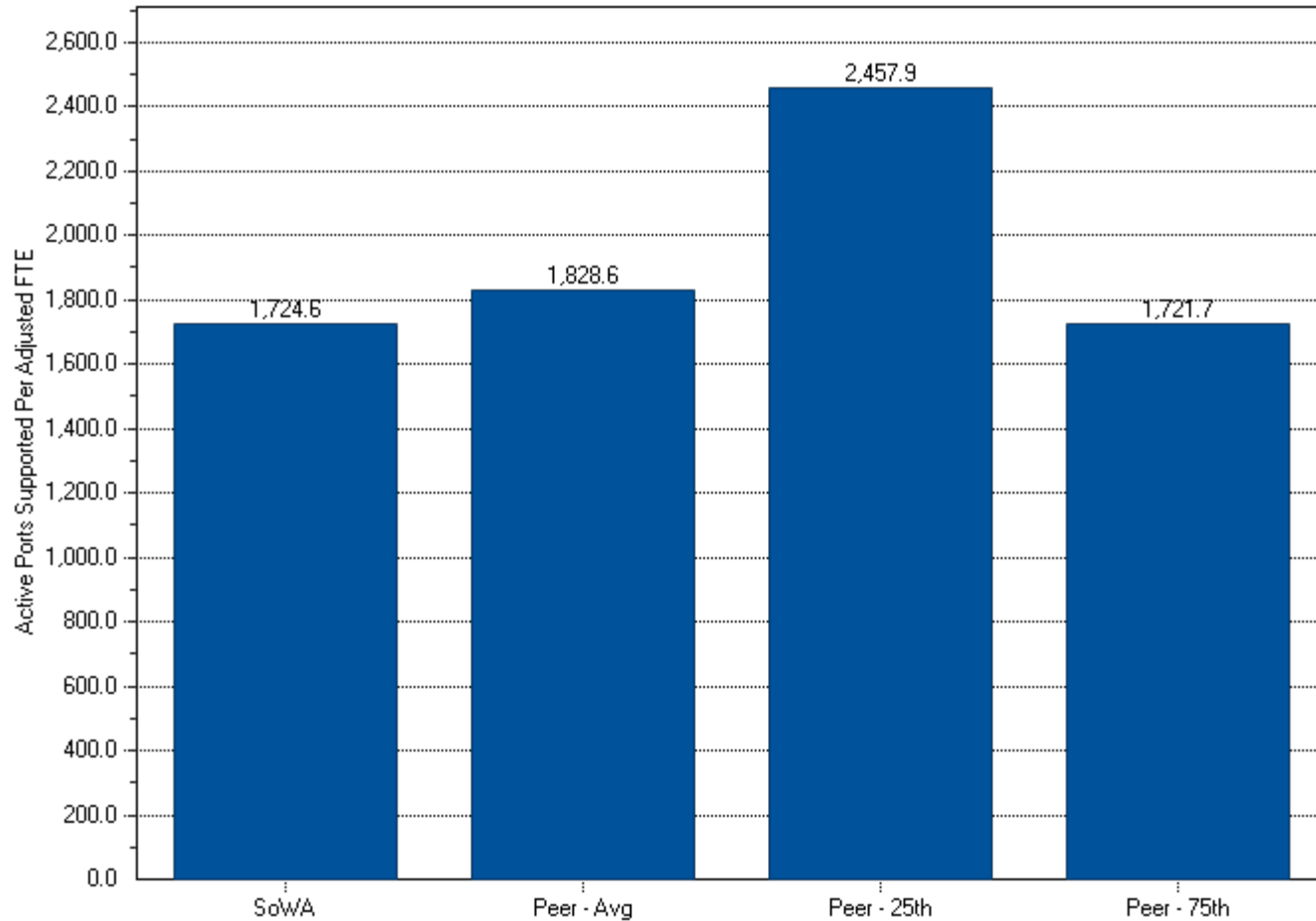
Local Area Network
IT Headcount (FTE) Total

Gartner
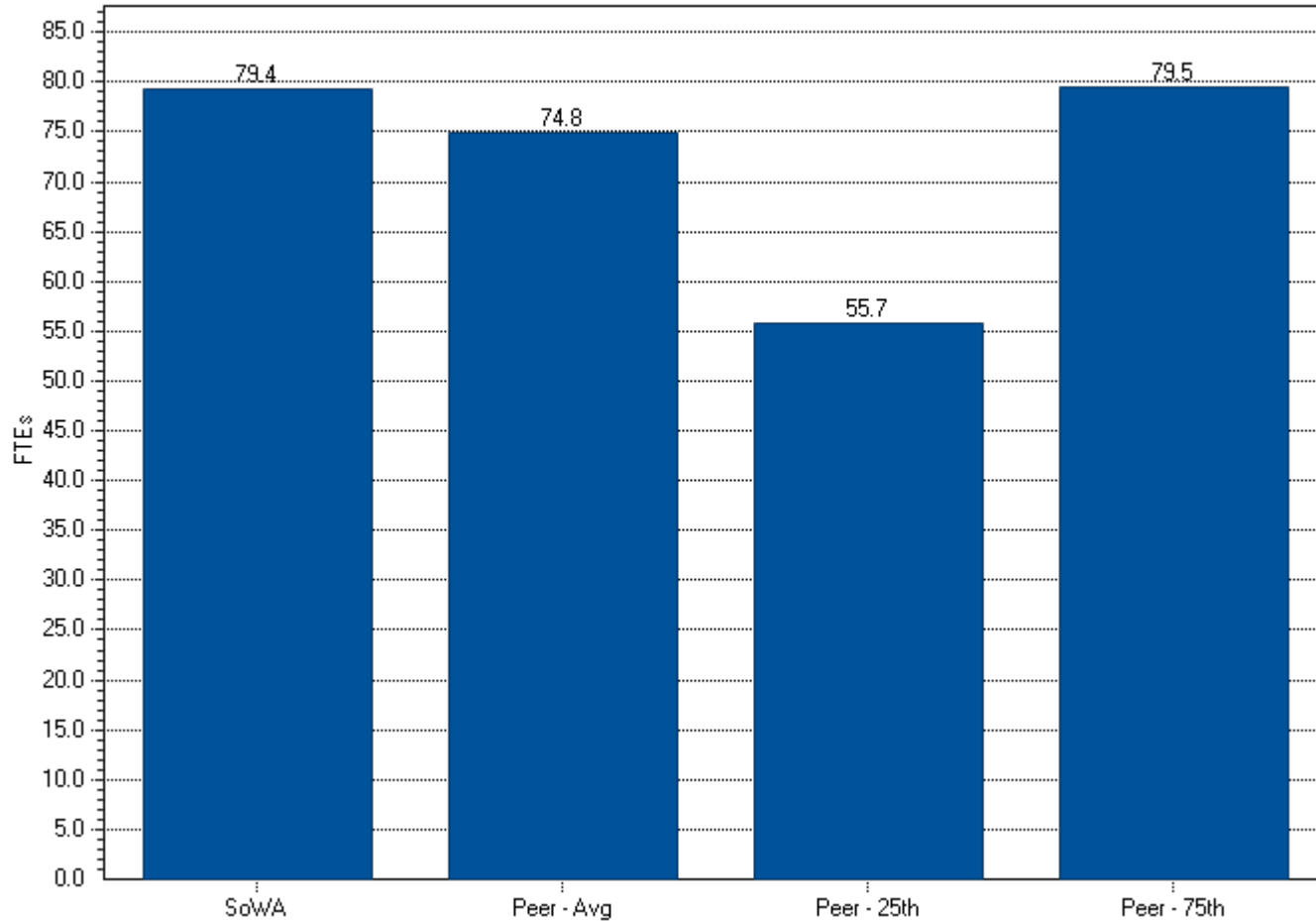
Local Area Network
Cost Per FTE – Insourced & Contractor Blended Total

Gartner

Internet Access

Gartner.
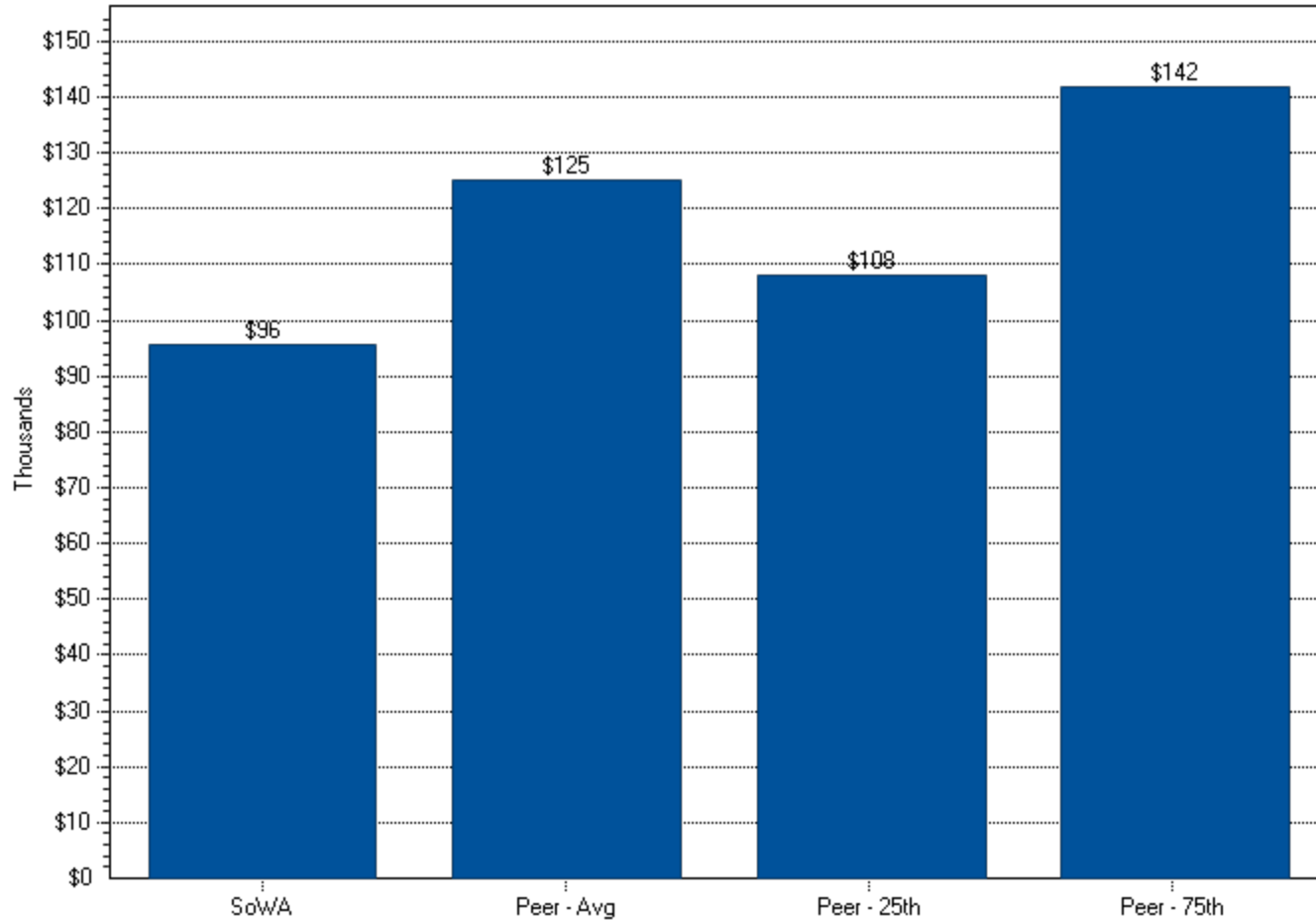
Internet Access
Consensus Model

Hardware	Security (Firewalls and Appliances), DNS, DHCP, Accelerators, IAS and Proxy Servers, Network Management/NOC
Software	Security, Network Management
Transmission	Internet Access and Usage
Occupancy	Office Space
Personnel	Technical Support (ops tech svcs), Planning and Process Management Administration (includes mgmt)
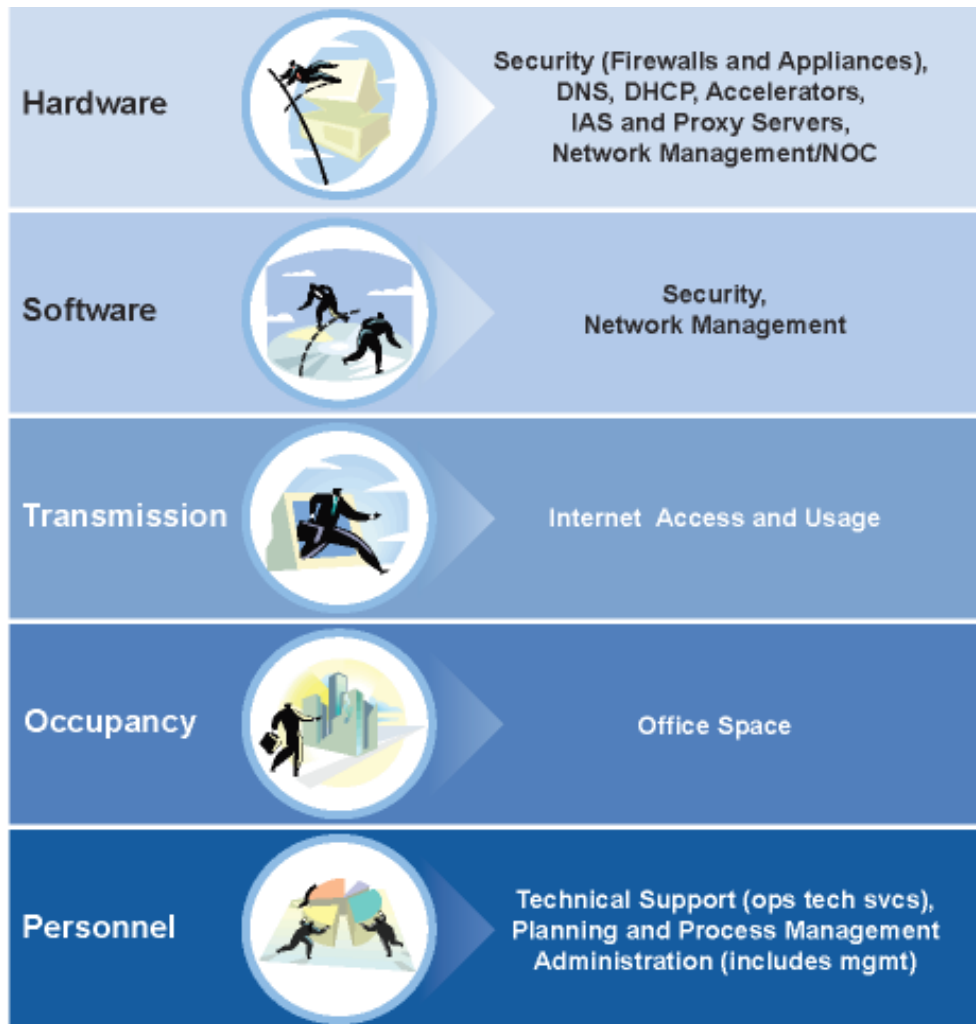
- **State of Washington**
  - 569 TB Traffic
  - 458 Sites with Dedicated Access
- **Peer**
  - Average 840 TB Traffic
  - Average 276 Sites with Dedicated Access
  - 9 Organizations
    - 5 Utilities, 4 Government

Gartner

Internet Access
Efficiency – Cost Per Traffic GB by Agency

Cost per GB Traffic

Gartner®
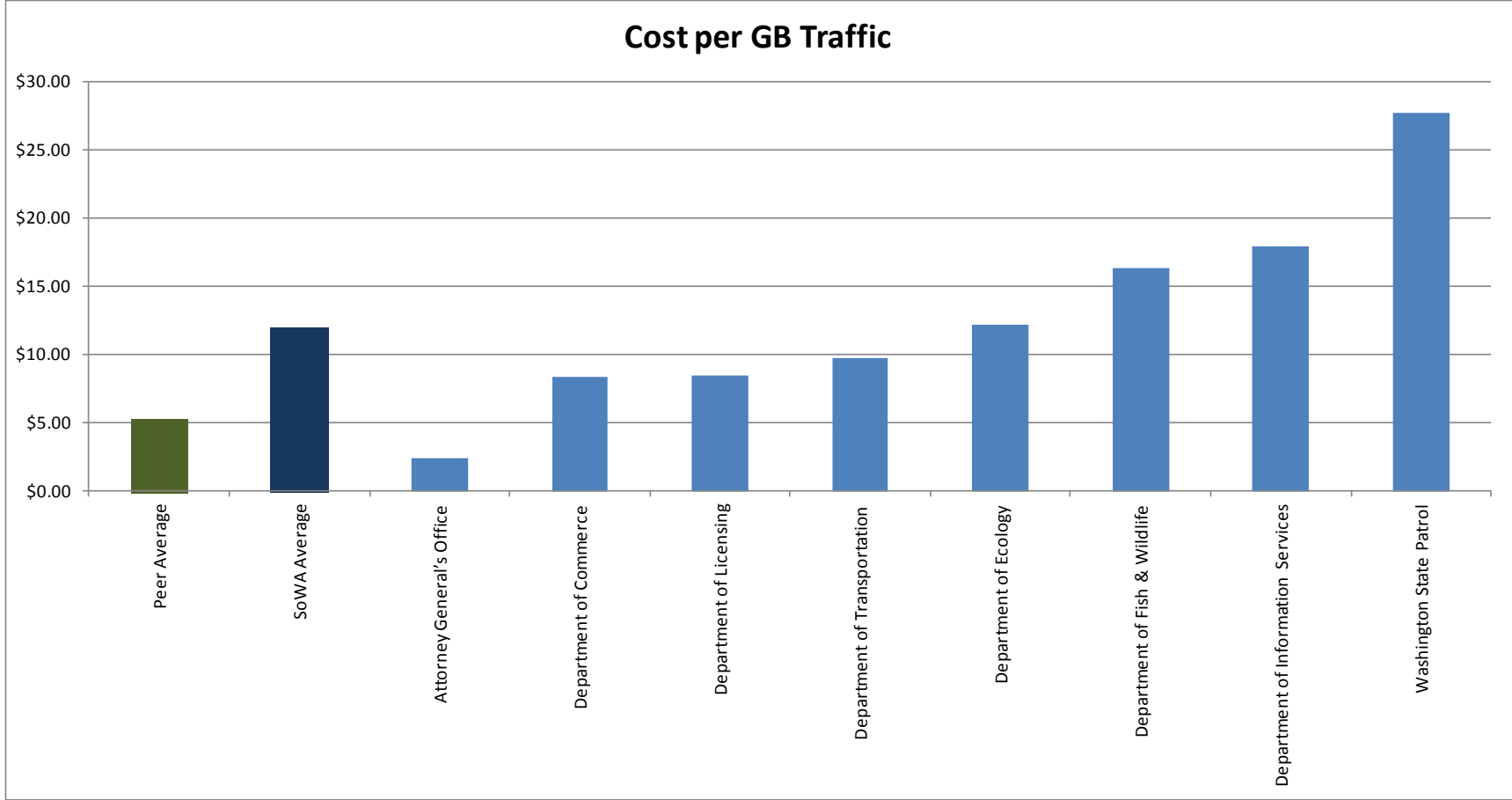
Internet Access
IT Spending by Cost Category
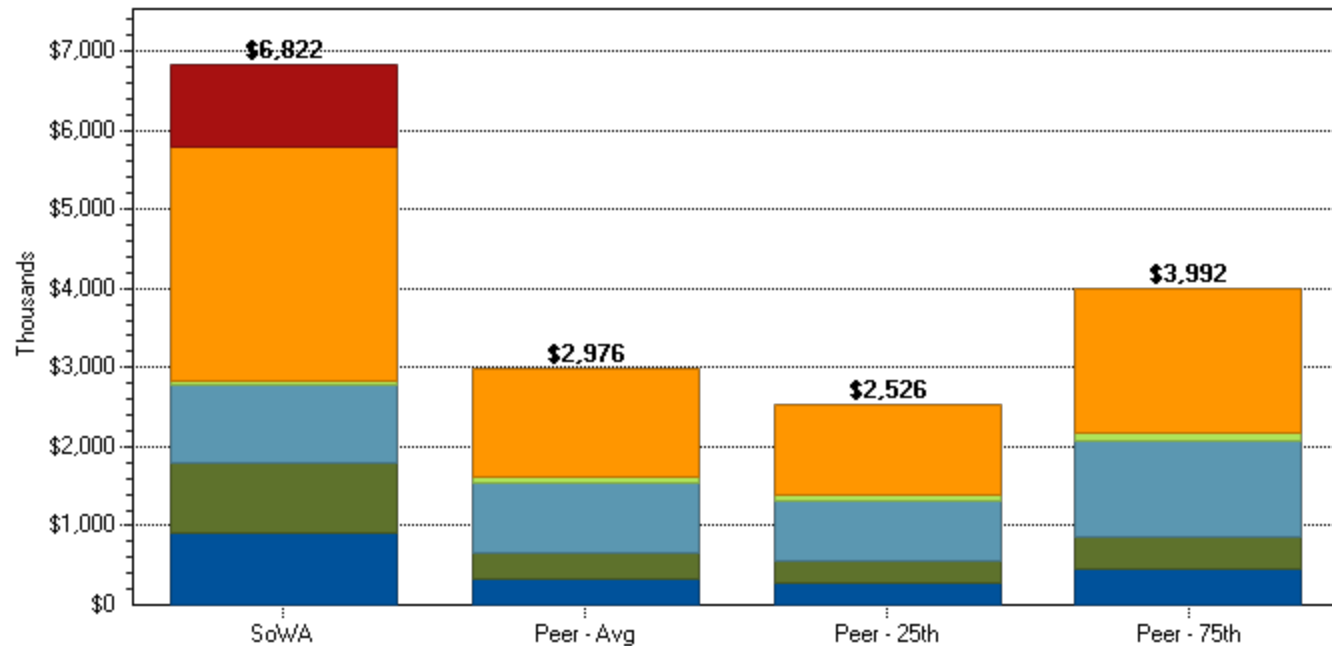
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$909	$332	$282	$445
Software	$897	$313	$266	$420
Transmission	$967	$906	$769	$1,216
Occupancy	$56	$75	$63	$100
Personnel	$2,948	$1,350	$1,146	$1,811
Unallocated Total	$1,045			

Gartner

Internet Access
Total Spending Gap to Peer by Agency

Total Gap to Peer

Agency	Thousands
Department of Information Services	~$2,850
Washington State Patrol	~$450
Department of Ecology	~$400
Department of Fish & Wildlife	~$330
Department of Transportation	~$140
Department of Licensing	~$100
Department of Commerce	~$40
Attorney General's Office	~-$450

Thousands

Gartner
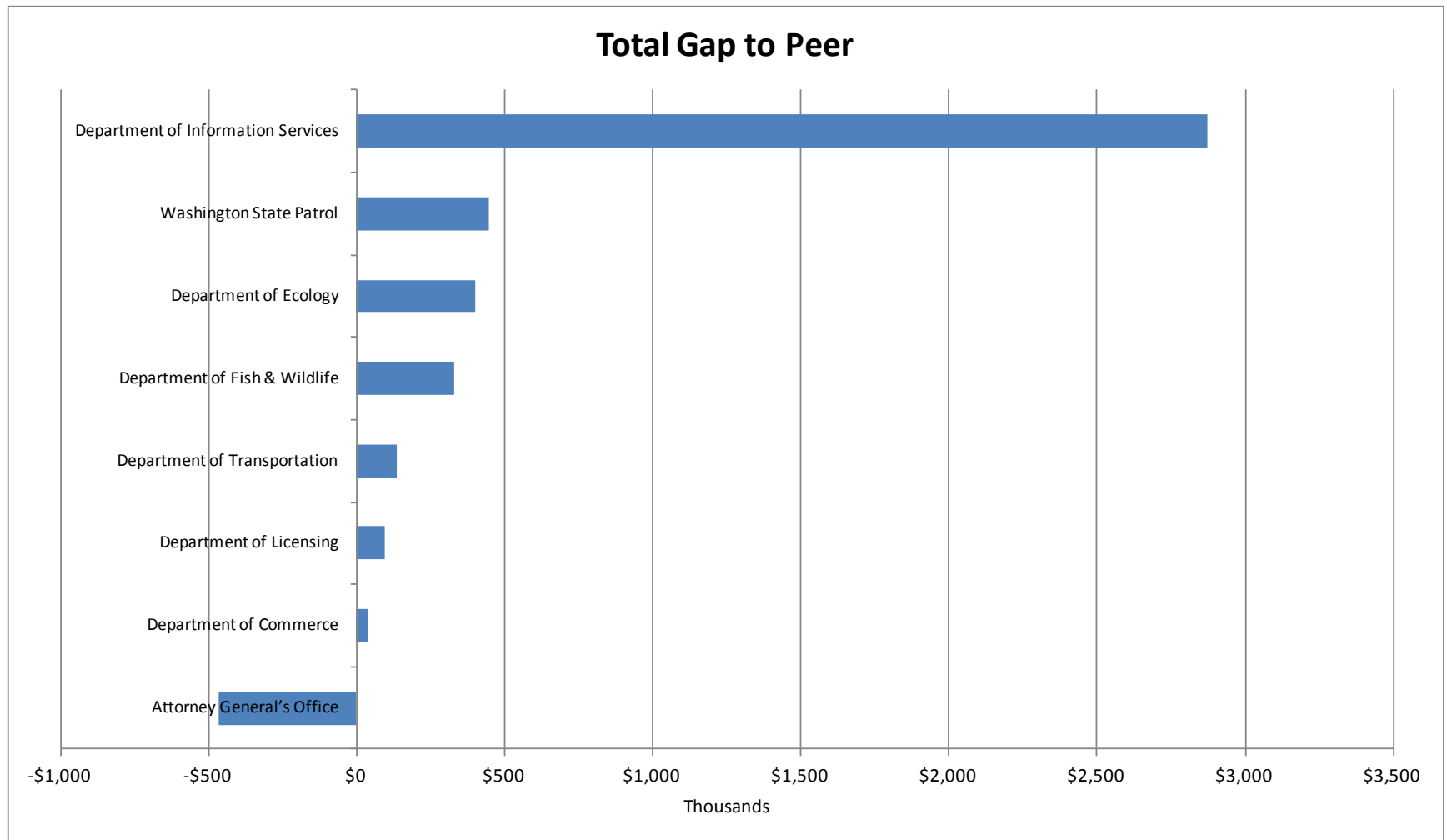
Internet Access
Productivity – Traffic GB Per Adjusted FTE

Gartner
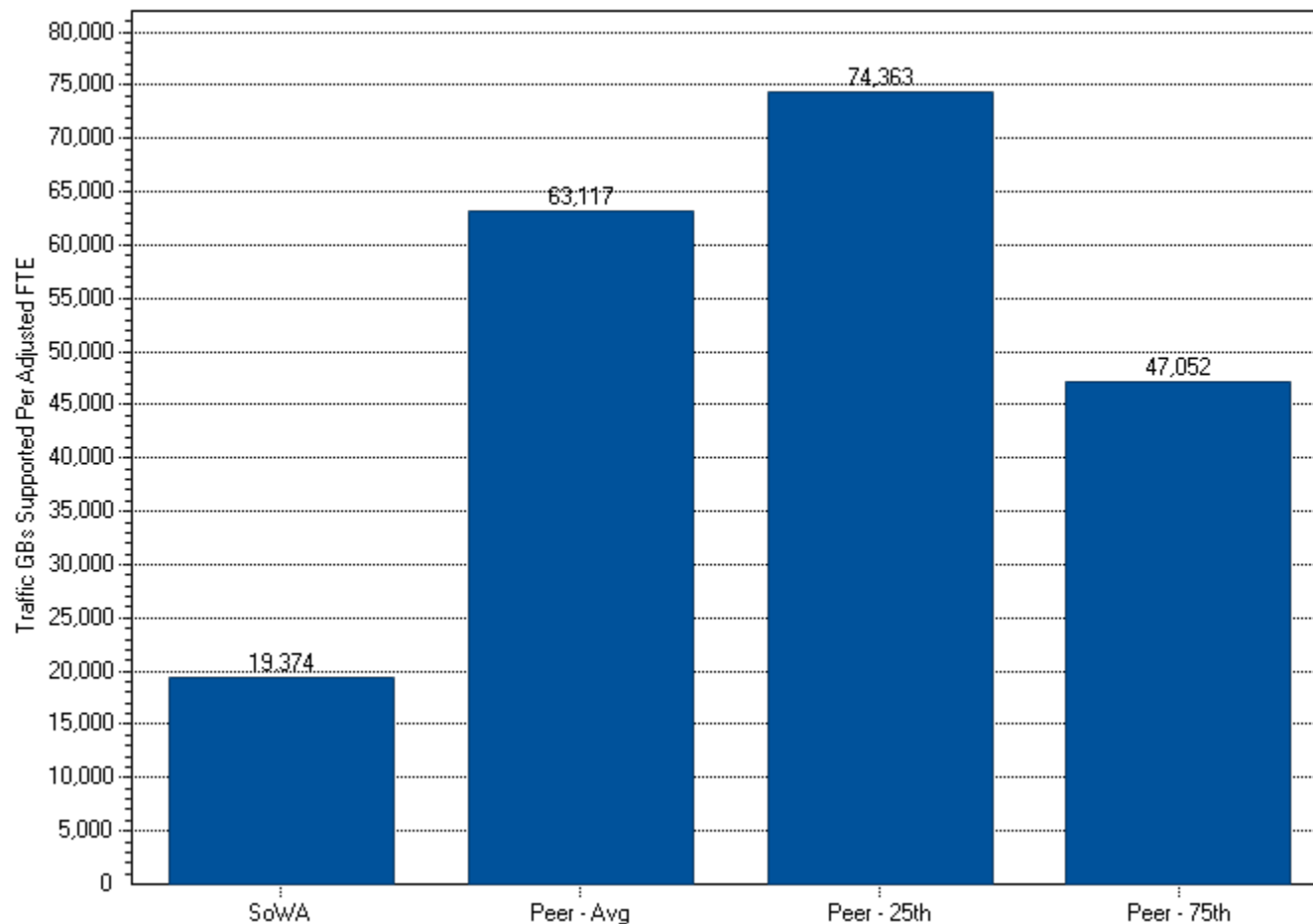
Internet Access
IT Headcount (FTE) Total

Gartner
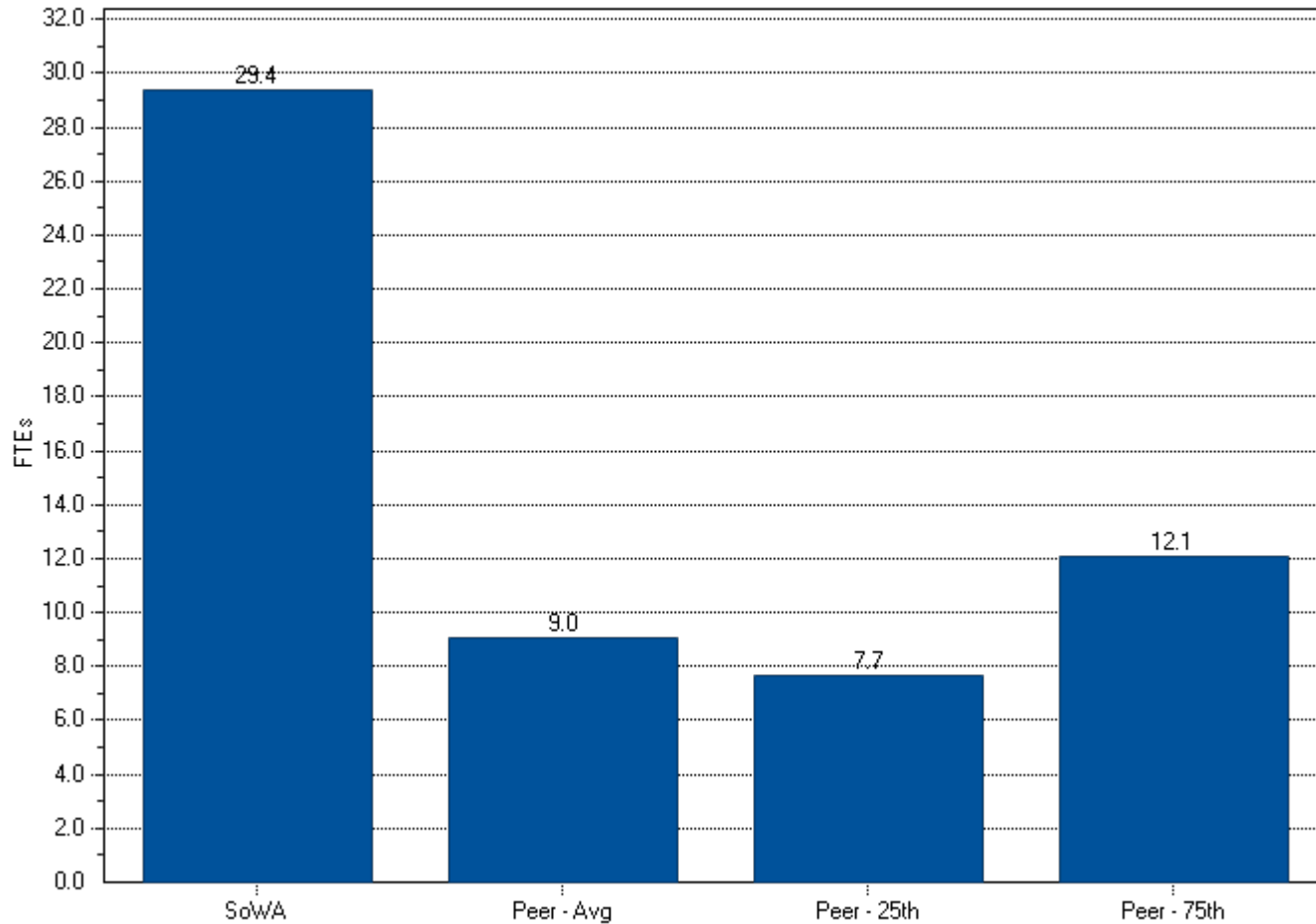
Internet Access
Cost Per FTE – Insourced & Contractor Blended Total

Gartner

Voice Premise Technology – Local Service

Gartner
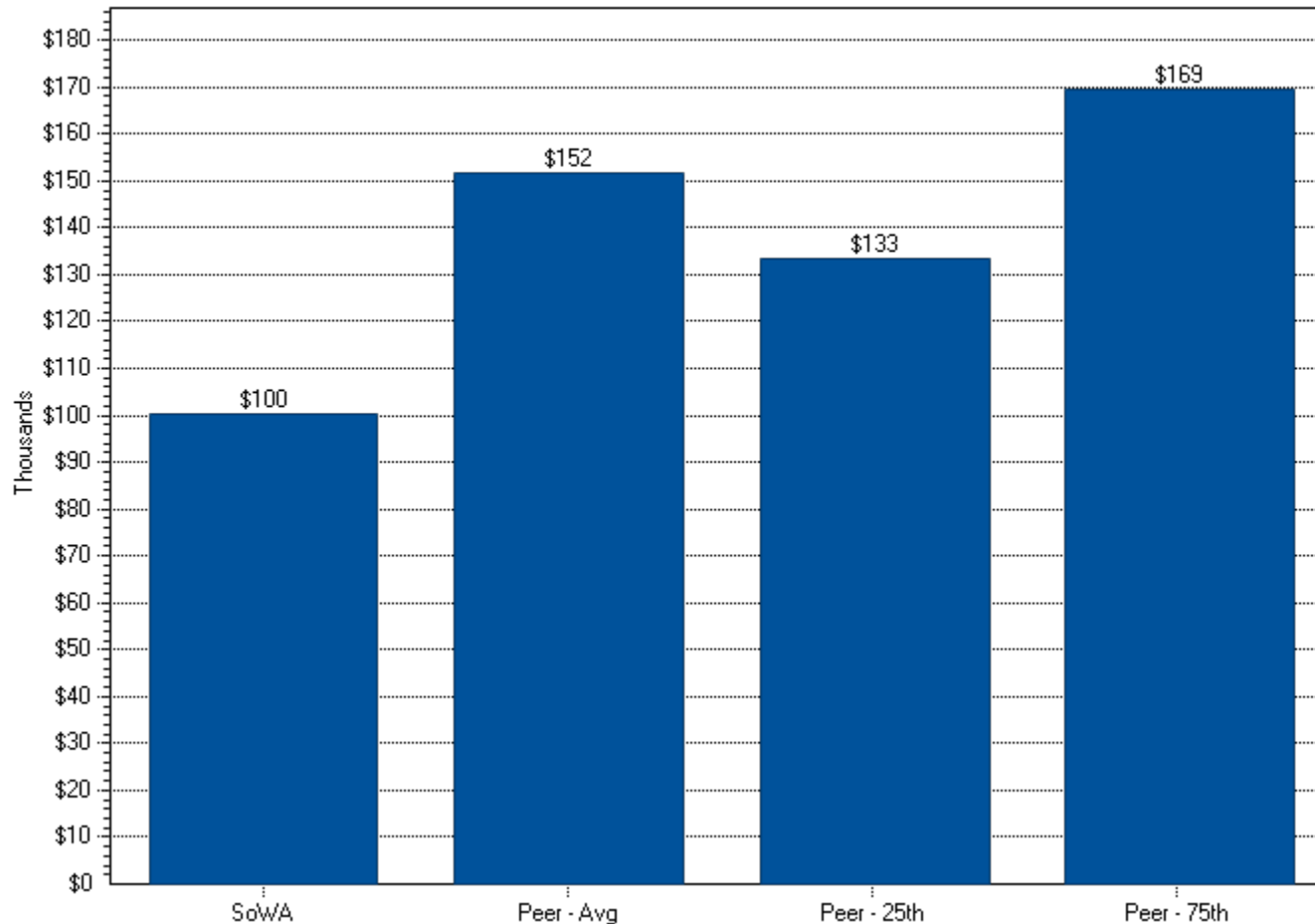
Voice Premise Technology – Local Service Consensus Model

Hardware	TDM PBX, VoIP/IPT Servers, Voicemail, Phones, MAC Supplies
Software	Voice Switch, VoIP/IPT Servers, Voicemail, Network Management, Chargeback
Transmission	Local Calling Trunk Lines, Number Blocks
Occupancy	Office Space
Personnel	Technical Support (ops tech svcs), Planning and Process Management Administration (includes mgmt)
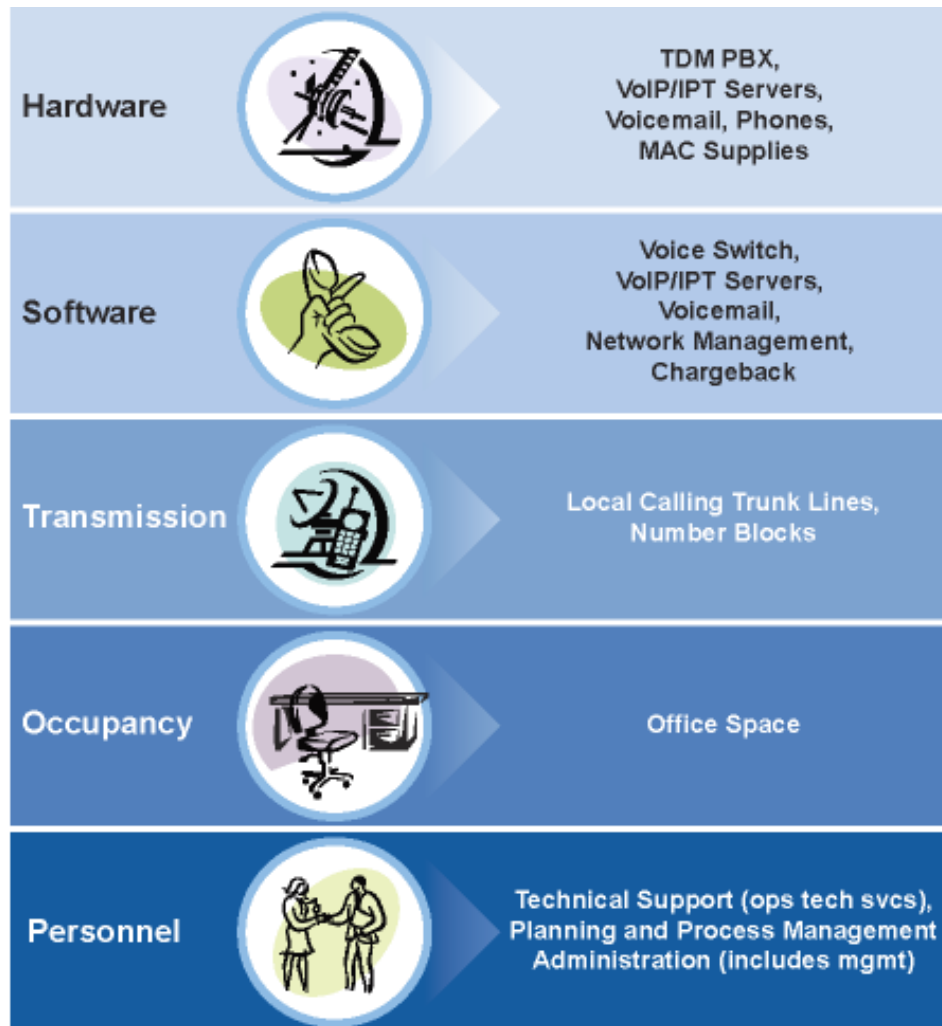
- **State of Washington**
  - 66,293 Active Extensions

- **Peer**
  - Average 44,777 Active Extensions
  - 10 Organizations
    - 3 Utilities, 2 Government, 2 Health Services, 1 Financial Services, 1 Insurance, 1 Publishing

Gartner

Voice Premise Technology – Local Service Efficiency – Cost Per Extension

Gartner
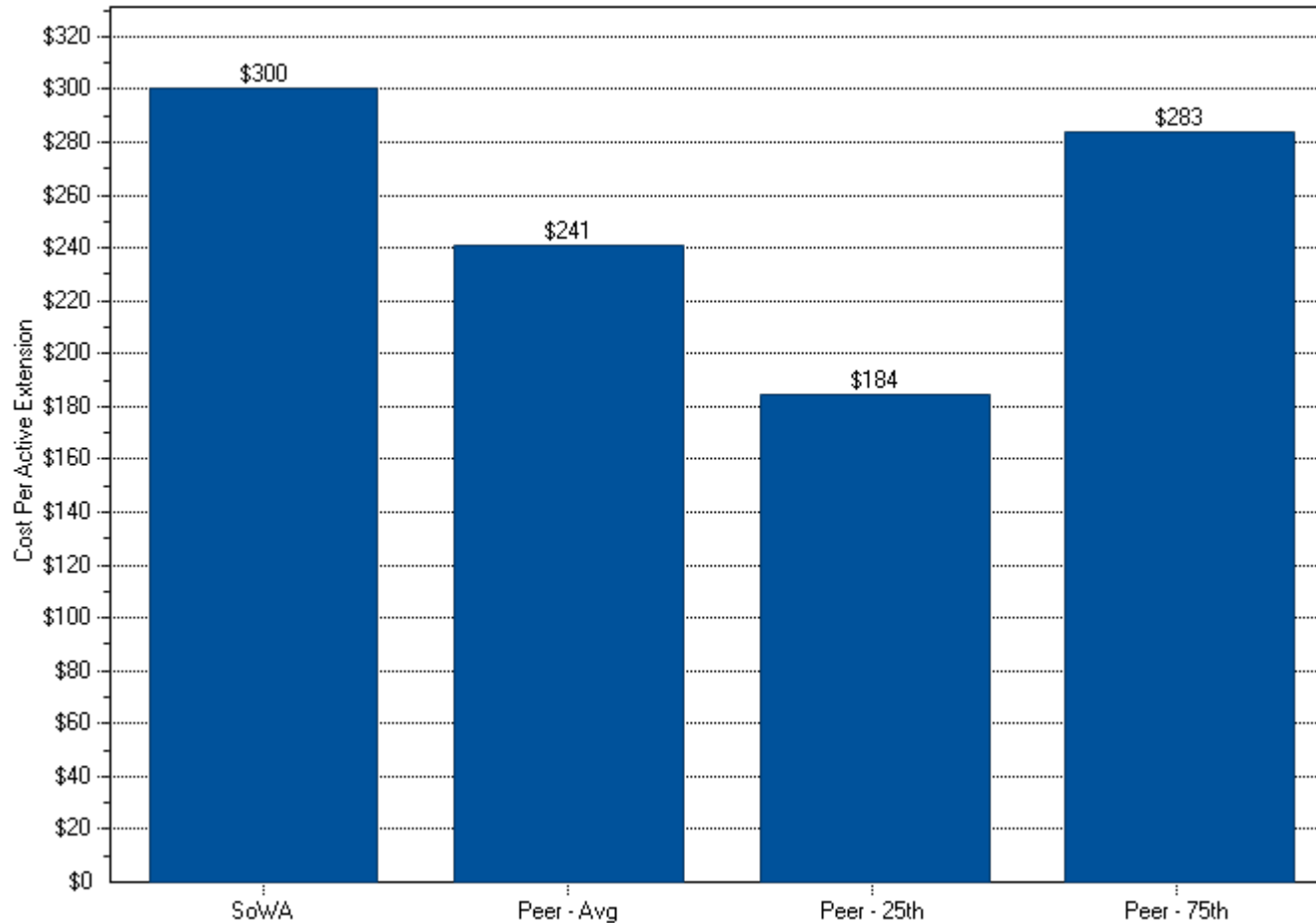
Voice Premise Technology – Local Service Efficiency – Cost Per Extension by Agency

Cost per Extension

Gartner
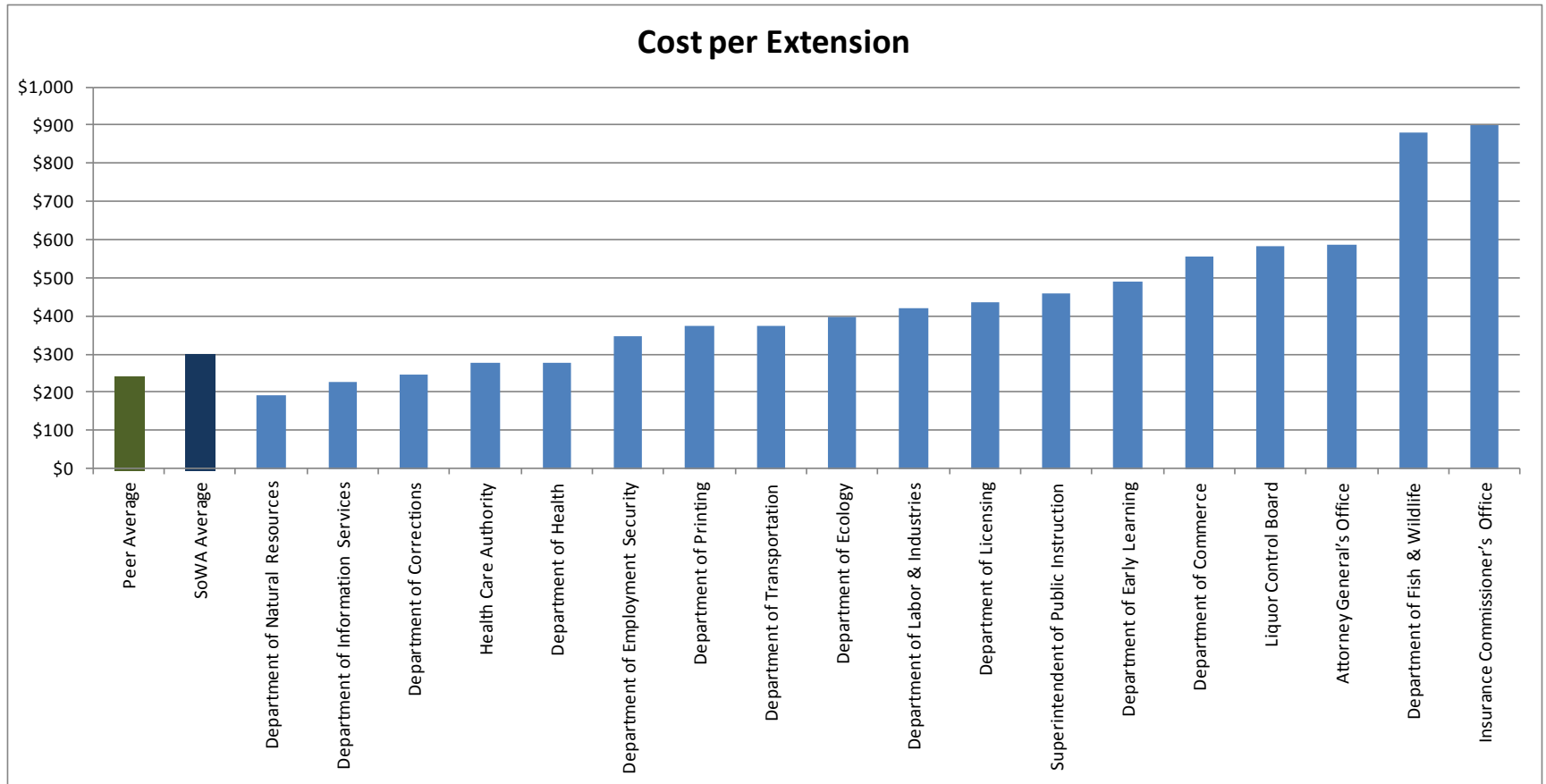
Voice Premise Technology – Local Service
IT Spending by Cost Category
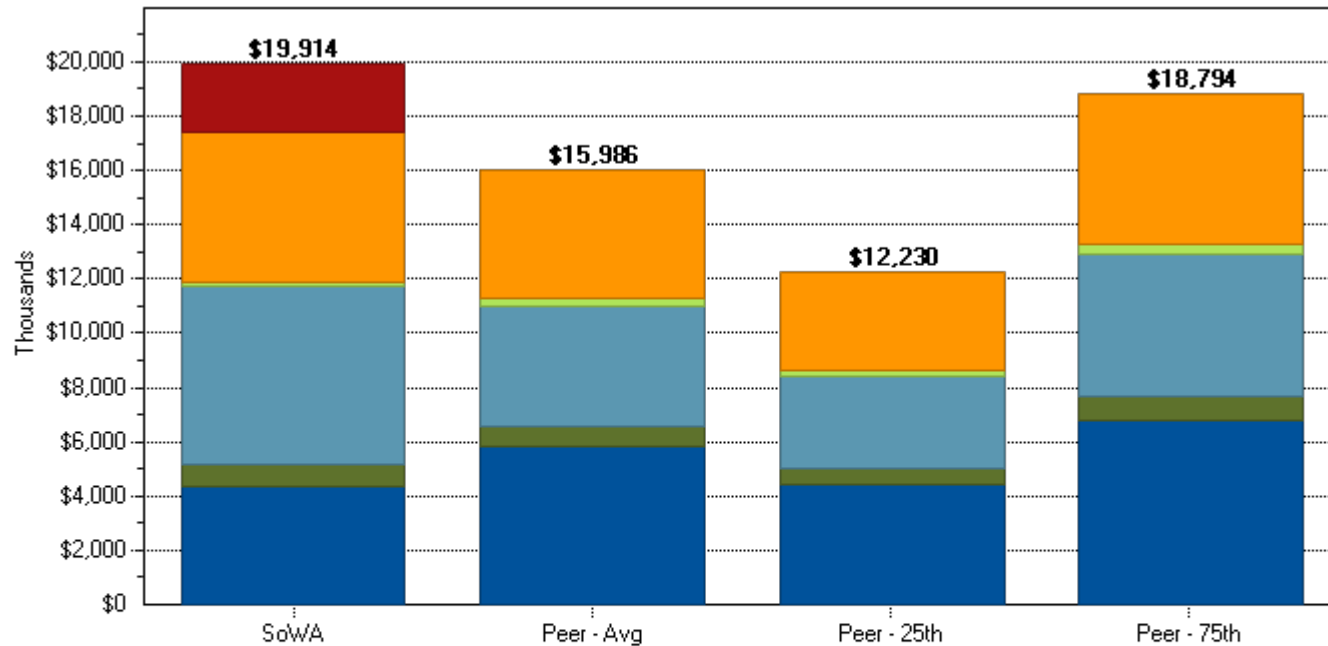
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$4,341	$5,791	$4,430	$6,808
Software	$816	$764	$584	$898
Transmission	$6,578	$4,423	$3,384	$5,200
Occupancy	$172	$298	$228	$351
Personnel	$5,518	$4,711	$3,604	$5,538
Unallocated Total	$2,489			

Gartner

Voice Premise Technology – Local Service
Total Spending Gap to Peer by Agency

Total Gap to Peer

Agency	
Department of Transportation	
Department of Labor & Industries	
Department of Fish & Wildlife	
Attorney General's Office	
Department of Ecology	
Department of Employment Security	
Insurance Commissioner's Office	
Liquor Control Board	
Department of Commerce	
Health Care Authority	
Superintendent of Public Instruction	
Department of Health	
Department of Early Learning	
Department of Corrections	
Department of Licensing	
Department of Printing	
Department of Natural Resources	
Department of Information Services	

Thousands

-$600   -$400   -$200 $0 $200 $400 $600 $800 $1,000

Gartner

Voice Premise Technology – Local Service Productivity – Extensions Per Adjusted FTE

Gartner
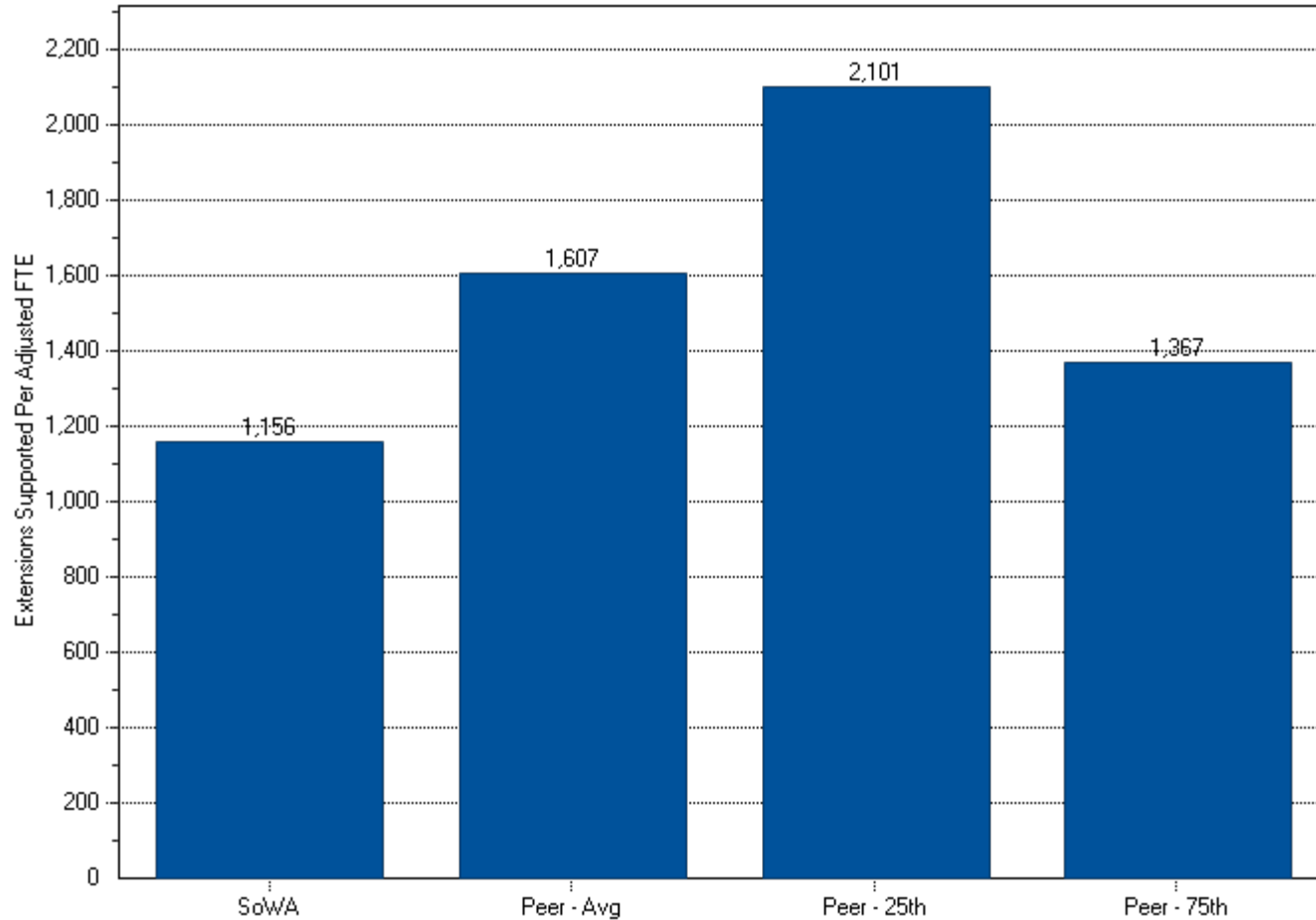
Voice Premise Technology – Local Service
IT Headcount (FTE) Total

Gartner®
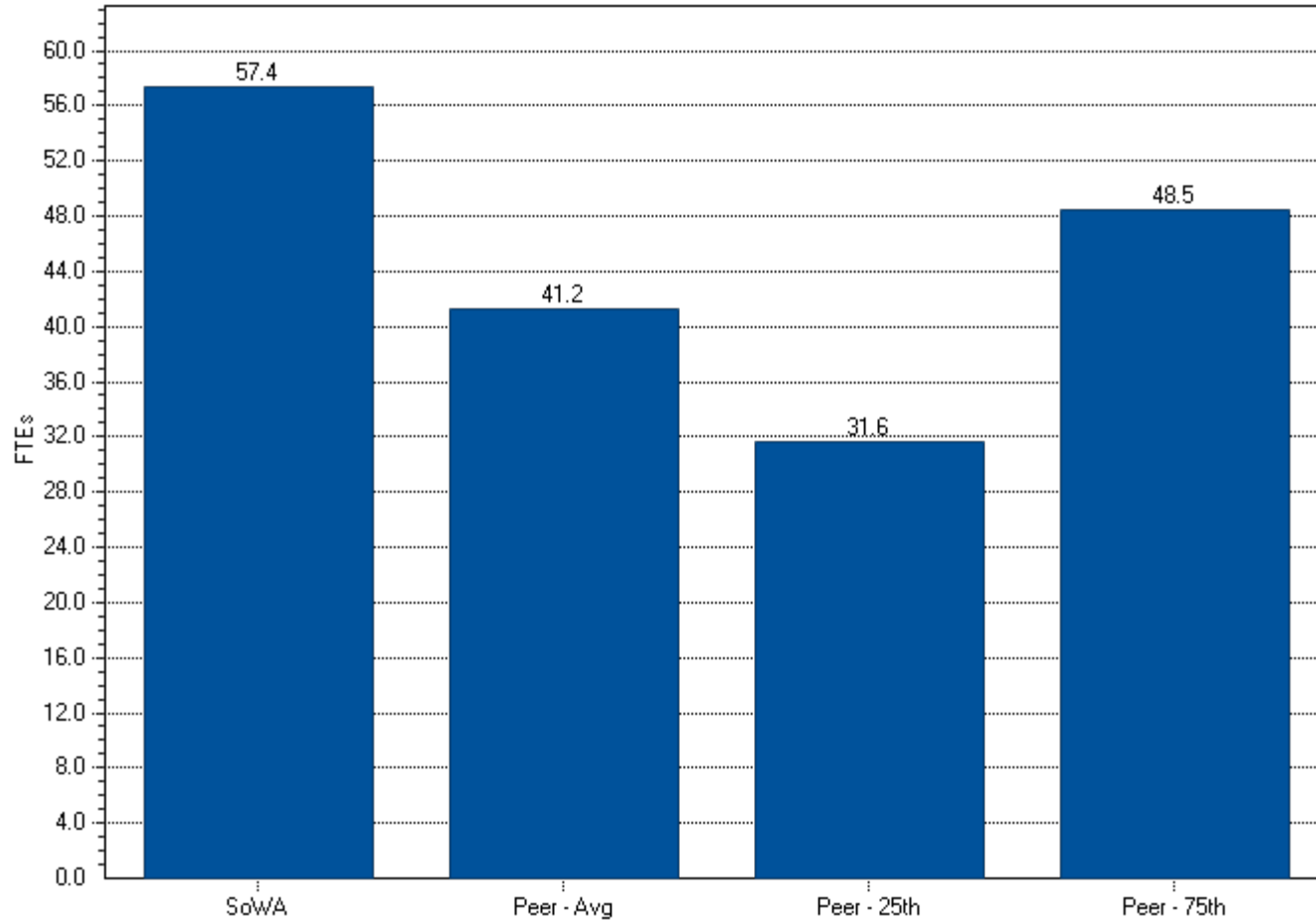
Voice Premise Technology – Local Service
Cost Per FTE – Insourced & Contractor Blended Total
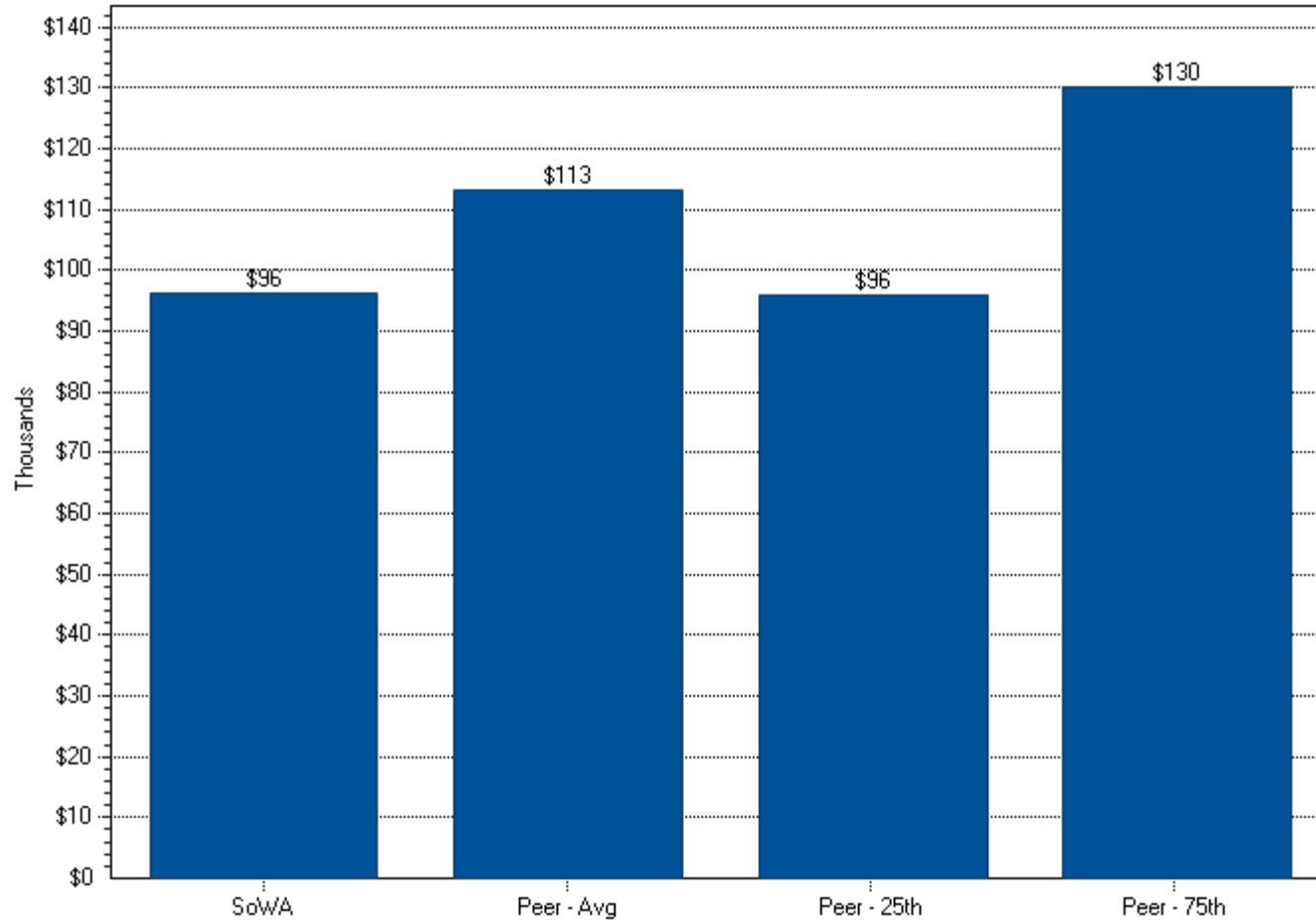
Gartner®

Voice Network – Public & Private Long Distance

Gartner®

Voice Network – Public & Private Long Distance Consensus Model

Hardware		Trunk Interface Cards, Private Network Hardware, Tandem Switches, MUXs, Channel Banks
Software		Voice Network Management, Chargeback
Transmission		Access Lines, Outbound and Inbound Usage, Leased Lines, Client Owned and Maintained Transmission Facilities
Occupancy		Office Space
Personnel		Technical Support (ops tech svcs), Planning and Process Management Administration (includes mgmt)

- **State of Washington**
  - 104.2M Call Minutes

- **Peer**
  - Average 122.3M Call Minutes
  - 16 Organizations (Mix of Public & Private Networks)
    - Private: 6 Utilities
    - Public: 6 Utilities, 2 Government, 1 Health Services, 1 Publishing

Gartner

Voice Network – Public & Private Long Distance Efficiency – Cost Per Minute

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Cost per Minute

Gartner®
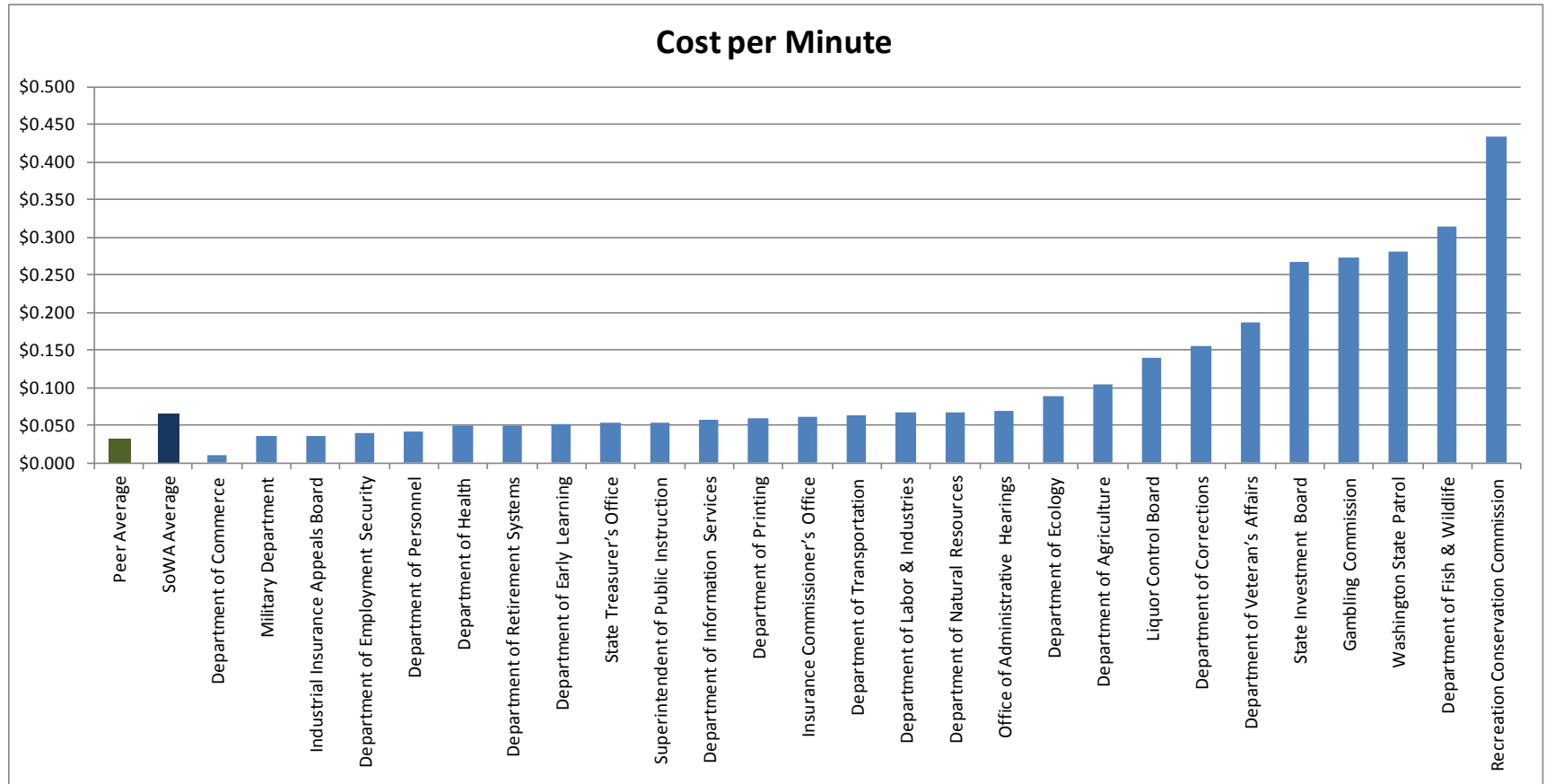
Voice Network – Public & Private Long Distance
IT Spending by Cost Category
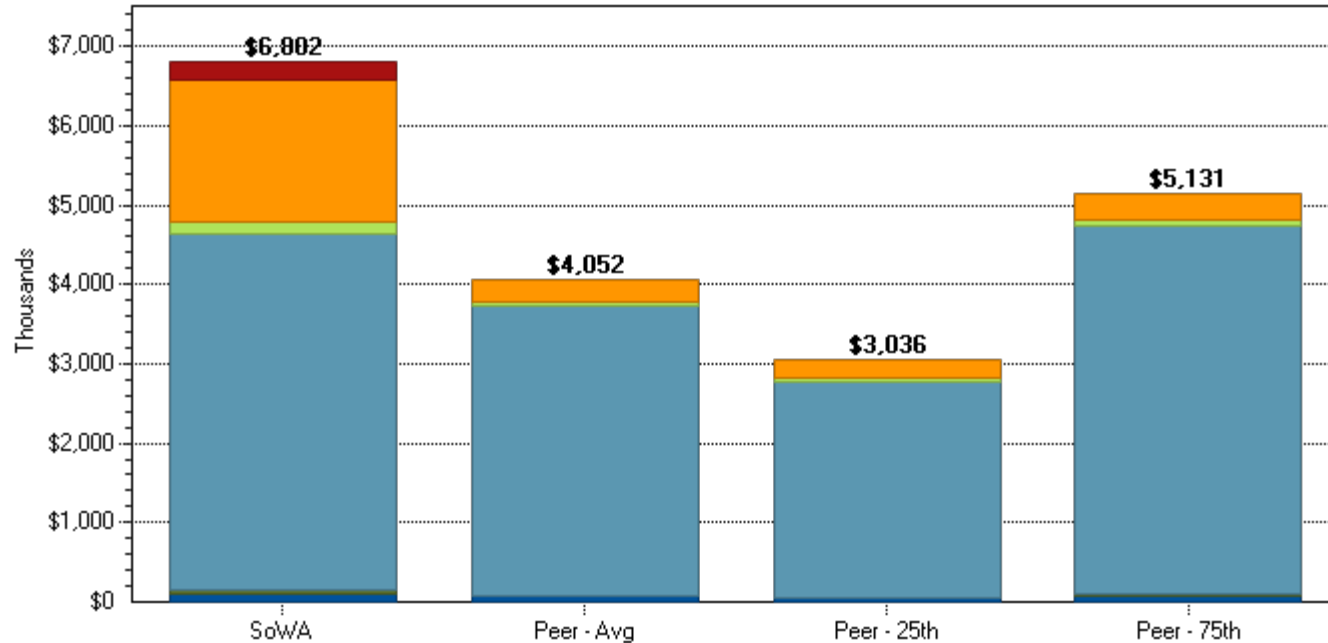
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Hardware	$107	$70	$58	$87
Software	$41	$5	$4	$6
Transmission	$4,482	$3,656	$2,703	$4,638
Occupancy	$162	$57	$47	$70
Personnel	$1,780	$265	$222	$330
Unallocated Total	$230			

Gartner.

Voice Network – Public & Private Long Distance
Total Spending Gap to Peer by Agency

Total Gap to Peer

Gartner®
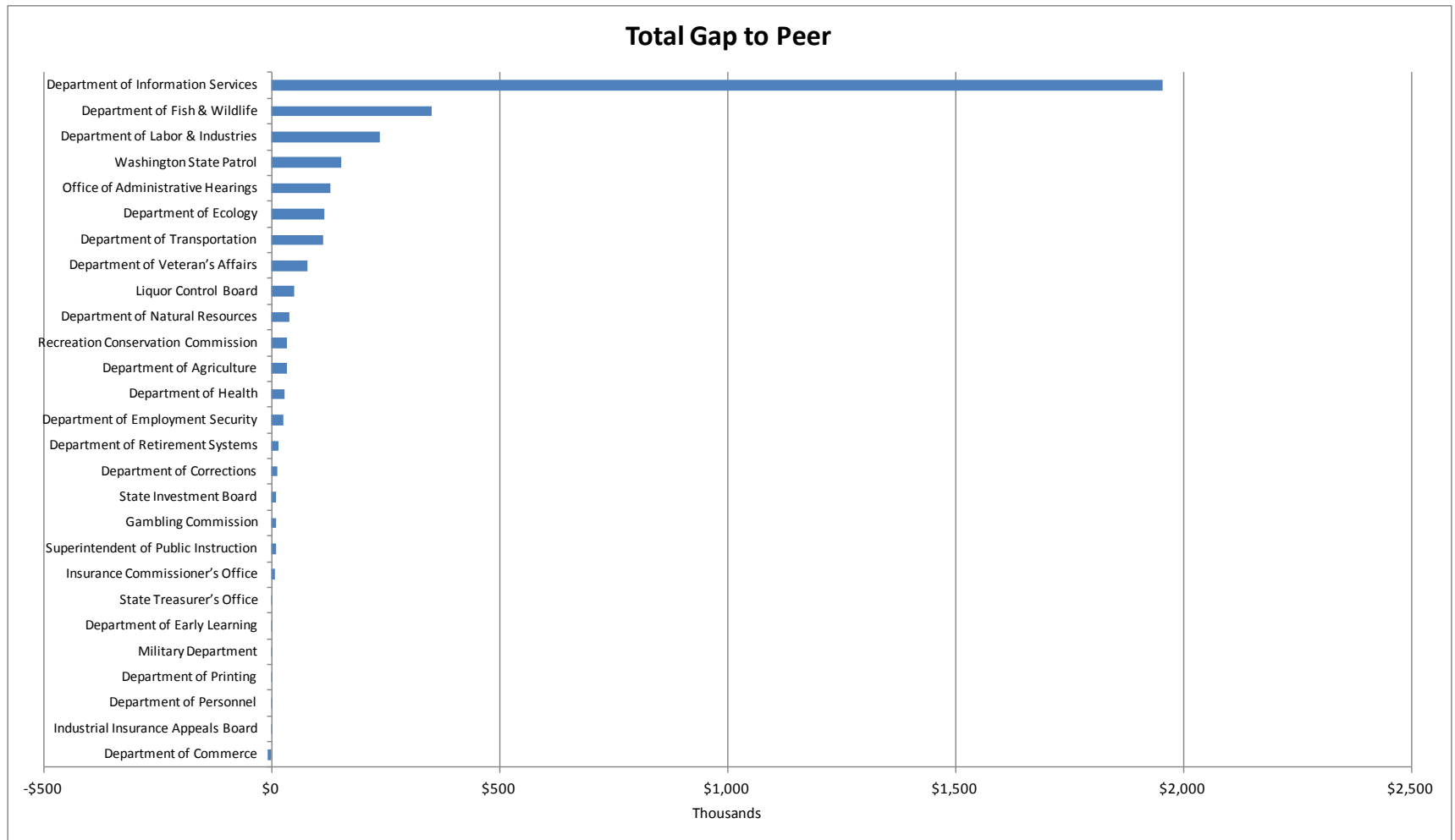
Voice Network – Public & Private Long Distance Productivity – Minutes Per Adjusted FTE

Gartner
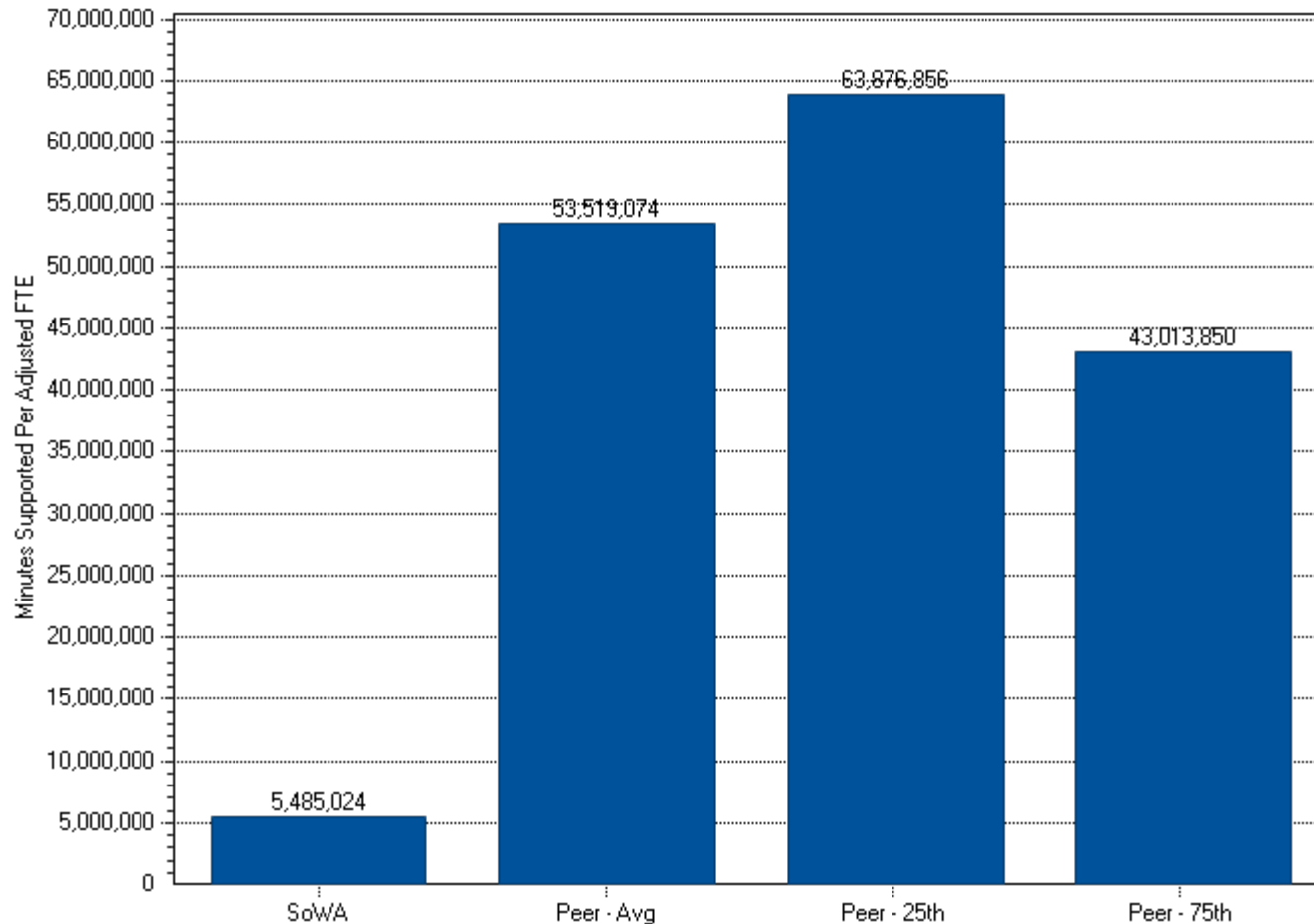
Voice Network – Public & Private Long Distance
IT Headcount (FTE) Total

Gartner®
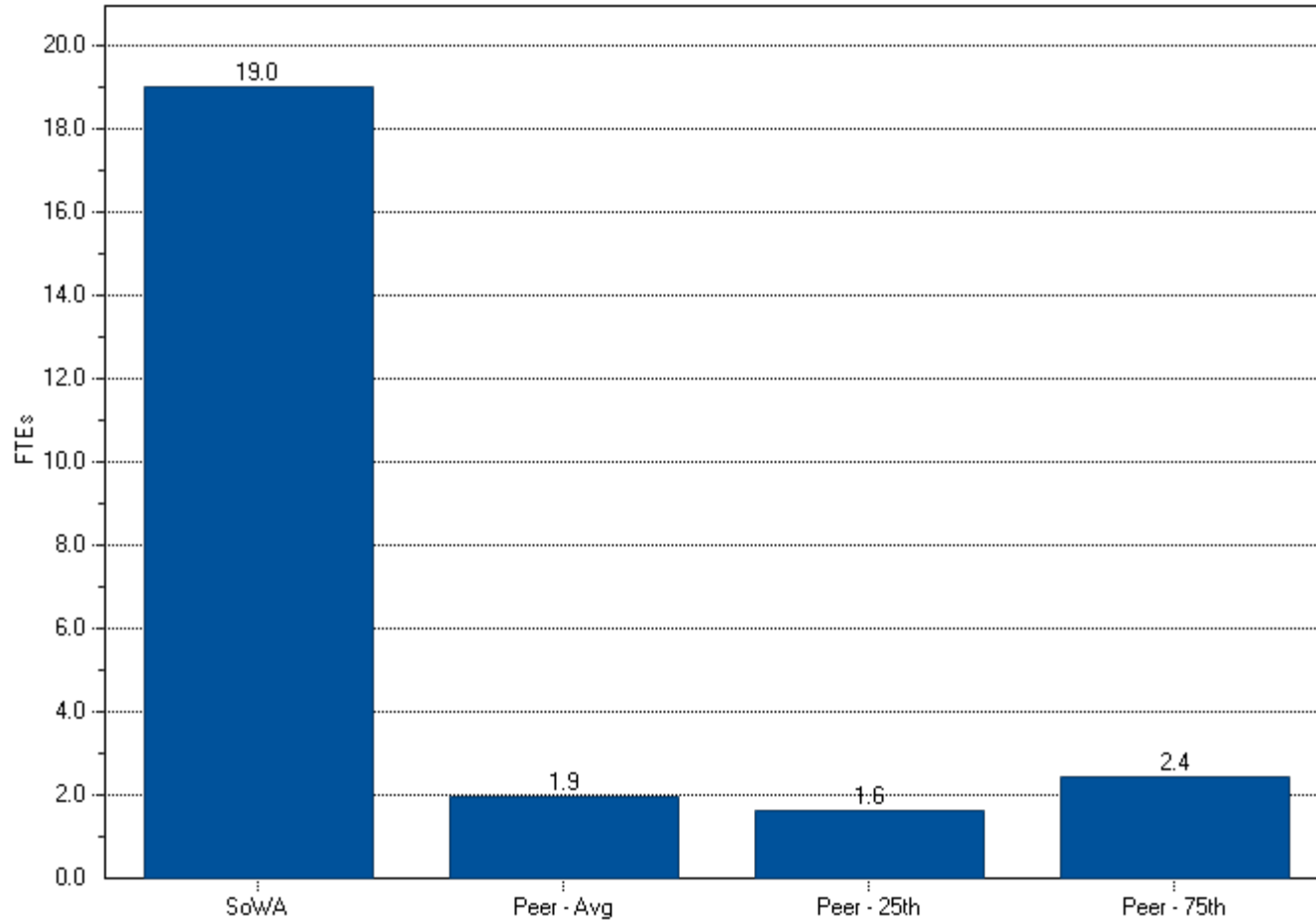
Voice Network – Public & Private Long Distance
Cost Per FTE – Insourced & Contractor Blended Total

Gartner

Application Development

Gartner.
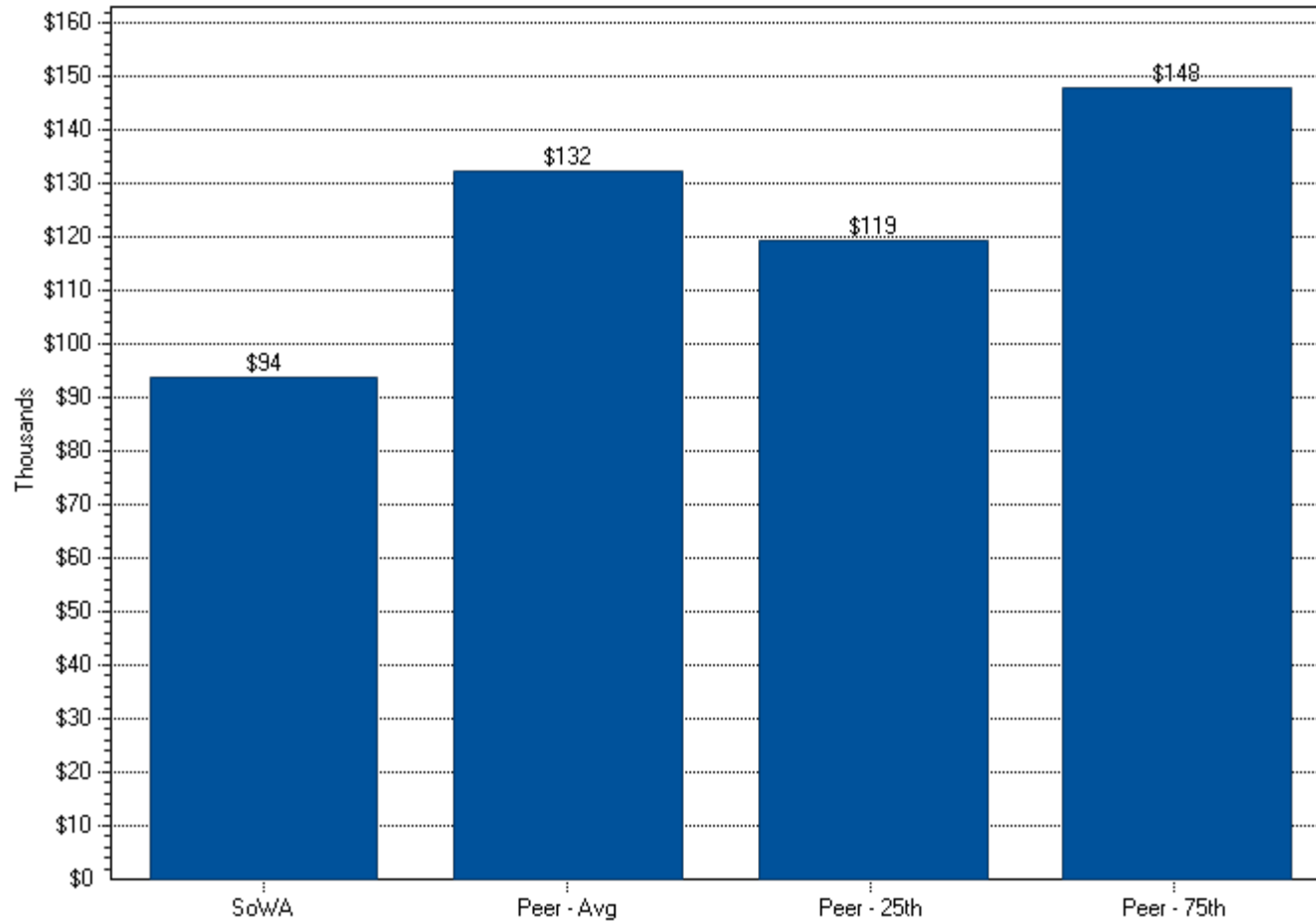
Application Development Consensus Model

Software		**Compilers** **Test Databases** **Development Tools** **Test Tools** **Business Functionality Software**
Occupancy		**Office Space**
Personnel		**Programming Staff** **Planning and Process Management** **Administration (includes mgmt, training and documentation)** **Infrastructure Development DBAs, QA, Project Tracking (for test data)**

- State of Washington
  - 378,429 Function Points Developed (Total)

- Peer
  - Average 360,093 Function Points Developed
  - 7 Organizations
    - 3 Health Services, 2 Communications, 1 Government, 1 Financial Services

Gartner

Application Development
Efficiency - Cost Per Function Point

Application Development
Efficiency - Cost Per Function Point by Agency

Cost per FP

Gartner
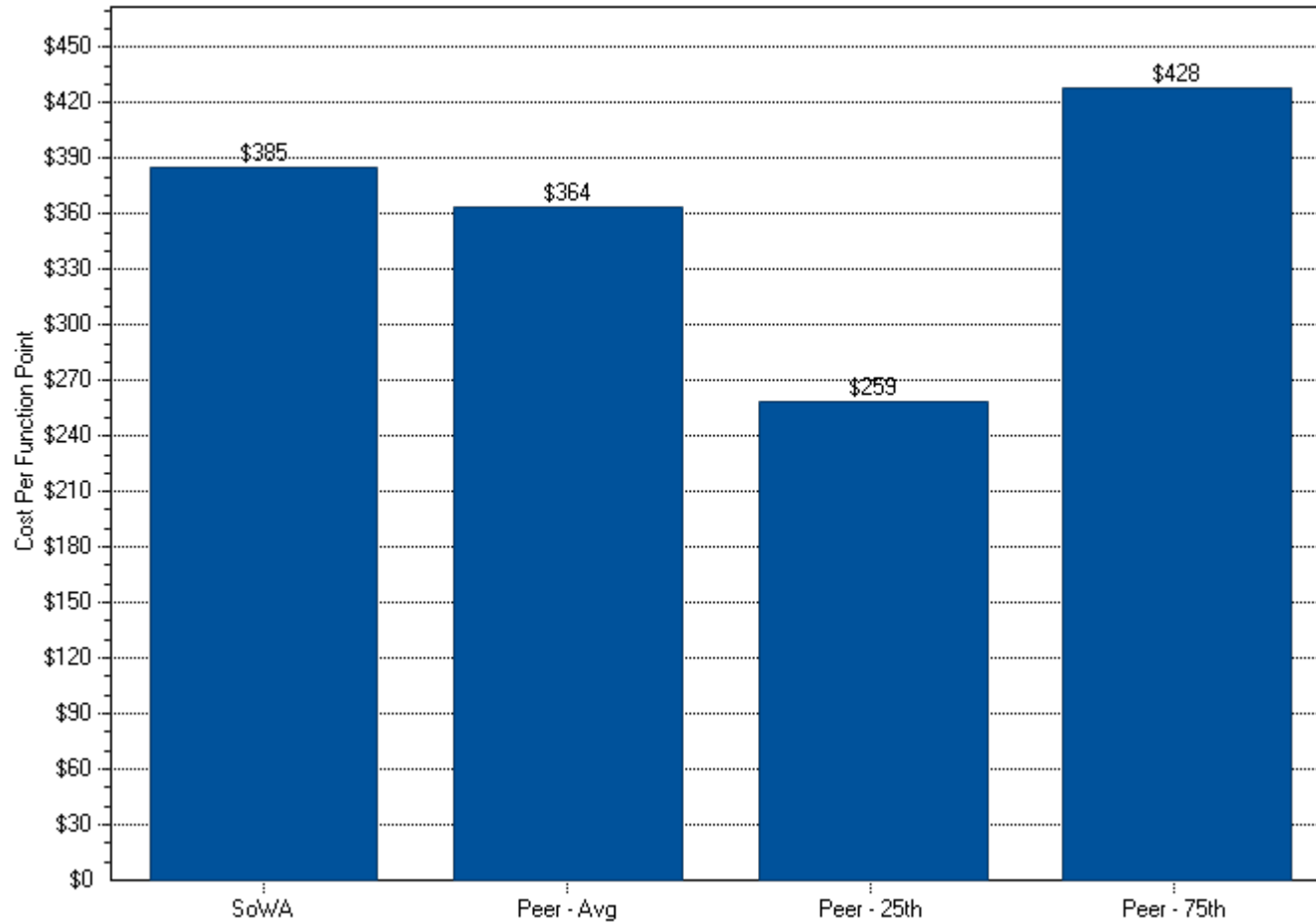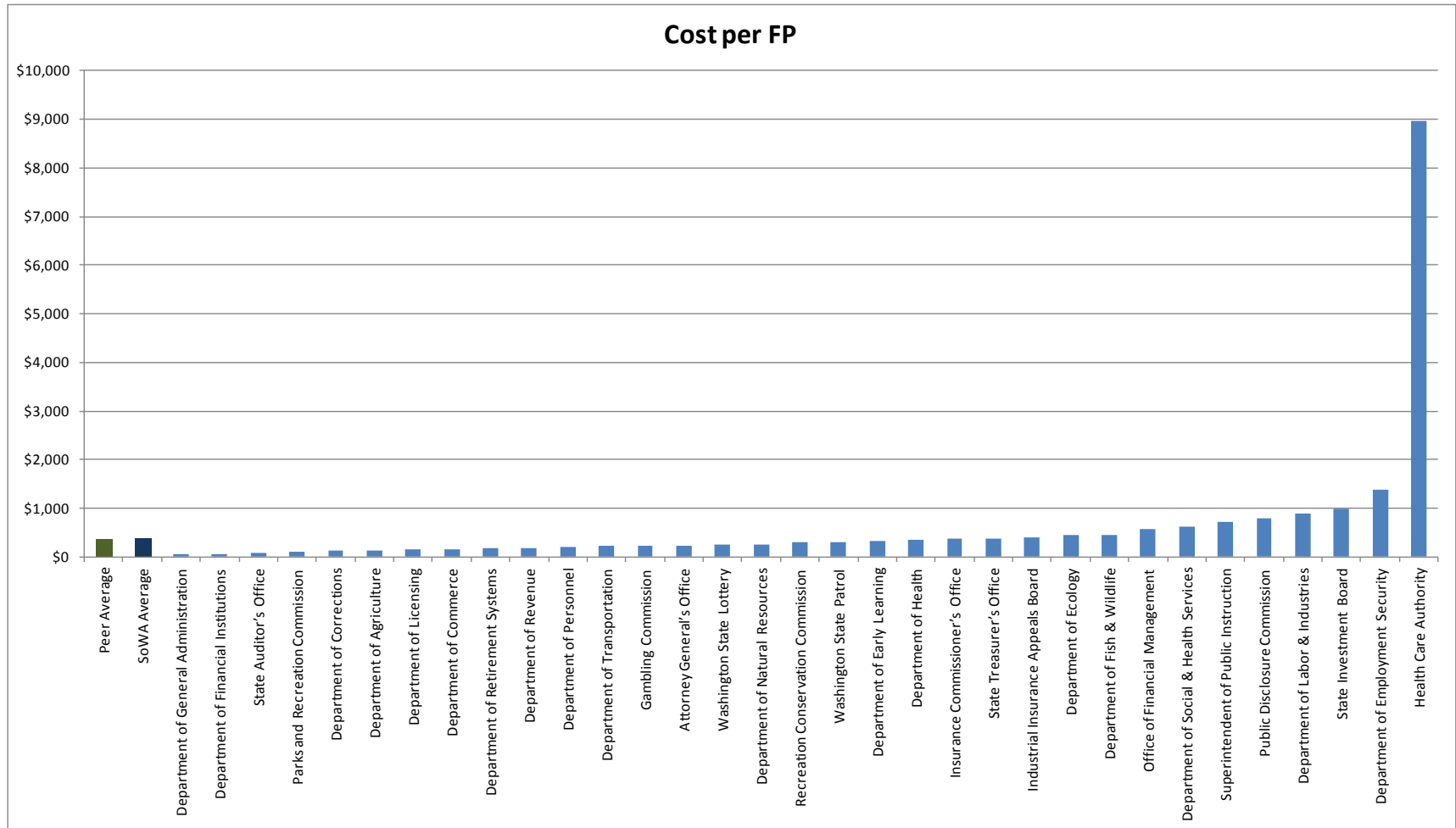
Application Development
IT Spending by Cost Category
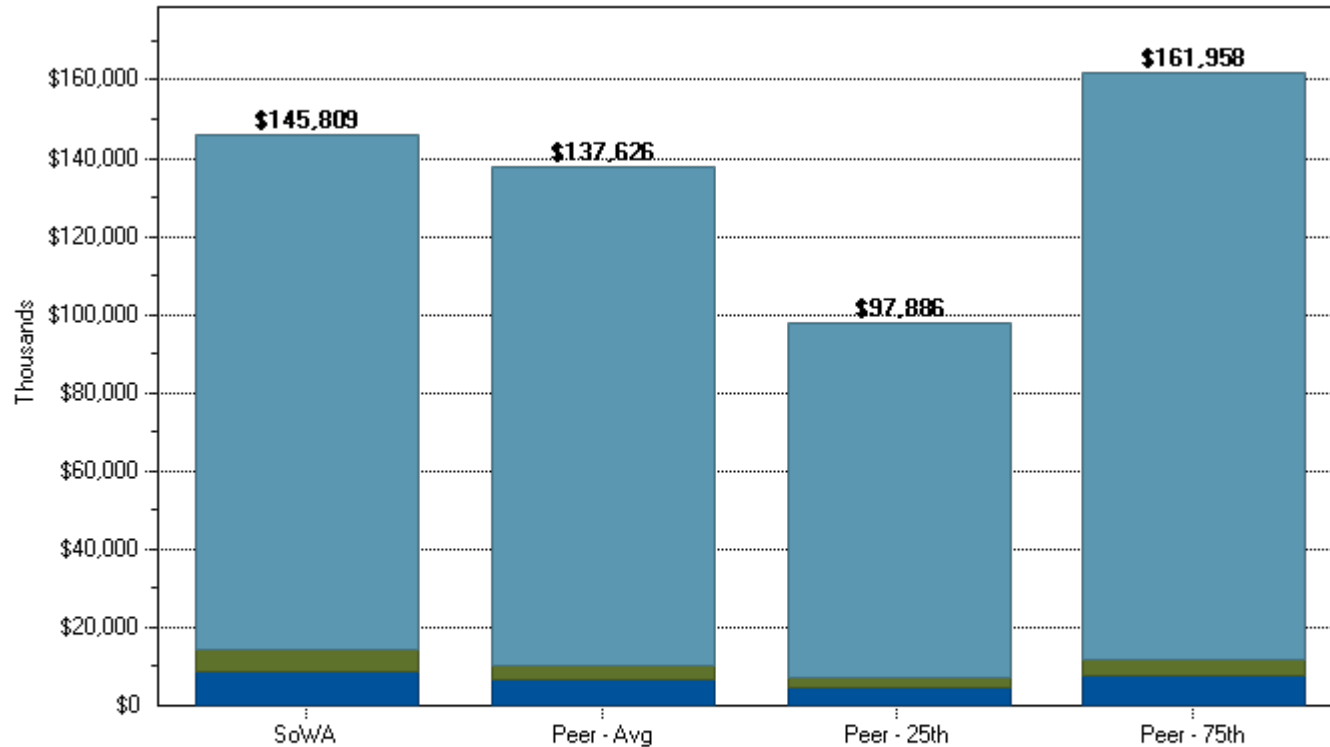
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Software	$8,464	$6,665	$4,741	$7,844
Occupancy	$5,988	$3,420	$2,432	$4,025
Personnel	$131,357	$127,540	$90,713	$150,090

Gartner

Application Development
Spending Gap to Peer by Agency

Total Gap to Peer

Gaps relative to peers for HCA and DOL significantly affect overall results

Gartner.
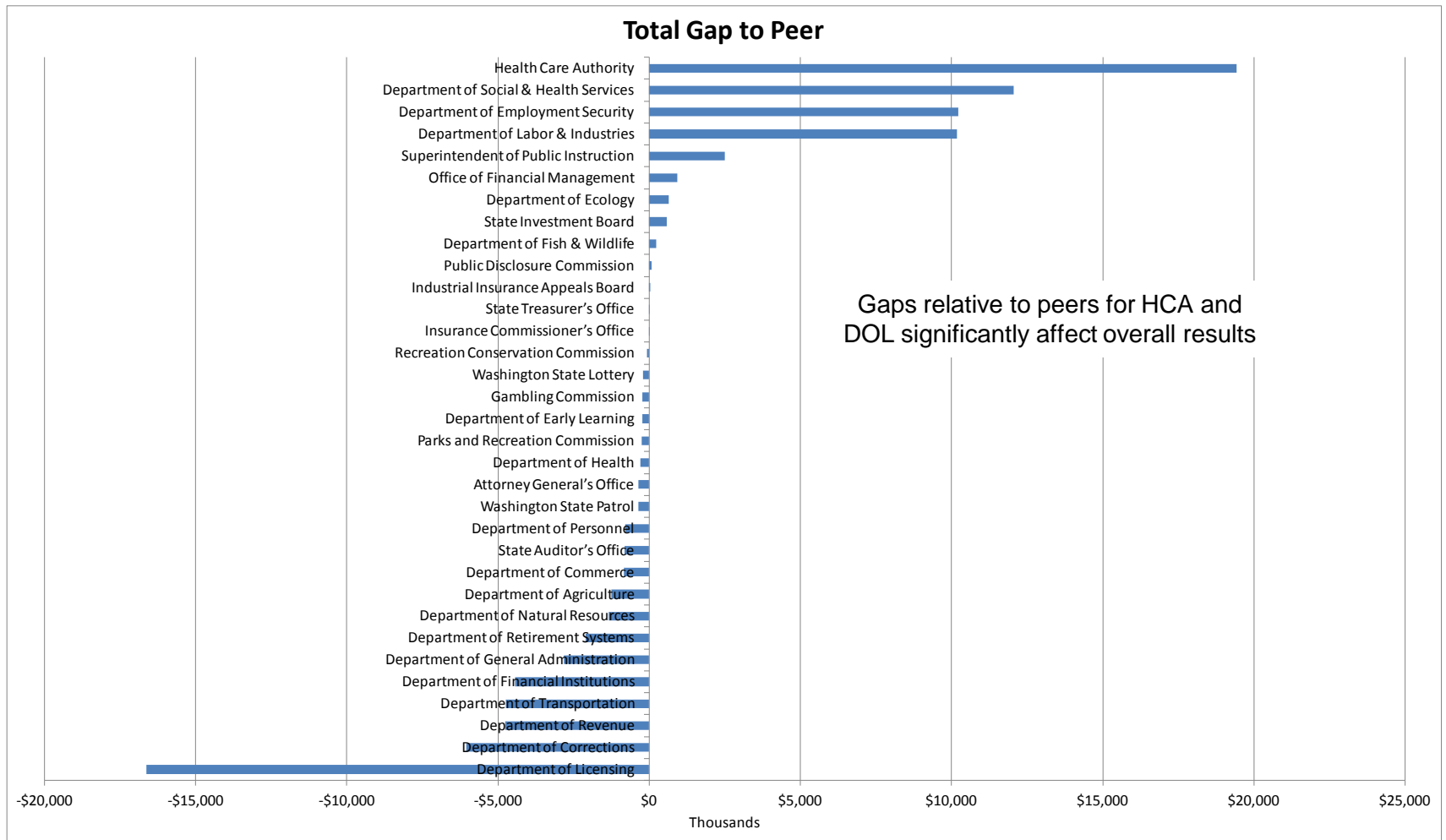
Application Development
Productivity - Function Points Per Adjusted FTE

Gartner
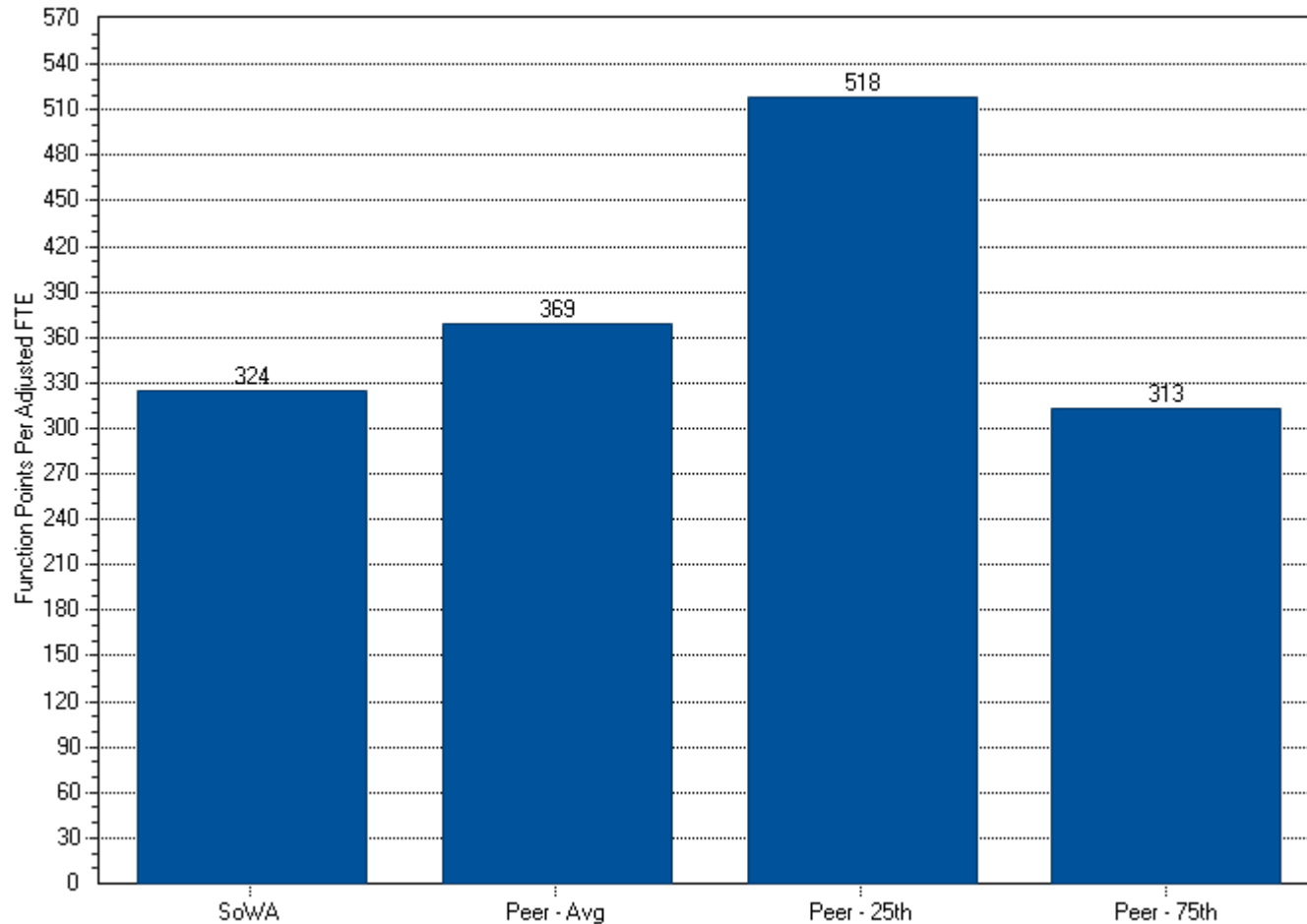
Application Development
Total FTEs by Staff Category
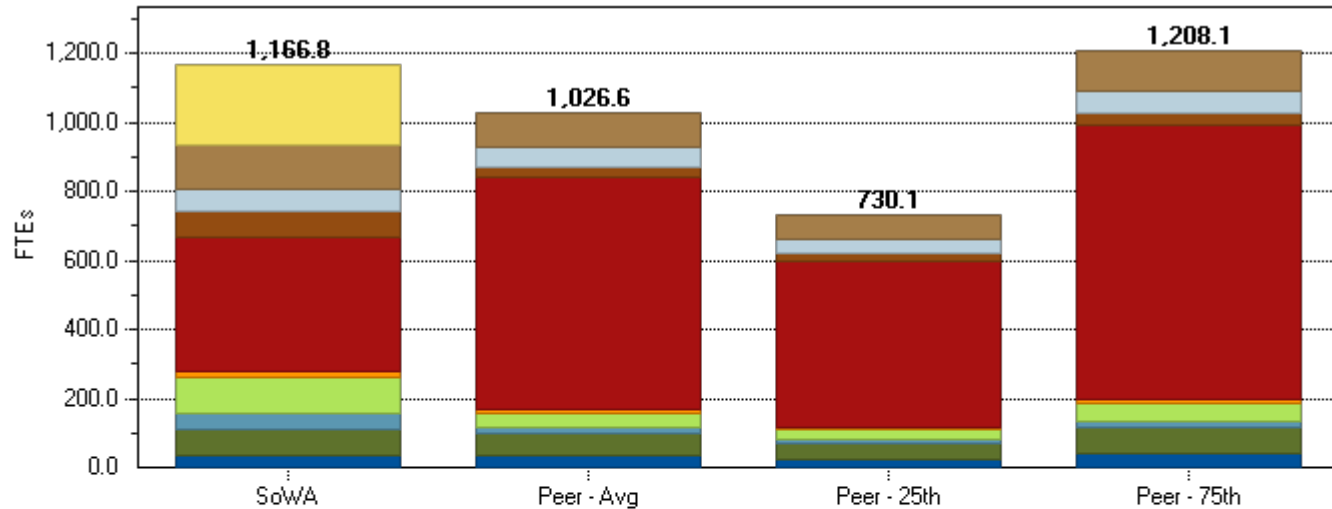
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Services Administration	34.6	32.9	23.4	38.7
Management and Administration	78.1	67.3	47.9	79.2
Database Technology	41.9	15.1	10.8	17.8
Quality Assurance/Testing	106.7	42.5	30.2	50.0
Infrastructure Development	18.3	9.0	6.4	10.6
Programmer/Analyst	389.3	677.4	481.8	797.2
Planning and Process Management	73.2	28.2	20.1	33.2
Project Tracking	63.7	56.9	40.4	66.9
Business Analyst	126.6	97.2	69.1	114.3
Outsourced Equivalent	234.4			

Gartner

Application Development
Outsourced Equivalent FTEs

- Outsourced Personnel costs were used to calculate "Outsourced Equivalent FTEs."

- Gartner calculates this equivalent count for each functional area as follows:
  - Total Outsourced Personnel Cost / (State average insourced cost per FTE * 1.25)
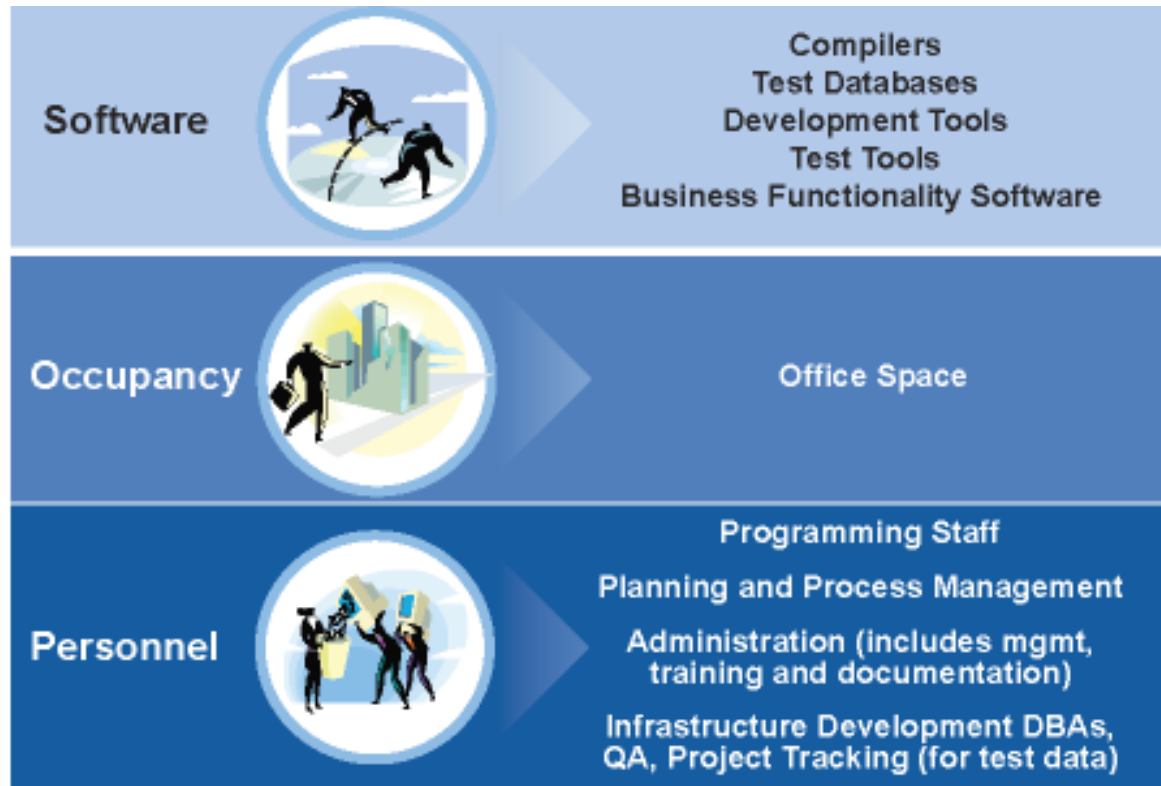 - Applications Development Outsourced Equivalent FTEs is $29,137,627 / ($99,422 * 1.25) = 234.46

Dept Name	Outsourced Personnel Cost	Outsourced Equivalent FTEs
Health Care Authority	$13,066,320	105.14
Department of Social & Health Services	$7,336,280	59.03
Department of Licensing	$5,554,713	44.70
Department of Employment Security	$1,718,204	13.83
Department of Ecology	$360,000	2.90
State Investment Board	$331,650	2.67
Department of Financial Institutions	$321,780	2.59
Department of Early Learning	$266,790	2.15
Department of Transportation	$141,000	1.13
Department of Health	$40,743	0.33
State Treasurer's Office	$146	0.00
Total	$29,137,627	234.46

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Application Development
Cost Per FTE - Insourced & Contractor Blended Total

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Application Support

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Application Support
Consensus Model

Category		
Software		**Compilers** **Test Databases** **Development Tools** **Test Tools** **Business Functionality Software**
Occupancy		**Office Space**
Personnel		**Programming Staff** **Planning and Process Management** **Administration (includes mgmt, training and documentation)** **Infrastructure Development DBAs, QA, Project Tracking (for test data)**
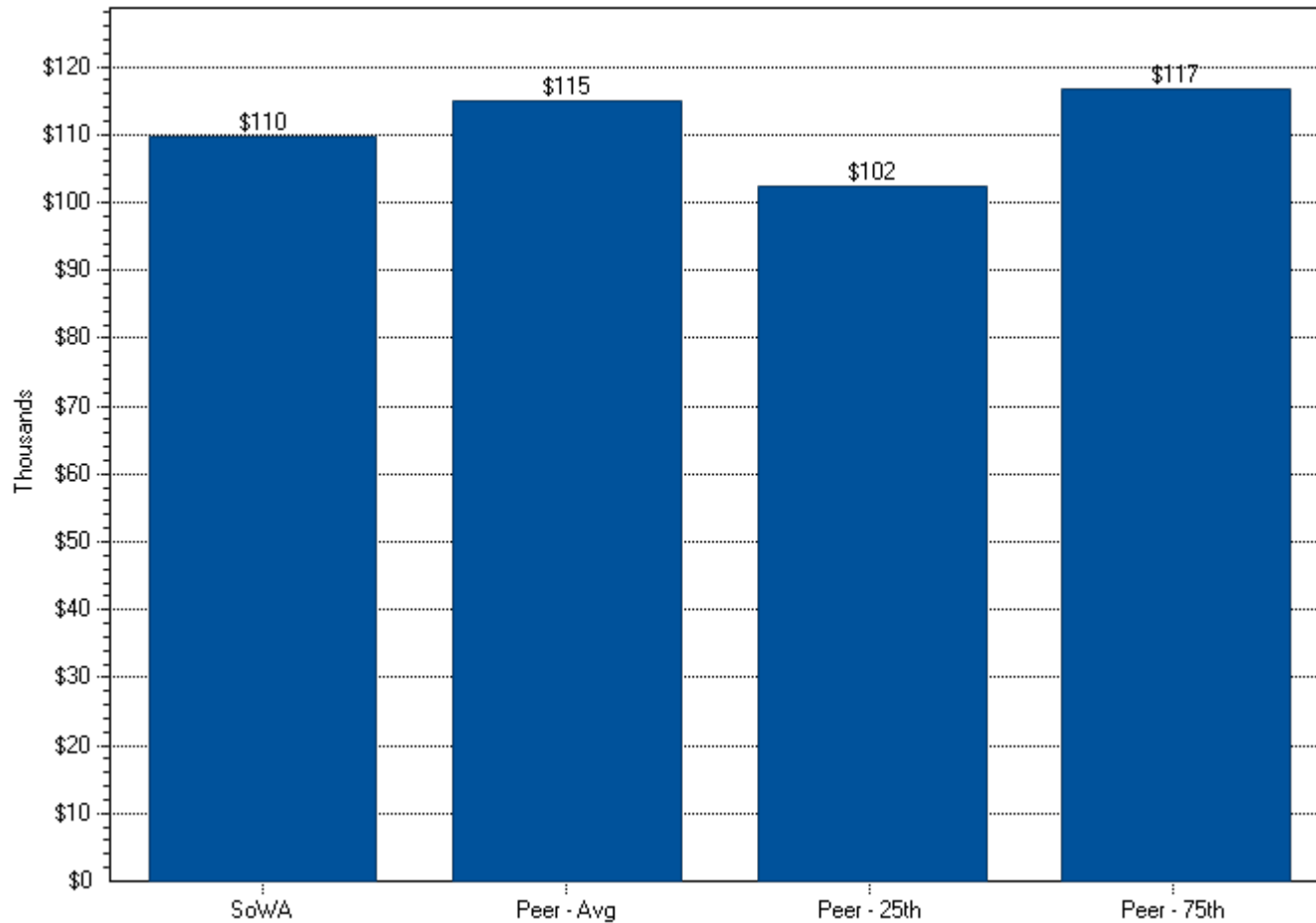
- **State of Washington**
  - 2,626,482 Function Points Supported (Total)

- **Peer**
  - Average 1,031,009 Function Points Supported
  - 7 Organizations
    - 2 Health Services, 2 Communications, 2 Publishing, 1 Government

Gartner

Application Support
Efficiency - Cost Per Function Point

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Application Support
Efficiency - Cost Per Function Point by Agency

Cost per Function Point

Gartner®
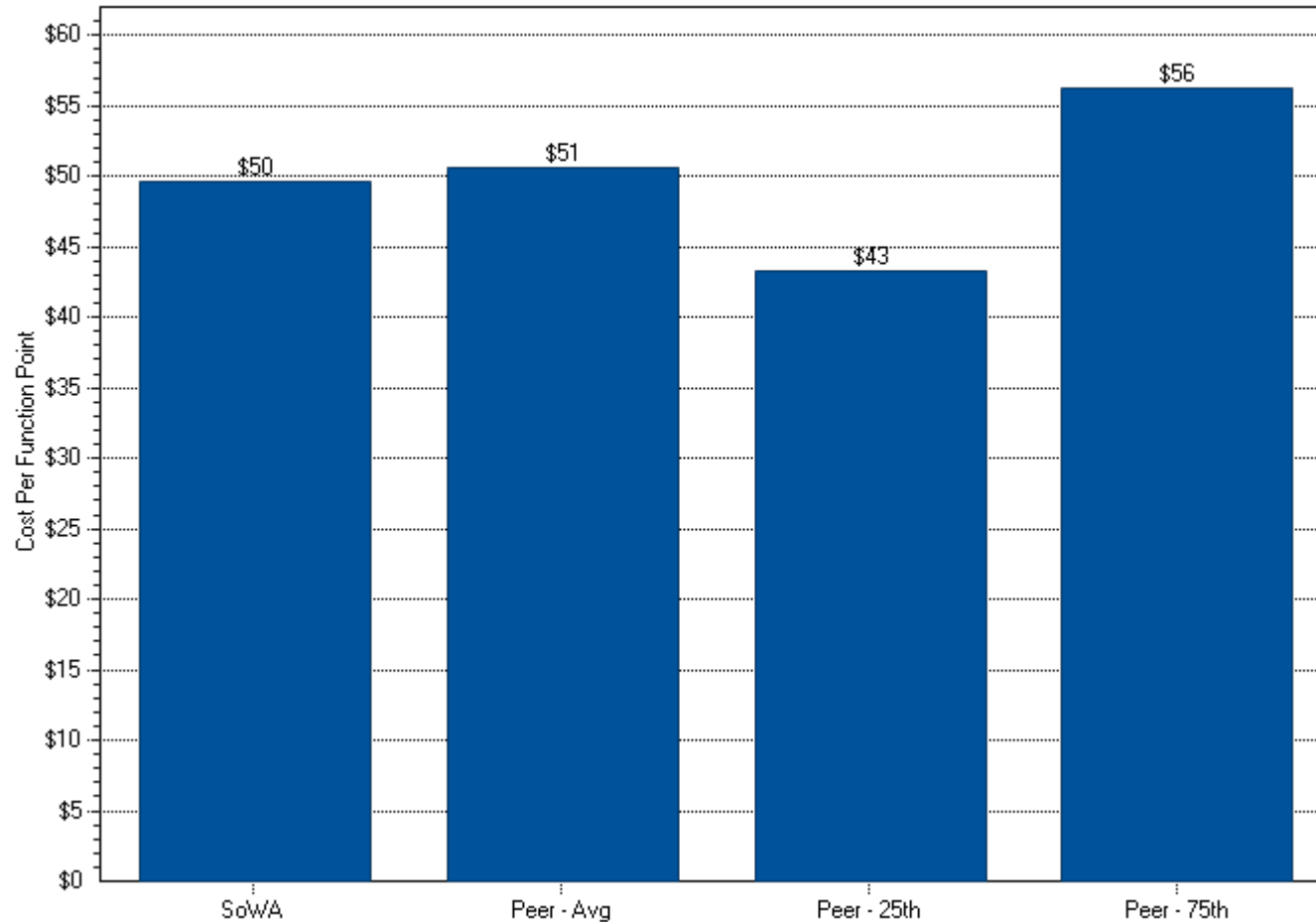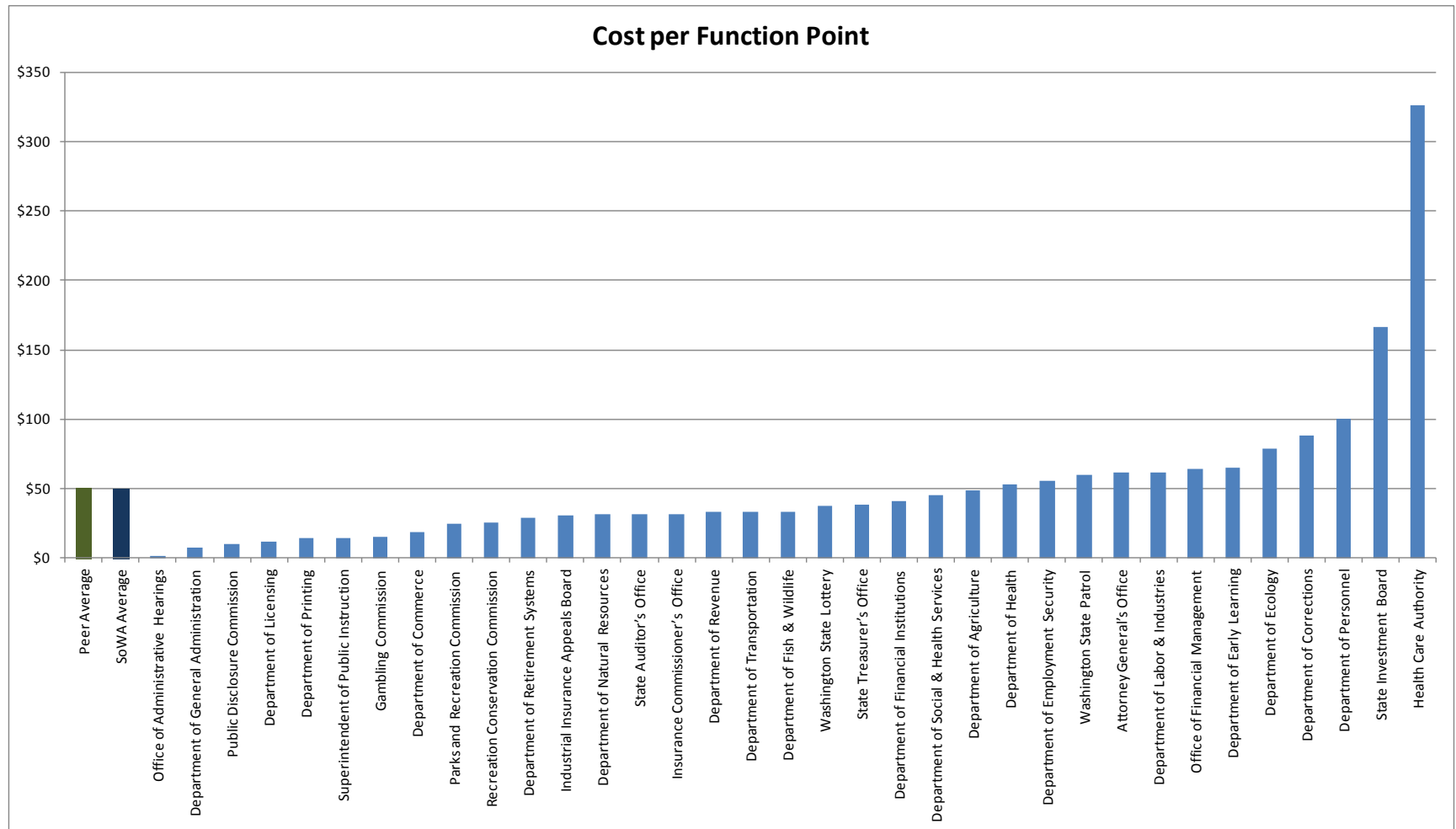
Application Support
IT Spending by Cost Category
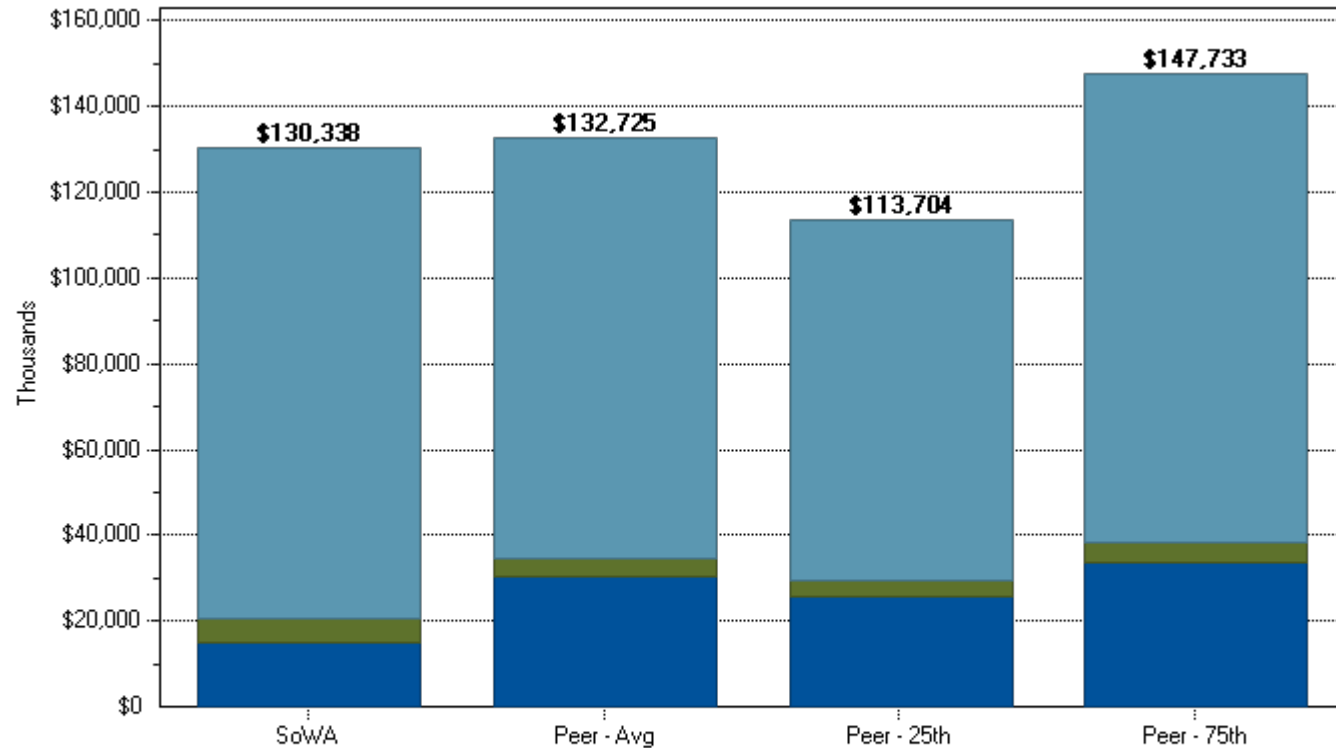
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Software	$14,951	$30,133	$25,814	$33,540
Occupancy	$5,638	$4,245	$3,637	$4,725
Personnel	$109,750	$98,347	$84,252	$109,467

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Application Support
Spending Gap to Peer by Agency

Total Gap to Peer

Health Care Authority significantly influences total State results.

Thousands

Gartner
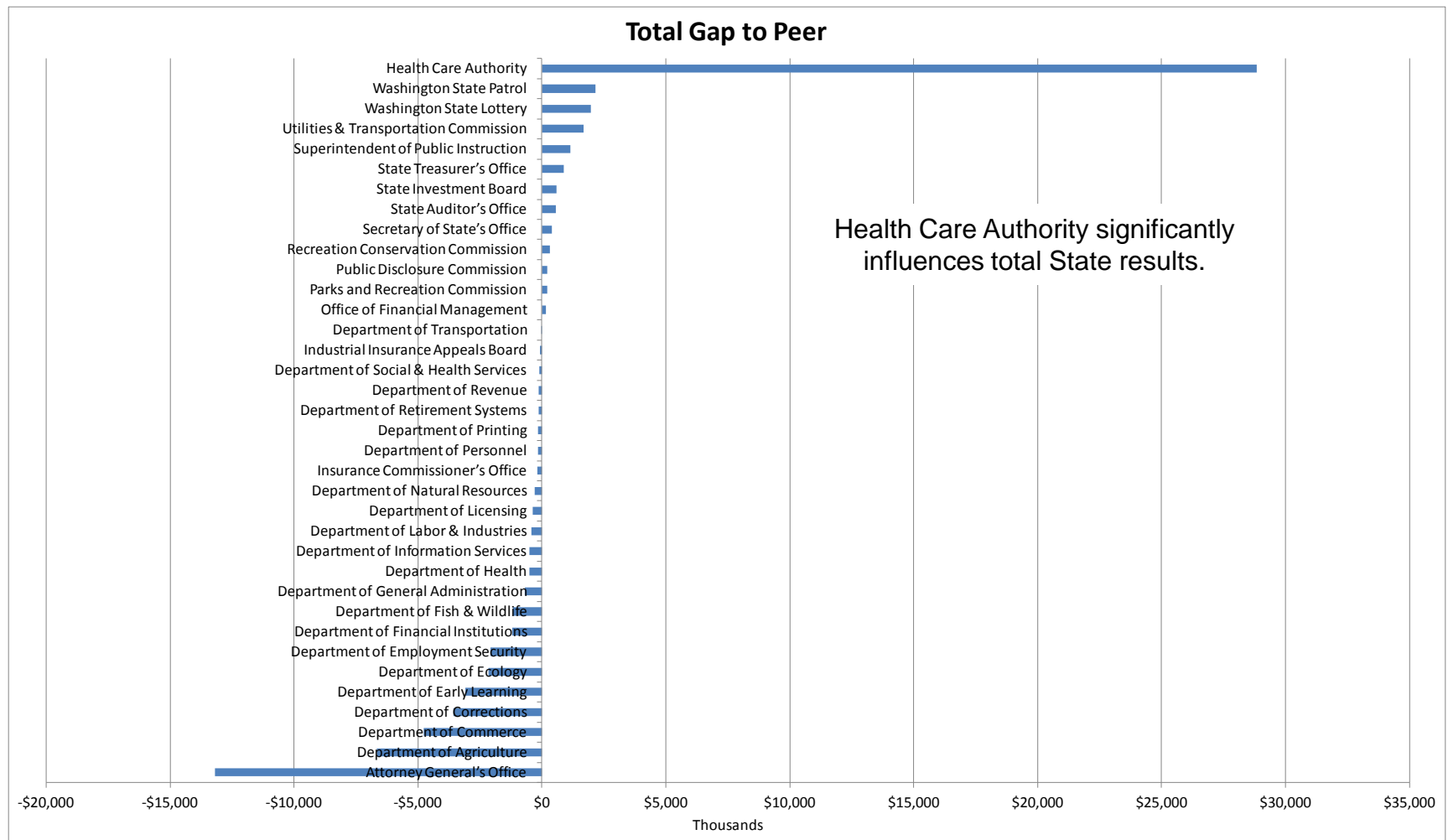
Application Support
Productivity - Function Points Per Adjusted FTE

Gartner®
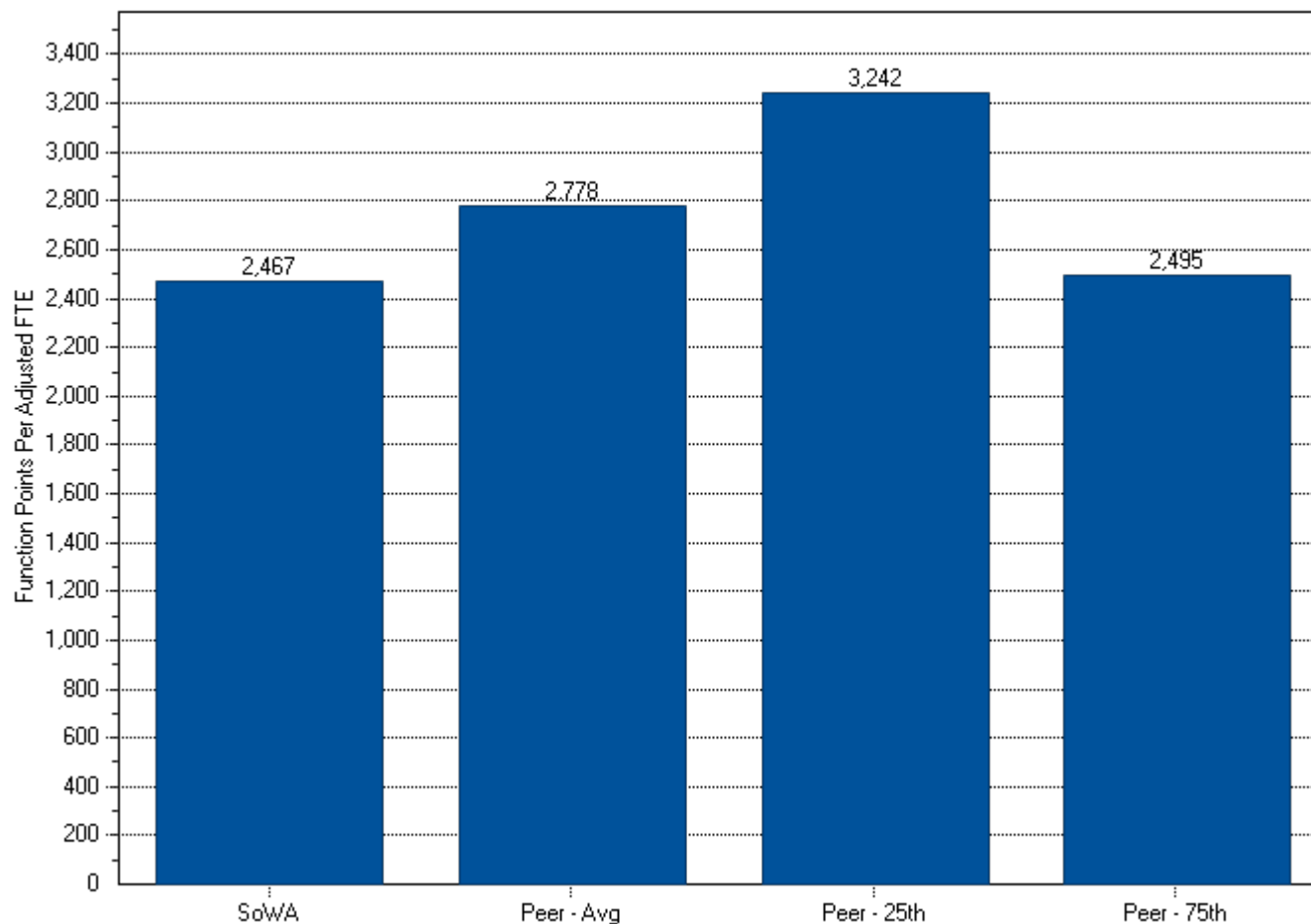
Application Support
Total FTEs by Staff Category
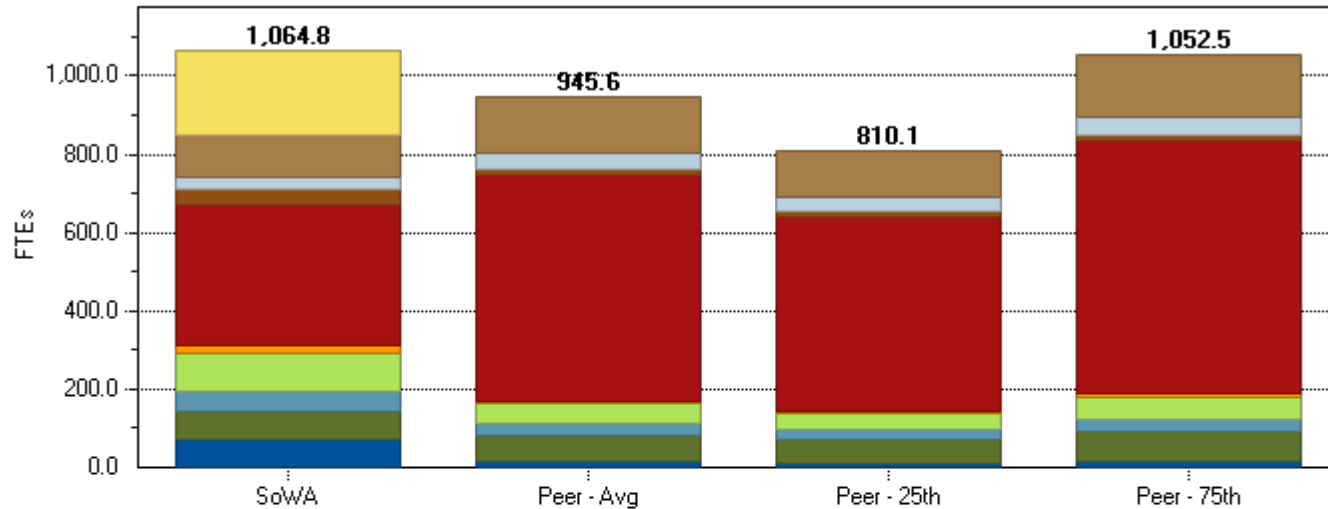
	SoWA	Peer - Avg	Peer - 25th	Peer - 75th
Services Administration	73.2	13.7	11.7	15.2
Management and Administration	67.8	69.6	59.6	77.5
Database Technology	53.9	29.2	25.0	32.5
Quality Assurance/Testing	98.3	48.8	41.8	54.4
Infrastructure Development	19.9	6.5	5.6	7.3
Programmer/Analyst	356.1	581.2	497.9	647.0
Planning and Process Management	41.1	13.5	11.5	15.0
Project Tracking	30.1	41.4	35.5	46.1
Business Analyst	106.5	141.7	121.4	157.7
Outsourced Eqivalent	217.9			

Gartner

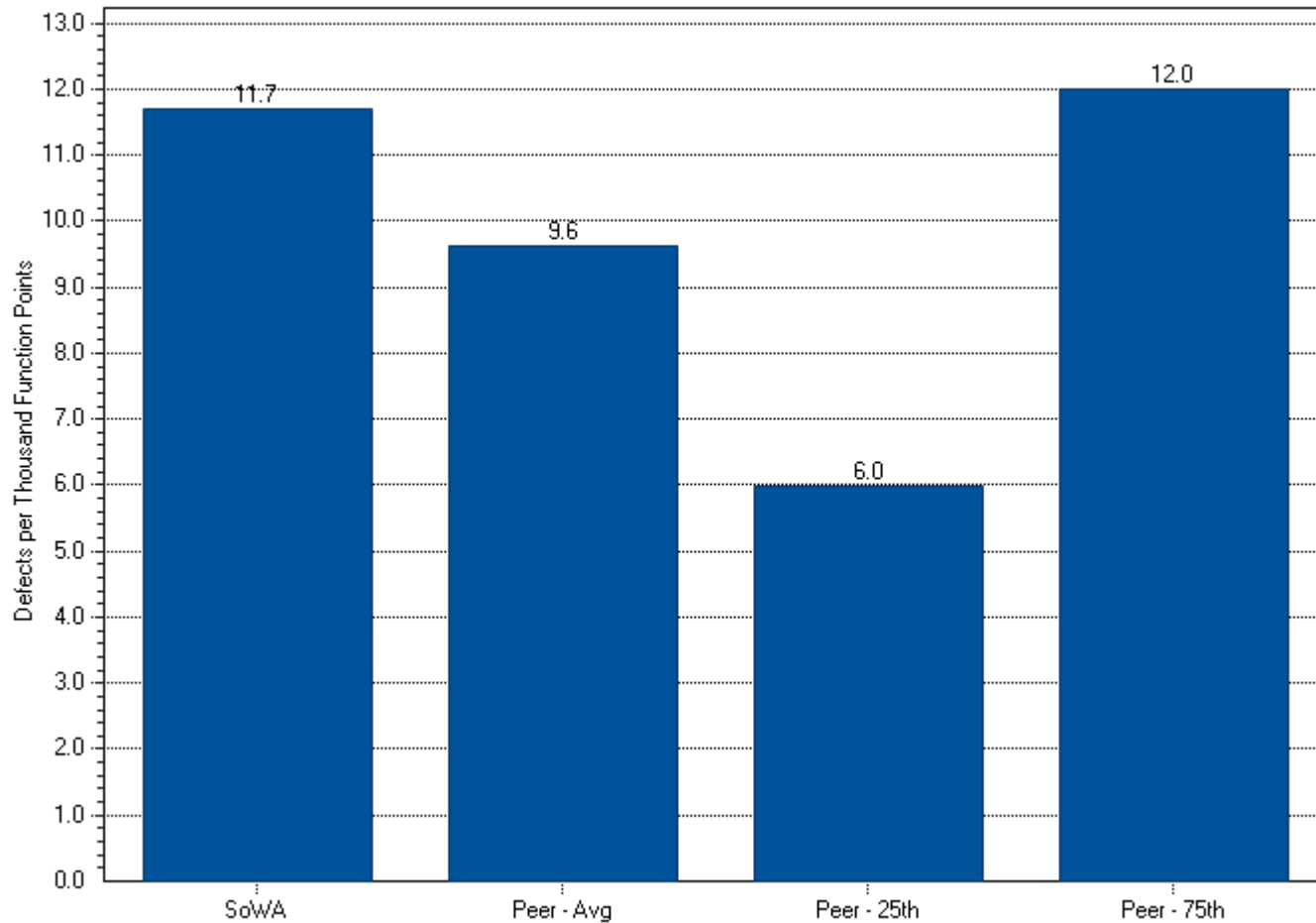## Application Support
Outsourced Equivalent FTEs

- Outsourced Personnel costs were used to calculate "Outsourced Equivalent FTEs."

- Gartner calculates this equivalent count for each functional area as follows:

  - Total Outsourced Personnel Cost / (State average insourced cost per FTE * 1.25)

  - Applications Support Outsourced Equivalent FTEs is $26,059,878 / ($95,691 * 1.25) = 217.87

Agency Name	Outsourced Personnel Cost	Outsourced Equivalent FTEs
Health Care Authority	$25,142,877	210.20
Department of Social & Health Services	$742,248	6.21
Department of Health	$85,040	0.71
Recreation Conservation Commission	$31,861	0.27
Department of Ecology	$30,000	0.25
Office of Financial Management	$25,646	0.21
State Treasurer's Office	$2,206	0.02
Total	$26,059,878	217.87

Gartner

Application Support
Cost Per FTE - Insourced & Contractor Blended Total

Gartner®

Application Support
Defect Density

Gartner®
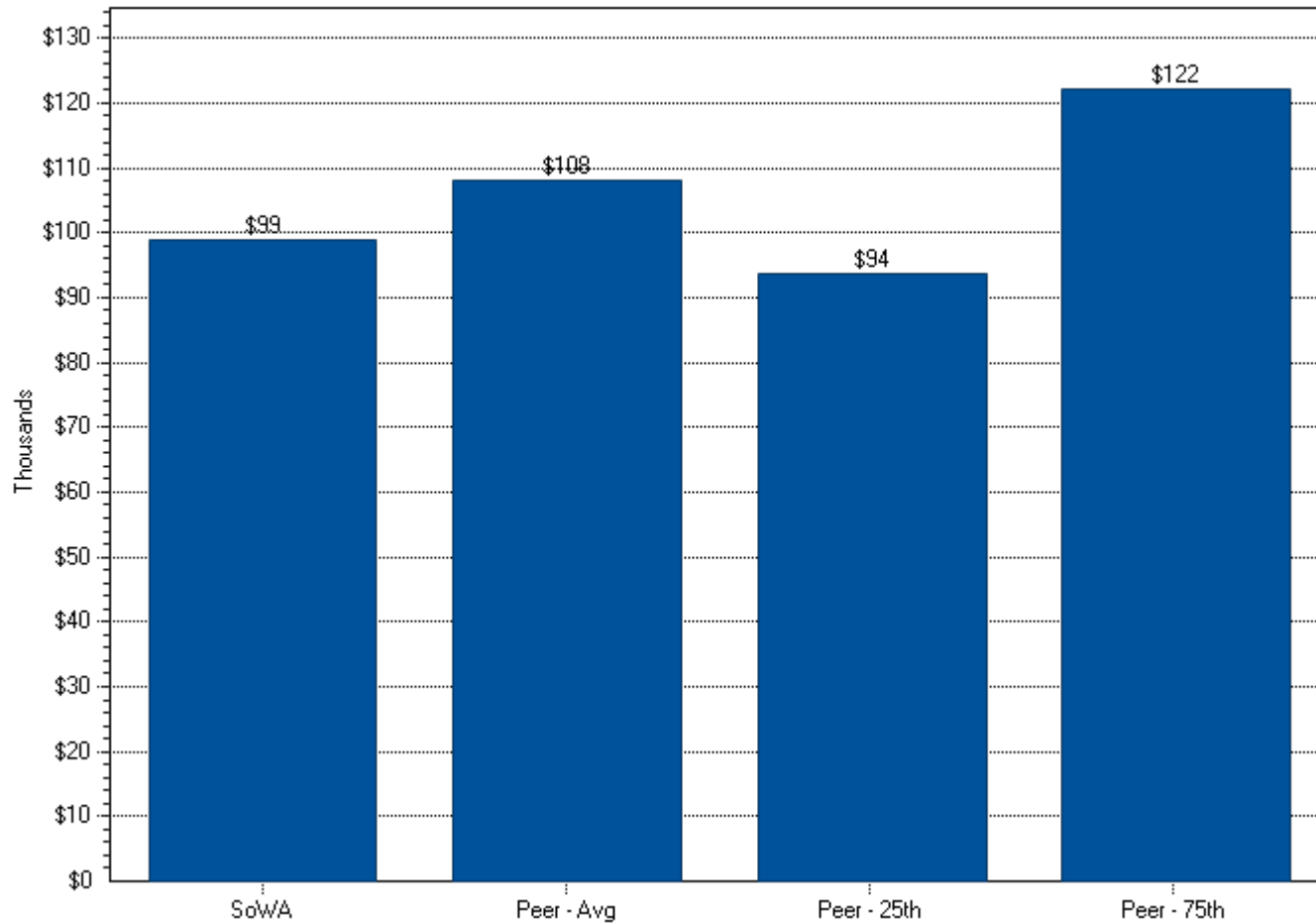
Application Support
Defect Density by Agency
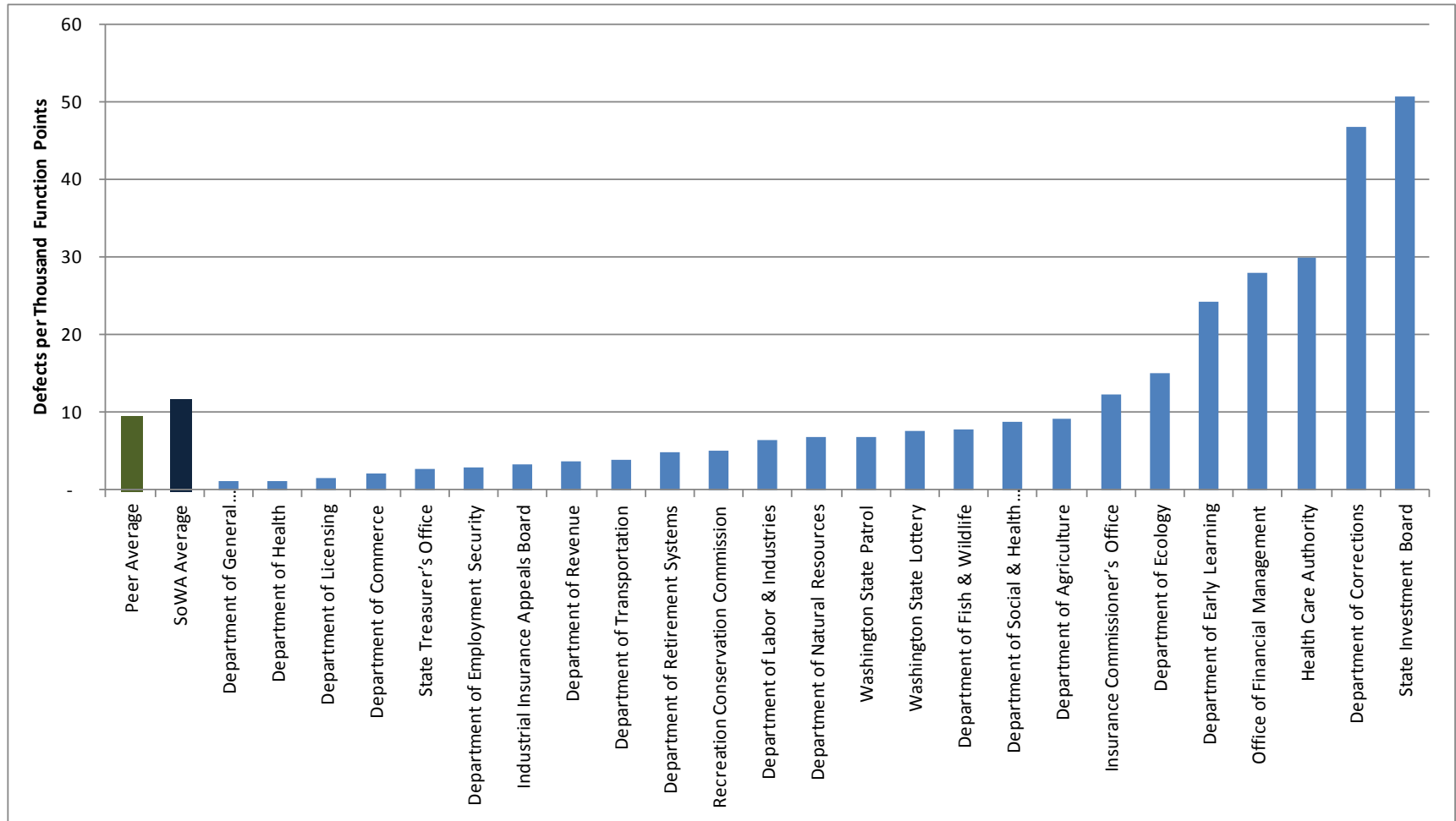
Application Support
Defect Severity

Gartner®

ERP Support – DNR SAP

Gartner

ERP Application Support
Consensus Model

Software → Enterprise Applications, Bolt-On Packages, Utilities, Additional DB Licenses

Occupancy → Office Space

**Personnel** → Programming, Planning and Process Management, Administration (includes mgmt), QA, DBAs, Business Analysts
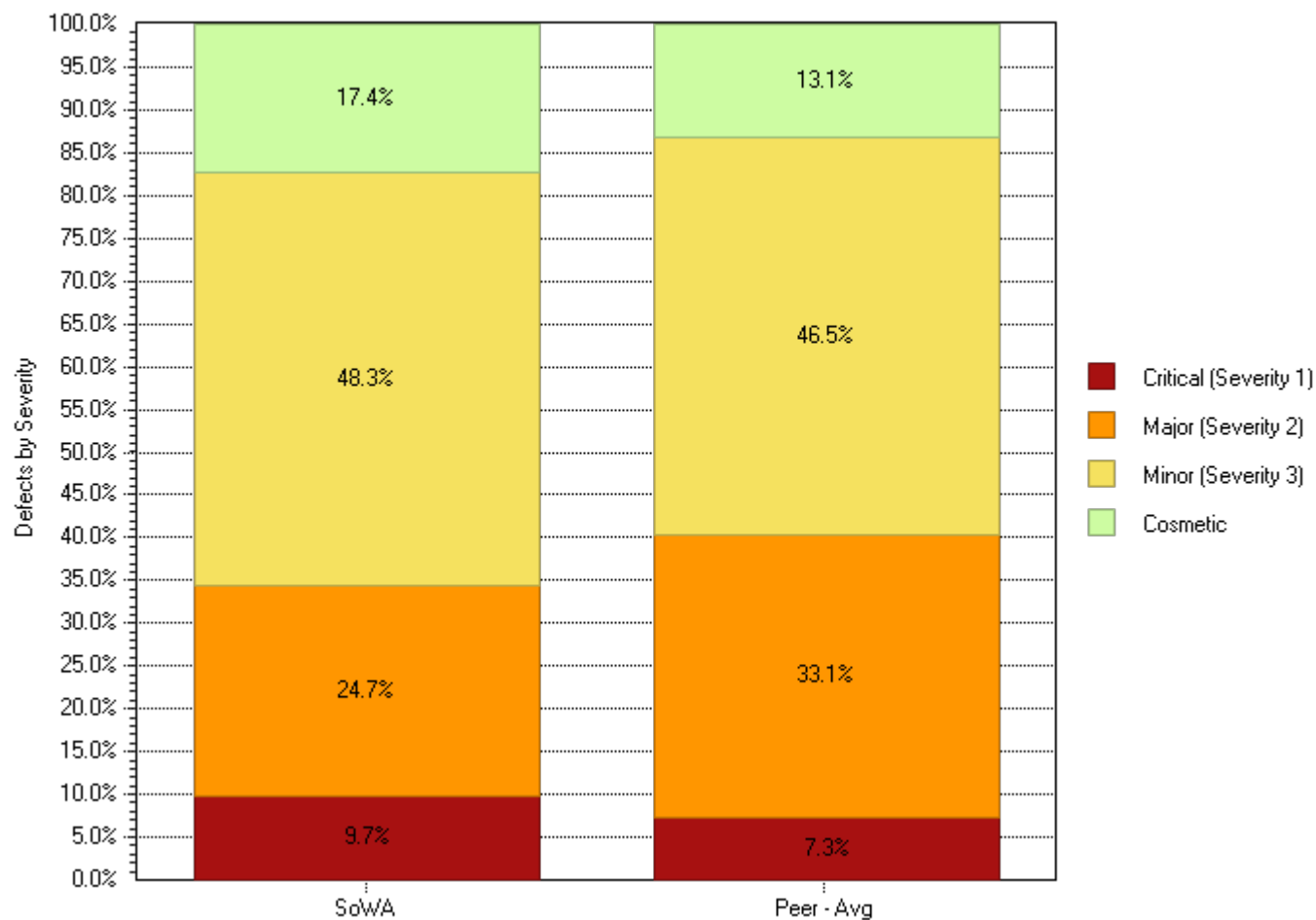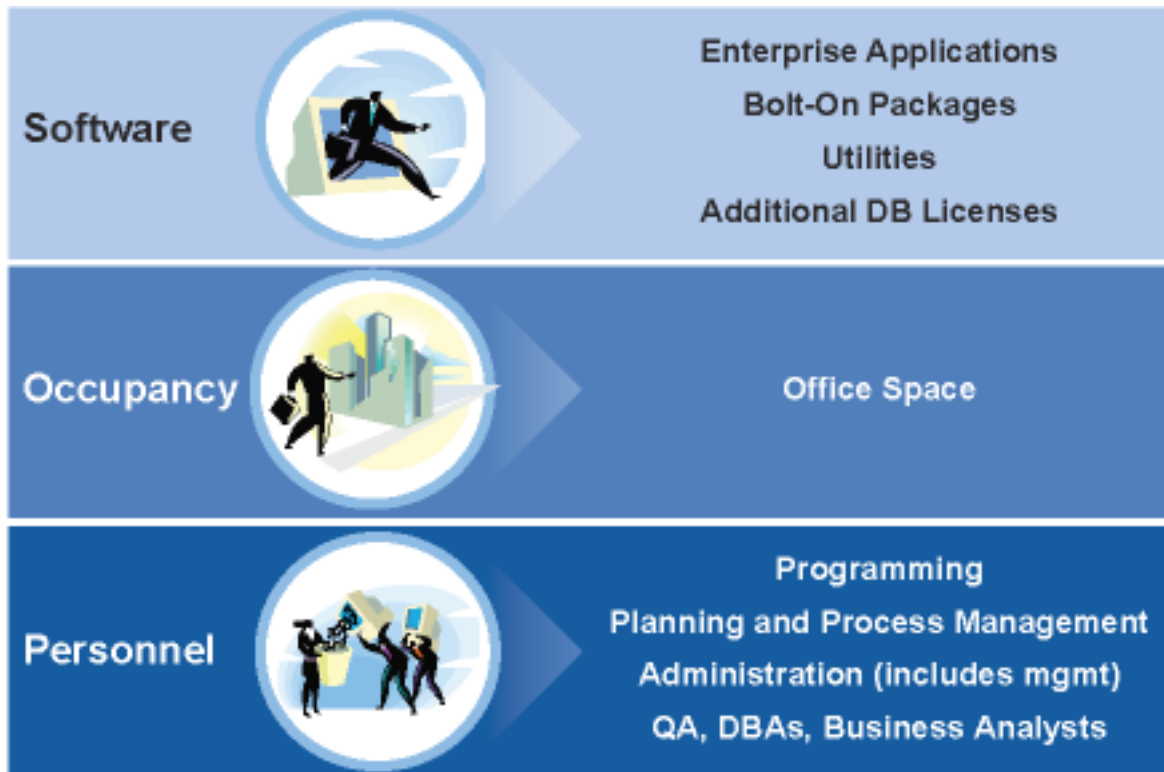
- **Dept of Natural Resources**
  - 50 Concurrent Users
  - 352 Named Users

- **Peer**
  - Average 55 Concurrent Users
  - Average 227 Named Users
  - 7 Organizations
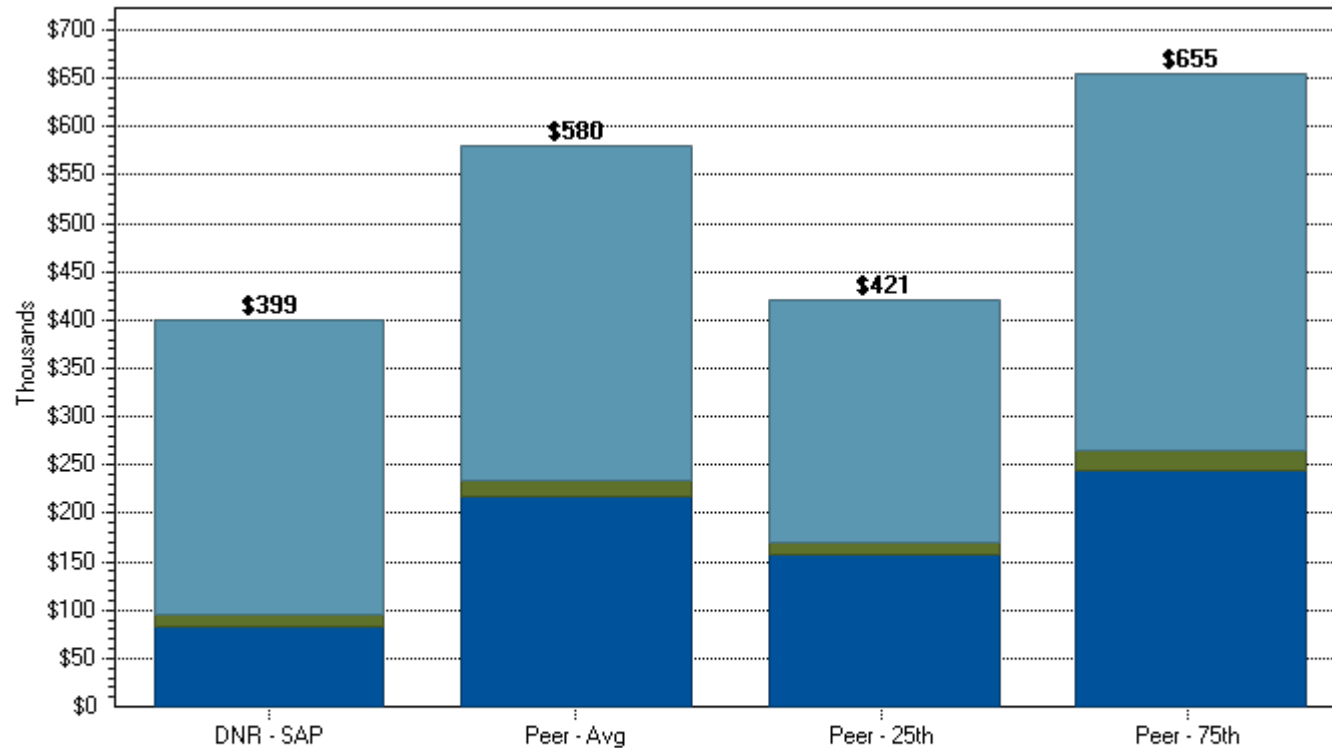   - 2 Government, 2 Financial Services, 1 Oil & Gas, 1 Business Services, 1 Higher Education

Gartner

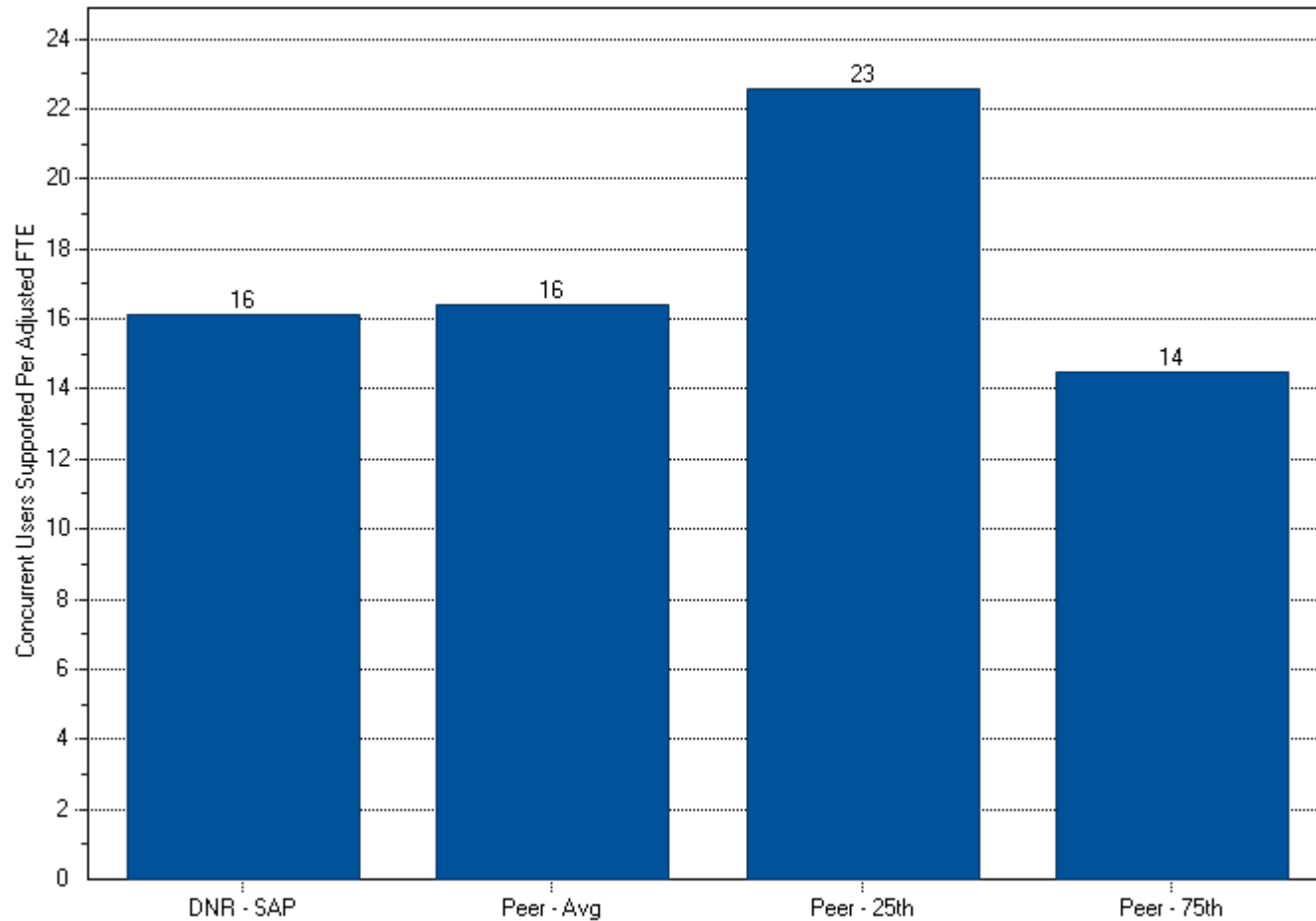# ERP Support – DNR SAP
Efficiency - Cost Per Concurrent User

Gartner.
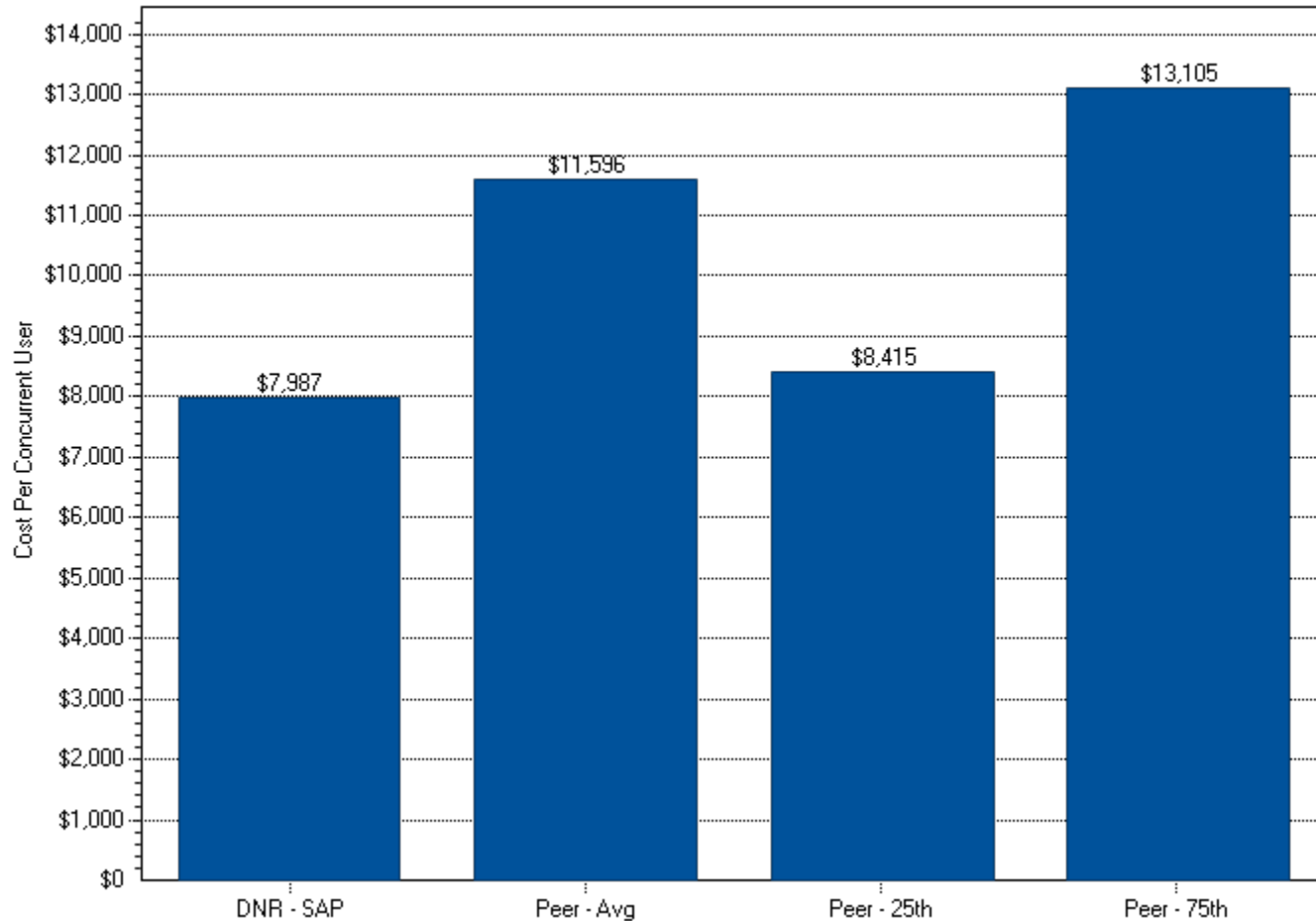
ERP Support – DNR SAP
IT Spending by Cost Category

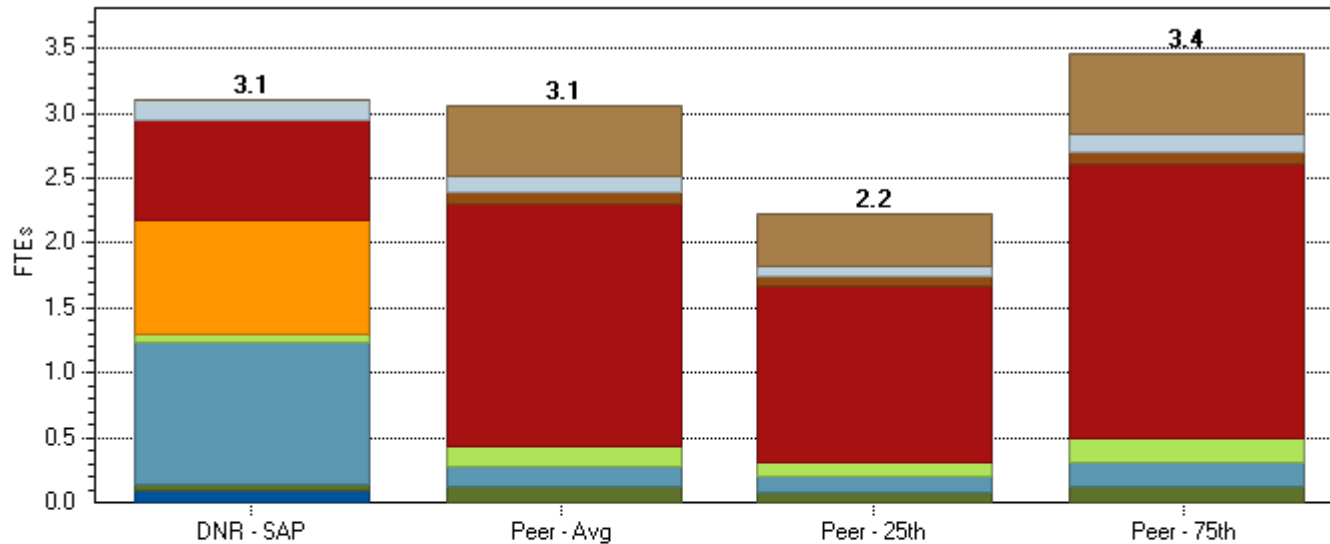|	DNR - SAP	Peer - Avg	Peer - 25th	Peer - 75th
■ Software	$84	$216	$157	$245
■ Occupancy	$11	$18	$13	$21
■ Personnel	$305	$345	$250	$390

ERP Support – DNR SAP
Productivity - Concurrent Users Supported Per Adjusted FTE

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ERP Support – DNR SAP
Total FTEs by Staff Category

	DNR - SAP	Peer - Avg	Peer - 25th	Peer - 75th
Services Administration	0.1	0.0	0.0	0.0
Management and Administration	0.0	0.1	0.1	0.1
Database Technology	1.1	0.2	0.1	0.2
Quality Assurance/Testing	0.1	0.2	0.1	0.2
Infrastructure Development	0.9	0.0	0.0	0.0
Programmer/Analyst	0.8	1.9	1.4	2.1
Planning and Process Management	0.0	0.1	0.1	0.1
Project Tracking	0.2	0.1	0.1	0.1
Business Analyst	0.0	0.5	0.4	0.6

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ERP Support – DNR SAP
Cost Per FTE - Insourced & Contractor Blended Total

Gartner

ERP Support – DOP SAP

Gartner.

ERP Application Support
Consensus Model

Software
- Enterprise Applications
- Bolt-On Packages
- Utilities
- Additional DB Licenses

Occupancy
- Office Space

Personnel
- Programming
- Planning and Process Management
- Administration (includes mgmt)
- QA, DBAs, Business Analysts
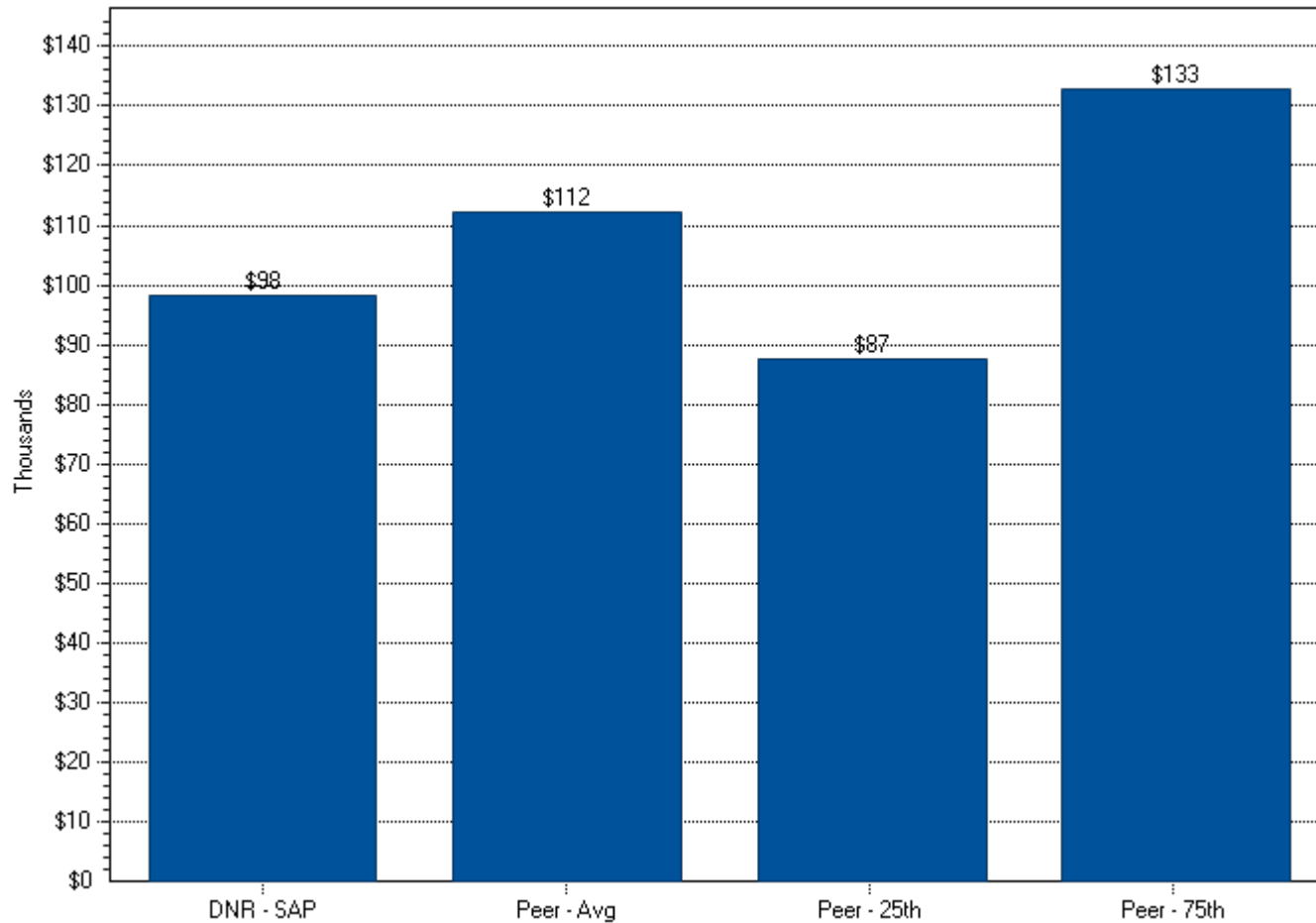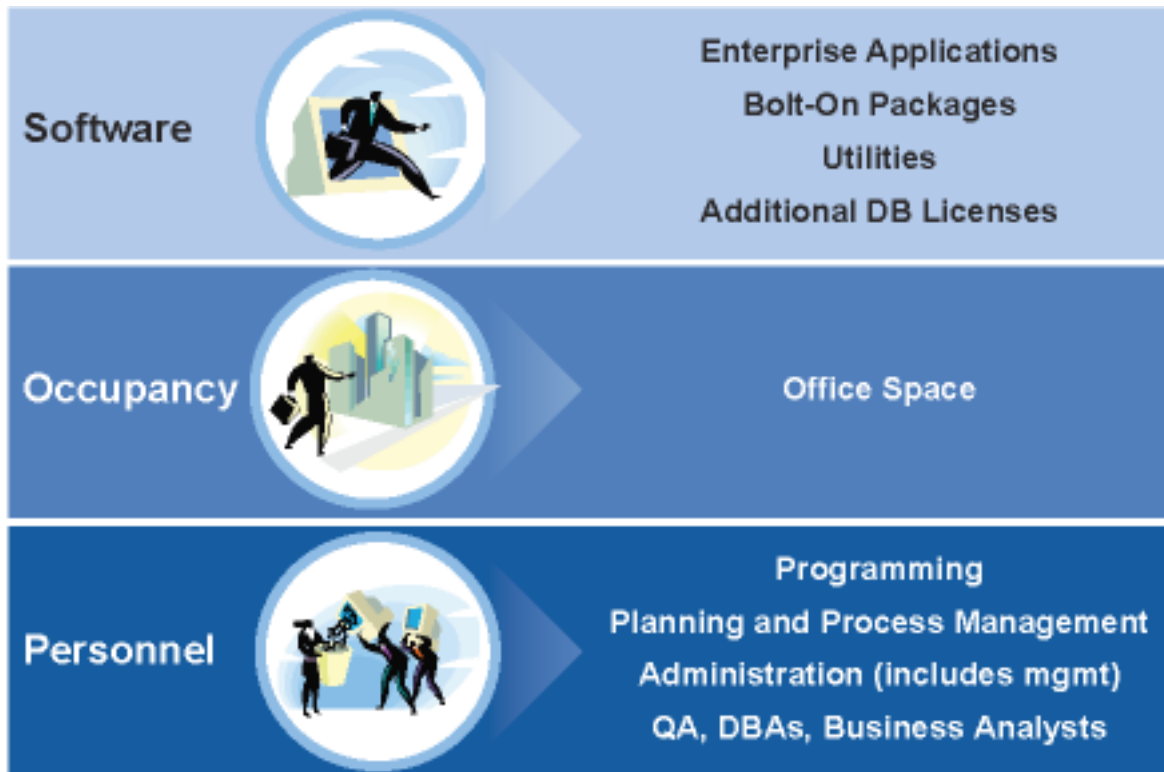
- **Dept of Personnel**
  - 2,200 Concurrent Users
  - 75,000 Named Users

- **Peer**
  - Average 2,435 Concurrent Users
  - Average 25,083 Named Users
  - 7 Organizations
    - 1 Utilities, 1 Financial Services, 1 Software Development, 1 Manufacturing, 1 Pharmaceutical, 1 Research, 1 Retail
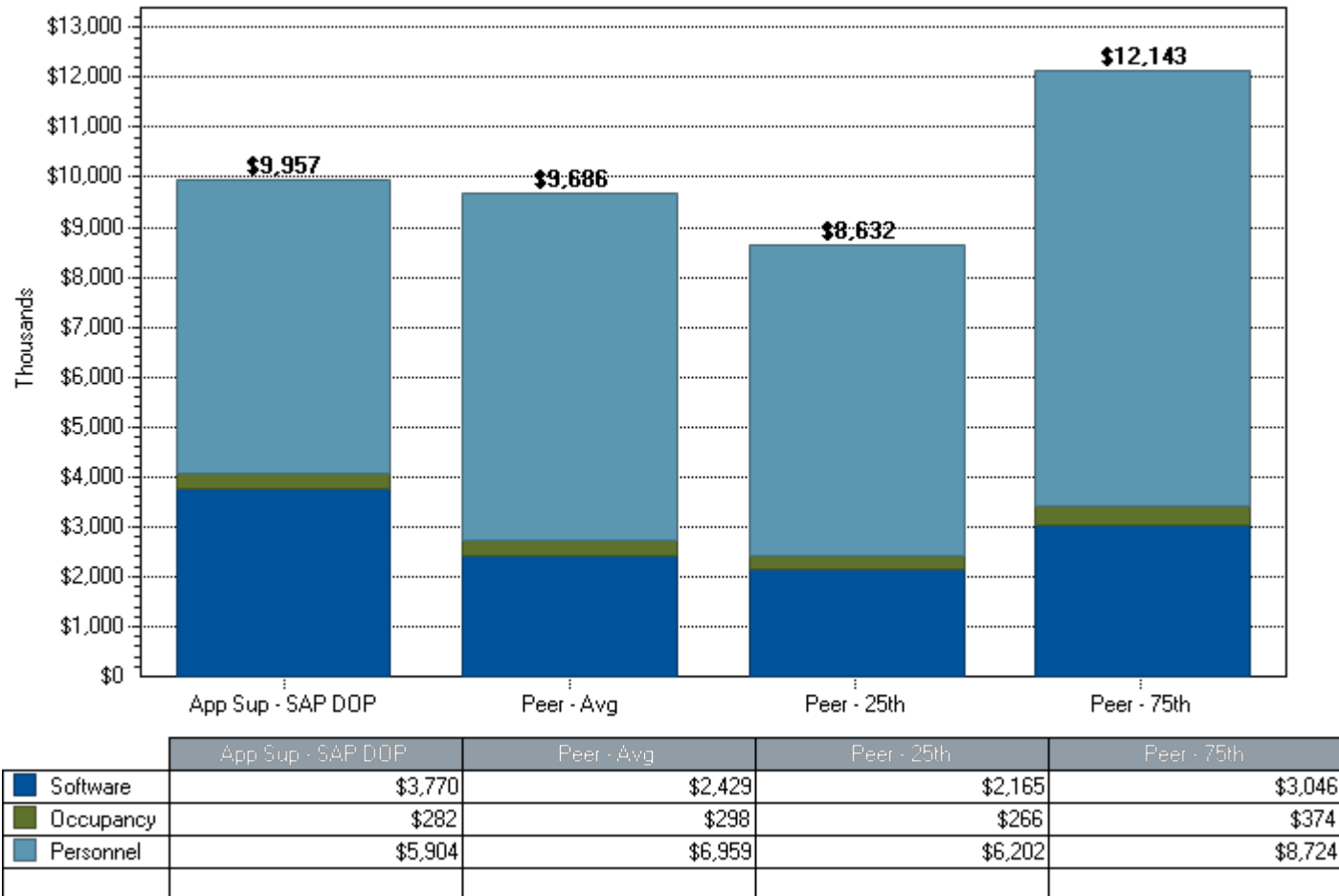
Gartner.

ERP Support – DOP SAP
Efficiency - Cost Per Concurrent User

Gartner.
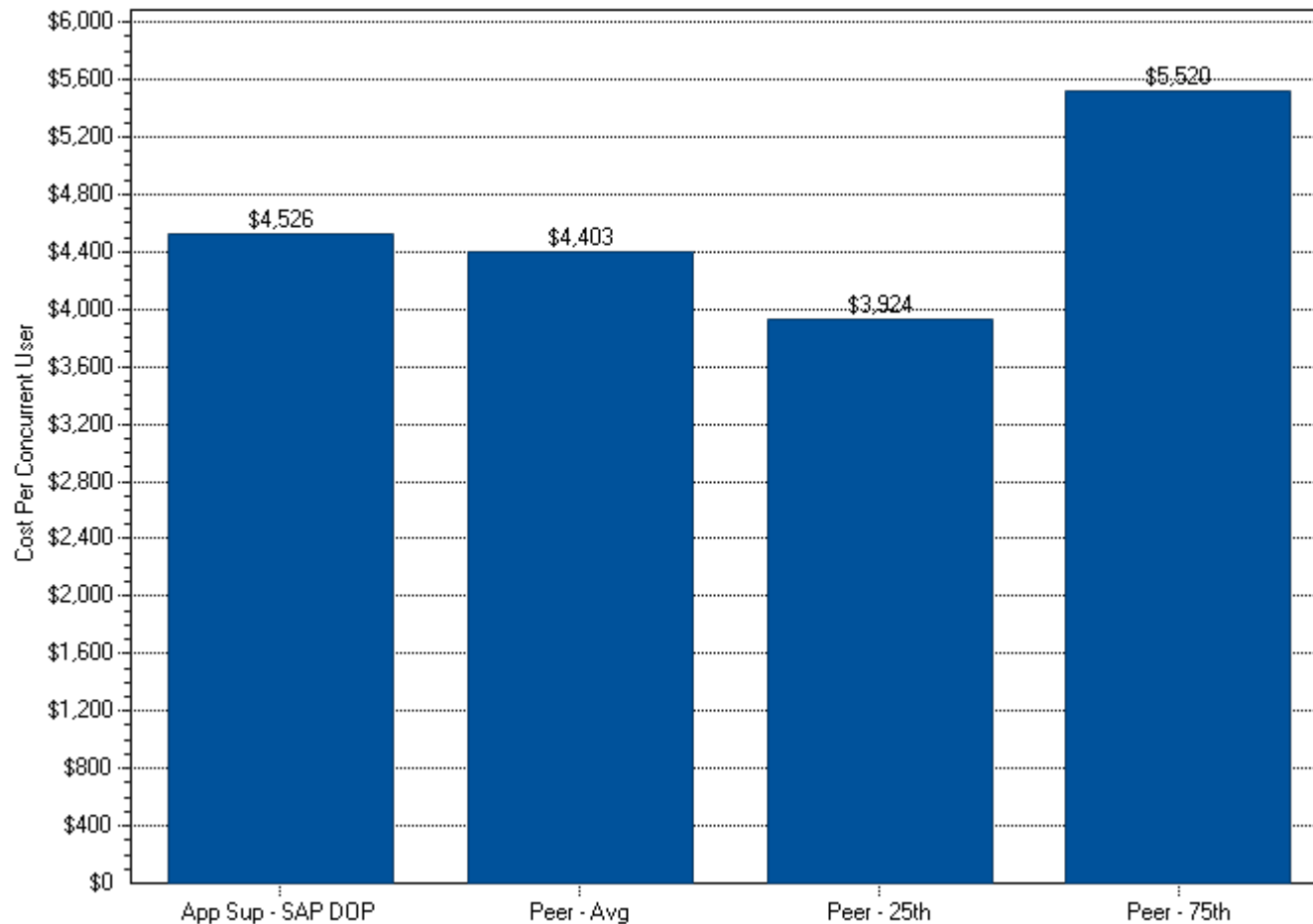
ERP Support – DOP SAP
IT Spending by Cost Category

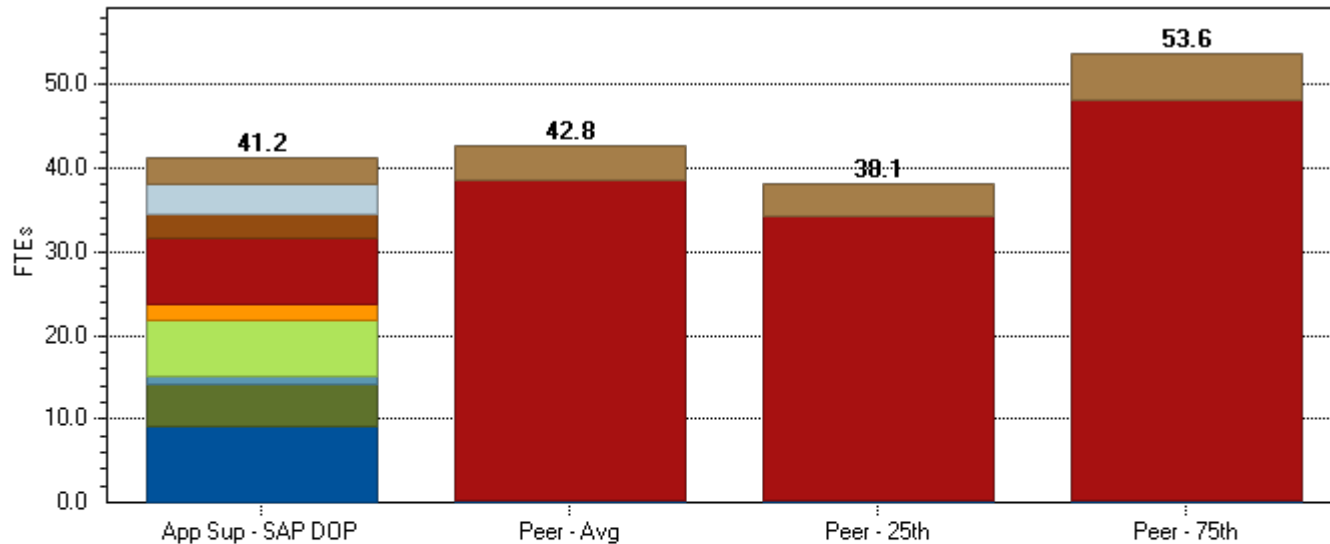|	App Sup - SAP DOP	Peer - Avg	Peer - 25th	Peer - 75th
Software	$3,770	$2,429	$2,165	$3,046
Occupancy	$282	$298	$266	$374
Personnel	$5,904	$6,959	$6,202	$8,724

Gartner

ERP Support – DOP
Productivity - Concurrent Users Supported Per Adjusted FTE

Gartner®
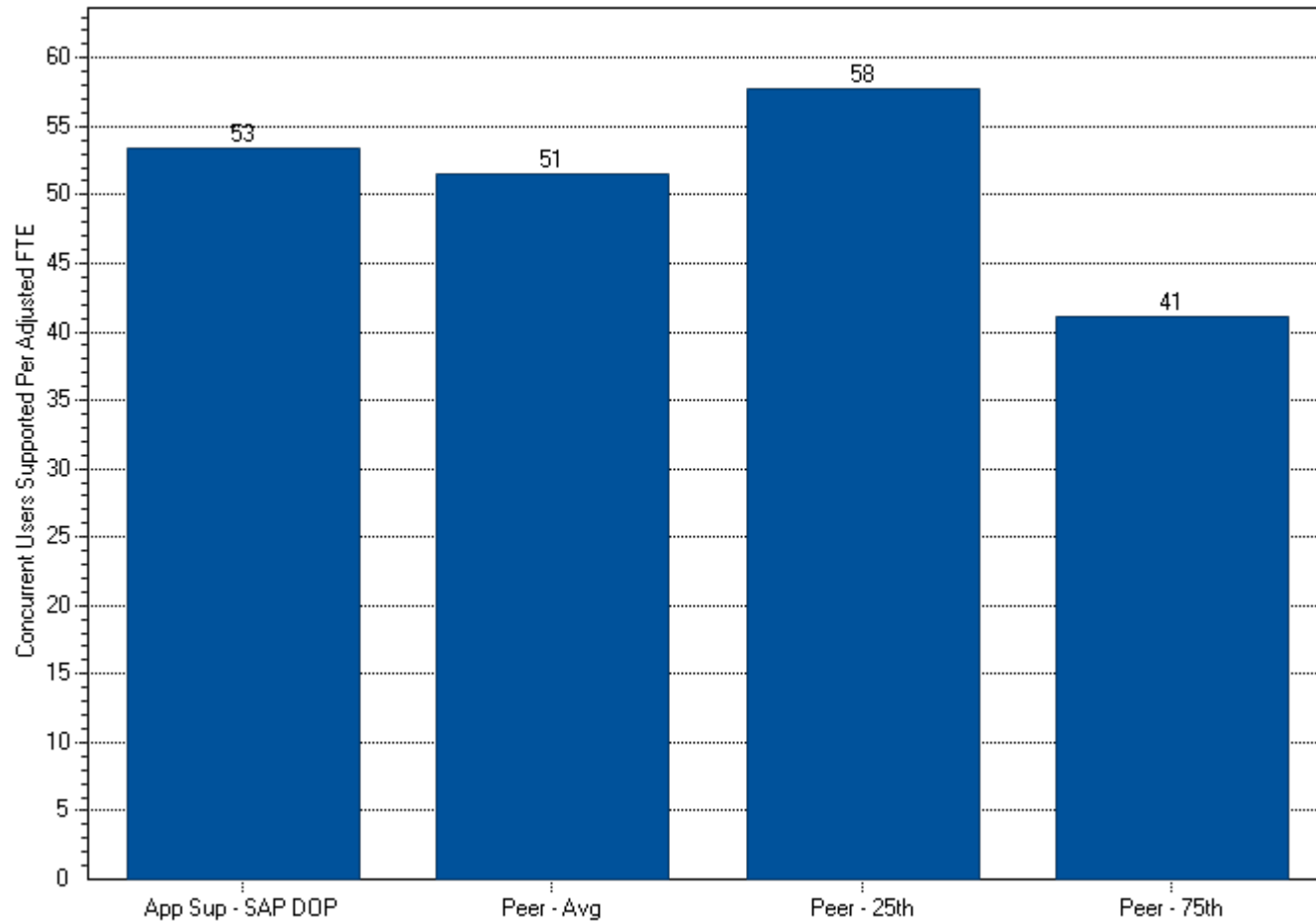
ERP Support – DOP SAP
Total FTEs by Staff Category

	App Sup - SAP DOP	Peer - Avg	Peer - 25th	Peer - 75th
Services Administration	9.1	0.3	0.2	0.3
Management and Administration	5.0	0.0	0.0	0.0
Database Technology	0.9	0.0	0.0	0.0
Quality Assurance/Testing	6.8	0.0	0.0	0.0
Infrastructure Development	2.0	0.0	0.0	0.0
Programmer/Analyst	7.9	38.2	34.1	47.9
Planning and Process Management	2.8	0.0	0.0	0.0
Project Tracking	3.6	0.0	0.0	0.0
Business Analyst	3.0	4.3	3.8	5.4

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ERP Support – DOP SAP
Cost Per FTE - Insourced & Contractor Blended Total
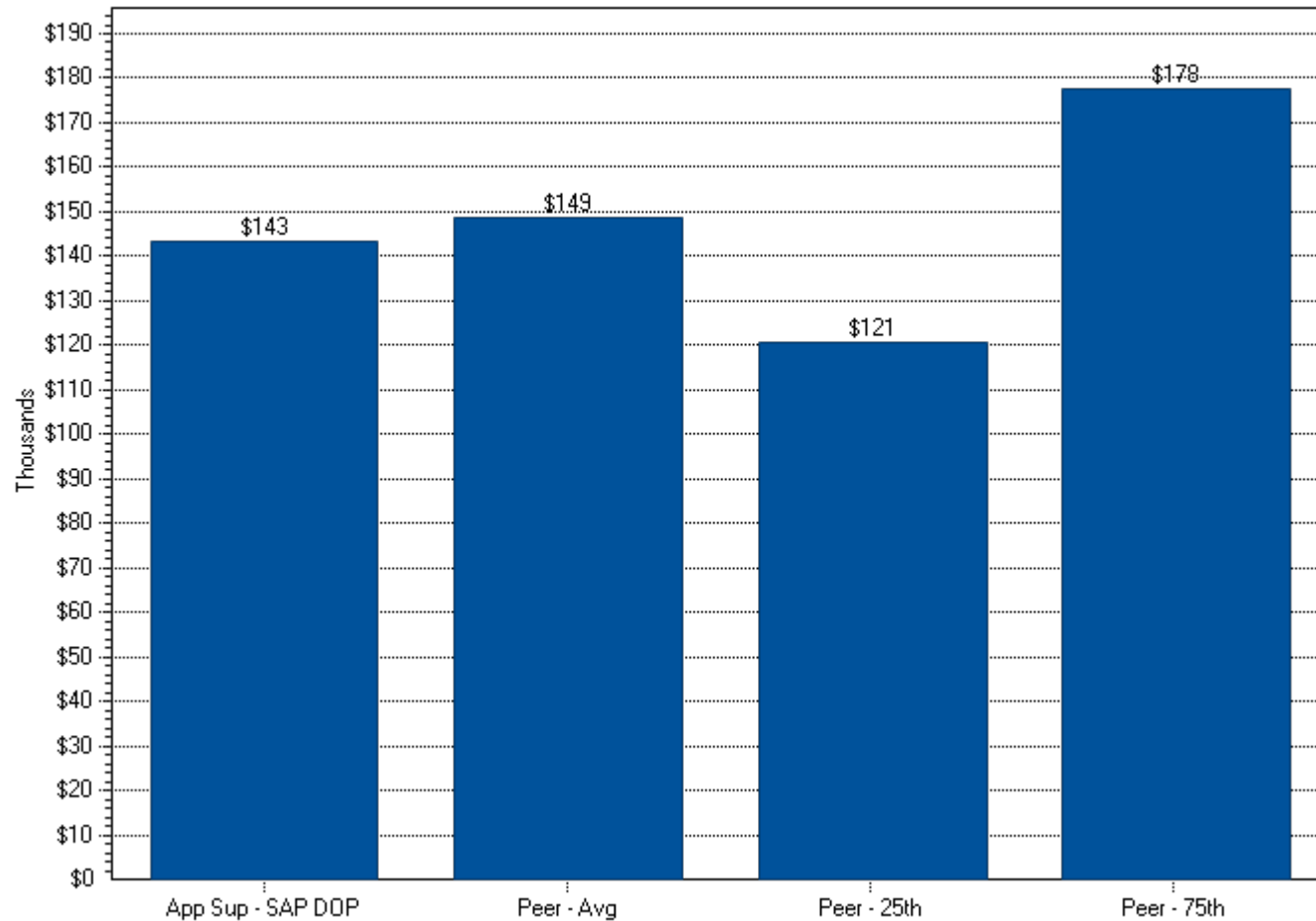
Gartner.

Process Maturity Self-Assessments

Process Maturity Self-Assessments

■ Gartner provided agencies the opportunity to complete self-assessments for process maturity in both infrastructure and applications areas.

■ The format of the questionnaires was a multiple choice response.

   – Responses described attributes for each process question for different levels of maturity.

   – Agencies were instructed to select responses for which they met all attributes (if they met some but not all in a given description, to select the next lower response level).

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Overall I&O Maturity Model
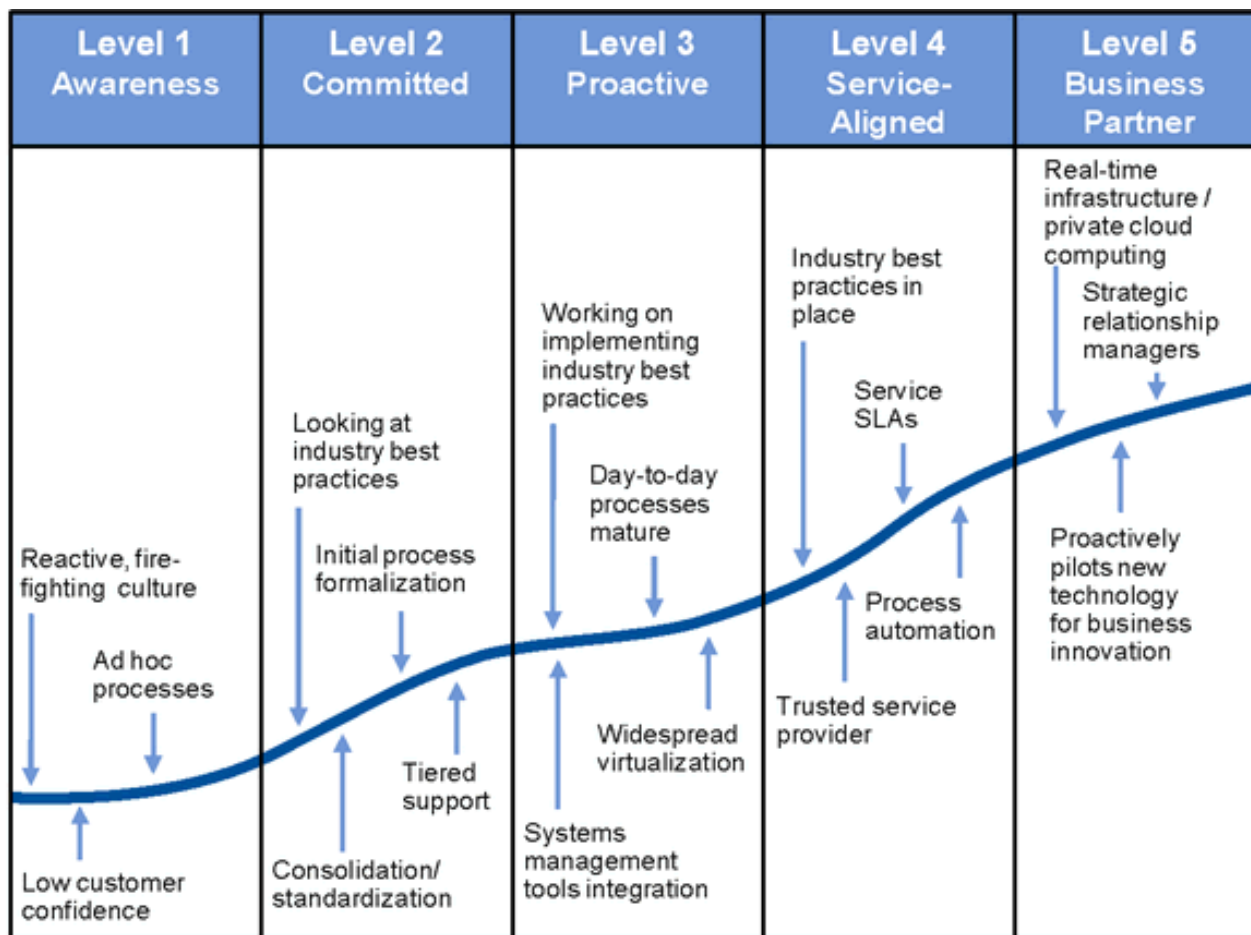
Reference: ITScore for Infrastructure and Operations,17 September 2010, ID: G00205992

Infrastructure Process Maturity

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Infrastructure Process Maturity

Gap to Peer

Process	
IT Financial Management / Chargeback	
Service Level Management	
Capacity Management	
Incident Management	
Change Management	
Problem Management	
Configuration Management	
IT Asset Management	
Information Security Management	
IT Service Continuity Management	
Release Management	
Business Relationship Management	
Demand Management / IT Governance	

Axis: (1.40) (1.20) (1.00) (0.80) (0.60) (0.40) (0.20) - 0.20 0.40 0.60

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Infrastructure Process Maturity

Average Overall Infrastructure Process Maturity

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Overall Applications Maturity Model
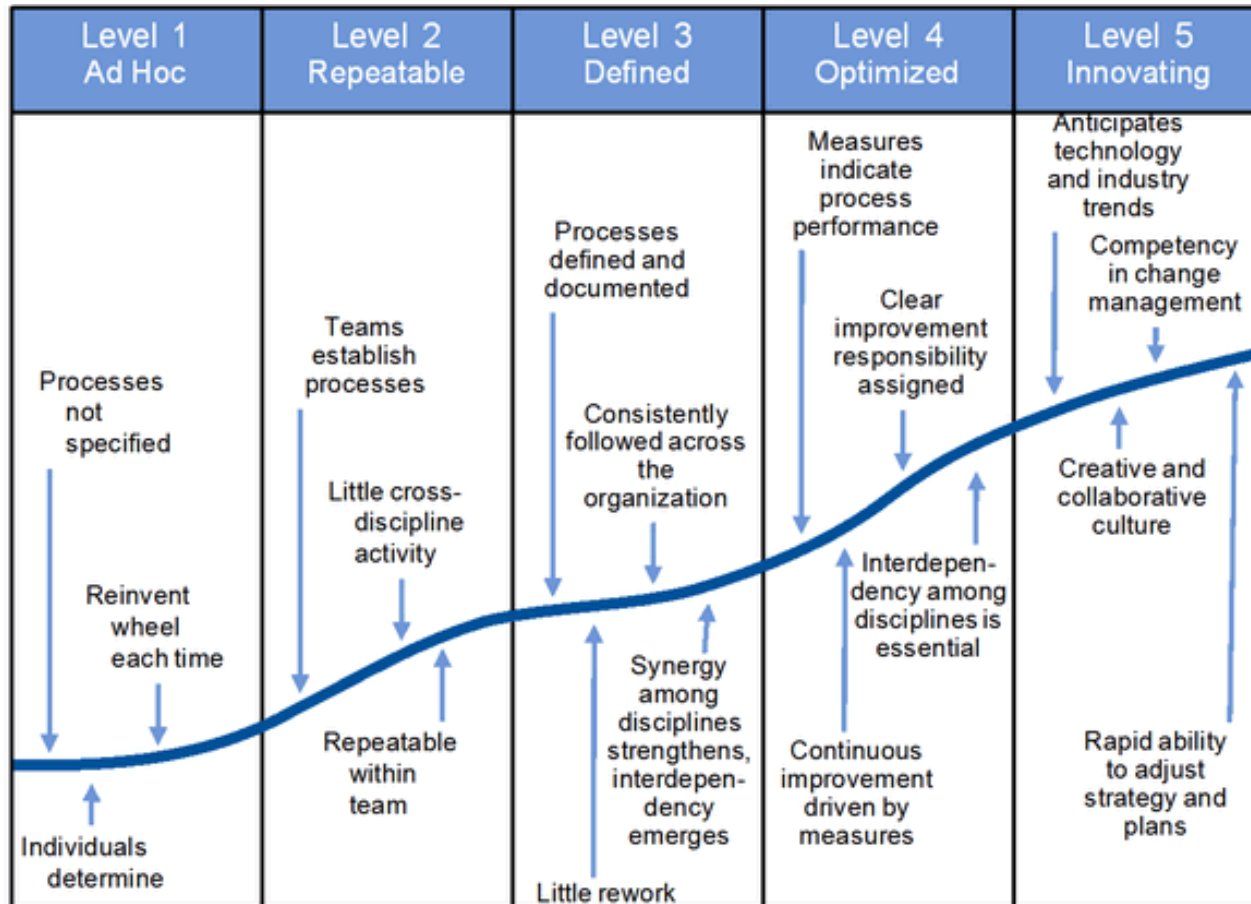
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Applications Process Maturity

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Applications Process Maturity

Gap to Peer

- Project Portfolio Management
- Staff Management
- Operations Performance Management
- Architecture Management
- Software Process Management
- Vendor Management
- Financial Management
- Application Portfolio Management

(0.80) (0.60) (0.40) (0.20) - 0.20 0.40

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Applications Process Maturity

Average Overall Applications Process Maturity

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Applications Process Maturity
Project and Portfolio Management Maturity Model and Actions

	Characteristics	Recommended Actions	Critical Success Factors
Level 5: Innovating	Experimental application projects in portfolio Processes to quickly kill losing experiments and help winners succeed	Routinely monitor process to guard against complacency	Balanced qualitative and quantitative benefits review in place
Level 4: Optimized	Clear business accountability for investment process Investment decisions based on business value Resources managed based on skills and their proficiency level	Create embedded processes to ensure continuous improvement Get comfortable with innovative, experimental projects	PPM can be facilitated by IT, but ownership must be in the business
Level 3: Defined	Formal project management methods Formal portfolio management Project actuals consistently tracked Formal demand and supply mapping is conducted at the resource pool level	Make risk management a formal competency Move responsibility for PPM investment decision processes to the business Make application PPM part of overall capital planning process	Focus on continuous improvement, business value and efficiency
Level 2: Repeatable	PMO exists Rudimentary measurements Consistent project management processes Inventory and rudimentary portfolio management Single-project-oriented tools	Establish accurate project time recording Collect skills and proficiency information for resource management	Change behavior, from punishing time reported over budget to rewarding accuracy
Level 1: Ad Hoc	No portfolio Prioritization primarily political Informal dialogue on business needs Project budgets set, not estimated Status only known at milestone level	Assign responsibility for PPM, usually to PMO Create a PMO to standardize project management methods Establish measures to demonstrate improvements	PMO builds relationships and technologies at a portfolio level, not a project level

Reference: ITScore for Application Organizations: Project and Portfolio Management, 17 September 2010, ID: G00200541

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	Characteristics	Recommended Actions	Critical Success Factors
Level 5: Innovating	Budget cycles are really a continuum Budgets contain allocation for R&D to drive innovation	Routinely monitor your processes to guard against complacency	Allocate R&D budgets
Level 4: Optimized	Integrated program, project, and maintenance and support budgeting Business case used throughout project life cycle and to define accountability of specific business organizations Staff planning coordinated with APM and PPM Budget cycles tied to business cycles Cost, business value, benefits and risks well understood Performance management tools are in place	Drive IT financial management concepts to lower levels of the organization Budget for innovative, experimental projects	Communicate to business areas frequently on cost performance
Level 3: Defined	Consistent and standard processes Formal link between budgets and activities performed at the application level Formal link between business benefits and budgets for projects Business case baseline used to assess project success Formal tracking of vendor spending and performance Formal reallocation of budget during the year Costs, benefits and risks are formally monitored and reported on	Integrate program and project management cost tracking and budgeting Develop portfolio management concept Link IT risk initiative to a global initiative Develop consistent rules for moving budget among projects Use activity-based costing to understand cost drivers	Integrate IT finance staff with enterprise finance staff
Level 2: Repeatable	Project budgets are in place Basic categorization of support spending is in place Business case only used to get funding Vendor spending is monitored Yearly budget cycles are in place No formal risk management process	Manage projects from a budget, commitment and actual expense perspective Manage IT as a cost center, but categorize spending as run, grow, transform Develop KPIs for financial management of business applications	Establish basic budgeting practices
Level 1: Ad Hoc	Overlapping projects funded independently by business stakeholders Maintenance and support not tracked in budgets Business cases inconsistent and value not tracked Few financial metrics Multiple contracts with vendors and no overall spend tracking No defined capital and expense budgeting process	Establish financial role in IT Establish separate application budget Align application financial management with PPM and APM Enlist corporate finance to link IT financial management to CPM	Set up roles and organization

Reference: ITScore for Application Organizations: Financial Analysis and Budgets, 17 September 2010, ID: G00201152

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	Characteristics	Recommended Actions	Critical Success Factors
Level 5: Innovating	Regular review and optimization of the application portfolio Relative value assessments. Multifaceted application overhaul initiative exploring alternative strategies to reduce cost and risk for given performance	Monitor vendor and technology road maps for new openings for application strategy Aggressive consolidation or retirement to reduce multiple system windows	Well-developed partnership of business stakeholders and app. managers
Level 4: Optimized	For each application, there is a strategy that guides ongoing governance pertaining to its management, investment and future retirement schedule Projects for re-engineering or redeployment are identified, quantified and prioritized for completion Projects for re-engineering or redeployment are sponsored by the business, not IT Planning and management transition complete Process metrics are maintained and used for management	Establish a regular process for reviewing portfolio Build update of portfolio data into other application management processes Extend APM to further enhance business quality initiatives	Visibility of costs and risks at business stakeholder level
Level 3: Defined	APM roles and responsibilities for ownership are defined Named resources, whether dedicated or part time, are assigned Operations and support budgets are maintained Applications and business processes are clearly linked and assessed Life cycle assessment complete for each application Planning and management transition begins	Use measures and metrics to establish strategy recommendations for each application Create mechanism to generate projects from application business value review process Earmark funds specifically for APM-driven activities	Tie APM actions like retirements to new development activities
Level 2: Repeatable	Definition of applications Visibility into the application inventory Formality of migration/extension/re-engineering	Expand inventory process to collect business process and application quality Implement time reporting to identify project and support effort by applications Expand data collection to include business estimation of value and satisfaction Establish and monitor levels of expense and risk	Start to formalize terms and processes
Level 1: Ad Hoc	Lack of consistent definition, collection, assessment and action on information about existing portfolio No process or schedule for management review of portfolio No context for analyzing cost or implications of gaps or overlaps in portfolio Focus on short-term activities Individual applications may be well-managed, but portfolio inconsistent and underoptimized	Establish application portfolio and APM process Create charter for senior management specifying progress milestones and measures of success Inventory applications and identify stakeholders	In large organizations, responsibility for APM in PMO or EA team Initially focus on high-level inventory

Reference: ITScore for Application Organizations: Application Portfolio Management, 17 September 2010, ID: G00205534

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Applications Process Maturity
Software Process Management Maturity Model and Actions

	Characteristics	Recommended Actions	Critical Success Factors
Level 5: Innovating	Software process directly tied to business needs Agile methods used to engage business Some development teams have non-IT leaders	Routinely monitor process to guard against complacency	Regular reviews of processes
Level 4: Optimized	Formal, centralized dashboards used to monitor processes Formal process consulting is performed Continuous process improvement linked to measures Formal and consistent update of methods	Integrate formal software process consulting into review and project review processes Target measures not only at efficiency, but effectiveness Pilot new methods, such as explicit agile or agile linked with BPM Evaluate pilots via above measures	Organizational measures can begin to be targeted at results, not just behaviors
Level 3: Defined	"Just enough" processes defined and followed Formal link between process, role and skill Formal software process architecture is followed Software engineering function exists and is adequately staffed Formal inspections required for each deliverable	Determine which dashboard measures to improve Develop new processes to achieve targeted results Create second- and third-tier measures to demonstrate the effect of changes	Organizational incentives should be targeted at behaviors, not end results
Level 2: Repeatable	Chart of accounts with defined deliverables Requirement management Change management Basic configuration management Basic quality assurance Project-based metrics used by some teams	Define major work routes for major project types Define work deliverables for major project types Assign process management responsibility Begin to create a registry of software assets	Focus improvement activities on consistency
Level 1: Ad Hoc	No consistent process is followed No measures or metrics to evaluate need for change Business sees projects always late and over budget Non-objective project status and success reporting No requirements management	Assign an individual or group to be responsible for change Define what "success" means with simple measures Focus on managing projects well Implement requirements management, quality assurance, performance management and measurement processes	Organization must develop core competency for change Incentives, performance ratings consistent with new behaviors

Reference: ITScore for Application Organizations: Software Processes, 17 September 2010, ID: G00201668

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Applications Process Maturity
Operations Performance Management Maturity Model and Actions

	Characteristics	Recommended Actions	Critical Success Factors
Level 5: Innovating	Accommodate changing business priorities or requirements The application organization, I&O and the business routinely collaborate around planning Application organization anticipates business direction	Routinely monitor process to guard against complacency	No major actions needed to improve performance
Level 4: Optimized	SLAs for each service performed with measures associated Measures for each service level A line of sight between service levels and costs Service levels for testing and production turnover	Augment processes to build in continuous improvement	Service-aligned organization with performance metrics reflecting business outcomes
Level 3: Defined	Follows comprehensive and common processes for production support of all applications SLAs established and linked to budgets and staffing Tools are used to ensure performance and conformance	Establish program to collaborate with business representatives to identify most meaningful metrics Reexamine and reset SLAs to ensure they reflect business outcomes	Application organization is key contributor to I&O processes
Level 2: Repeatable	Prioritized inventory of applications to support Developers perform "on call" support on a rotating basis Some repeatable processes Rudimentary SLAs for availability and performance Redundant incident management processes	Collaborate with I&O to define common and shared processes Develop SLAs aligned with business objectives Evaluate tools to monitor application performance and control key processes	Ensure appropriate business involvement in defining SLAs and KPIs
Level 1: Ad Hoc	Ad hoc unplanned, support from development organization Support and change request processes not documented No SLAs Support costs of specific apps or organizations not broken out	Formalize roles and responsibility within /between application and I&O organizations Establish formal ownership for incident management, release & production turnover responsibilities Construct framework for division of tasks and accountabilities	Address applications with most problems first

Reference: ITScore for Application Organizations: Operations and Support Collaboration, 17 September 2010, ID: G00201151

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Applications Process Maturity
Architecture Management Maturity Model and Actions

	Characteristics	Recommended Actions
Level 5: Innovating	Culture that rewards innovation, even failed innovations Rapid assimilation of new designs and technologies Selection of a wide array of architectural choices	Routinely monitor process to guard against complacency
Level 4: Optimized	Application architecture processes and reuse are measured and continuously improved Application architecture drives the majority of application development and modification across the enterprise COTS technology has service-level agreements to validate adherence to architectural standards Enterprise architecture and application architecture are synergistic	Allow more variation in the processes and practices to capture innovations
Level 3: Defined	Common application architecture artifacts and processes shared across teams and projects Relationships with stakeholders ensure architecture reflects business strategy Architectural processes and standards feature prominently in other disciplines	Develop metrics to measure effectiveness in meeting business objectives Institutionalize a continual process improvement program Evolve application architecture management to accommodate flexibility at the solution level
Level 2: Repeatable	Processes are repeatable within a given team or project Larger application teams and initiatives struggle with business processes and information that crosses organizational boundaries	Charter application architecture as a distinct enterprise discipline Promote, measure and reward the sharing of architecture artifacts and best practices Establish repository for managing and sharing application architecture artifacts Roll out application architecture to a few teams and projects
Level 1: Ad Hoc	Application architecture not formally documented or managed	Pilot application architecture as a distinct discipline Begin an application architecture training program

Reference: ITScore for Application Organizations: Management of Architecture, 17 September 2010, ID: G00175936

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Applications Process Maturity
Vendor Management Maturity Model and Actions

	Characteristics	Recommended Actions	Critical Success Factors
Level 5: Innovating	Partner with vendor to drive innovation and develop new solutions Are establishing an ecosystem of strategic partners Have rating and feedback systems	Determine which vendors can become strategic partners versus which will remain tactical suppliers Build an ecosystem of strategic vendor partners Maintain flexibility to renegotiate and update the ecosystem vendors as needed	Continuous ratings and feedback from the ecosystem
Level 4: Optimized	Differentiated processes fit most vendor situations Selection and performance driven by business strategy KPIs drive continuous improvement of processes Qualitative performance monitoring Centralized sourcing function	Review metrics to drive continuous improvement of processes Develop key vendors as partners Understand vendor's strategic objective and compare to business strategy	Benchmark with other Level 4 or 5 companies
Level 3: Defined	Selection and sourcing processes consistently followed Continuous evaluation against business requirements Issue/defect resolution and escalation Mutual exchange of business value Vendor performance measured against business outcomes	Establish KPIs to assess effectiveness of processes	Refine processes and KPIs as needed
Level 2: Repeatable	One-size-fits-all processes No continuous evaluation of vendor fit Uncoordinated application buying inside and outside IT Metrics vary by organization or project	Define common processes across multiple departments and divisions Form review board to evaluate exceptions Establish common metrics for vendor and process performance	Build differentiated processes based on exceptions
Level 1: Ad Hoc	RFP, selection and negotiating processes vary by team No defined roles or rules of engagement Focusing on transaction at hand undermines trust Performance review is ad hoc	Create central vendor inventory Establish common processes Assess product/service performance Monitor vendor strategy against emerging requirements Follow best procurement practices	Attain buy-in and follow best practices

Reference: ITScore for Application Organizations: Vendor Management, 17 September 2010, ID: G00200587

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Applications Process Maturity
Staff Management Maturity Model and Actions

	Characteristics	Recommended Actions	Critical Success Factors
Level 5: Innovating	Culture encourages and rewards creativity, innovation and experimentation Long-term view to develop skills before need Leaders and professionals adept at absorbing change	Focus on retaining top talent Routinely monitor process to guard against complacency	Tight engagement with colleagues in advancing the business mission and driving transformation
Level 4: Optimized	Staffing, skills and sourcing supply management model Staff, skills and sourcing managed as "portfolio" to drive continuous improvement Actively develop skills to anticipate future needs Resource management influences processes in APM, PPM, finance, architecture, software, etc.	Guide the culture toward creativity, innovation and adaptiveness	Create urgency for further improvement
Level 3: Defined	Standard roles and responsibilities across organization Regular, consistent performance reviews and development plans Accurate inventory of skills drives assignments and development Defined processes for succession planning, retention and sourcing Defined process and uniform terms for external service providers Resource forecasting and skills plans integrated with APM and PPM processes	Review standard HR processes for effectiveness for application staffing and skills Define metrics based on achieving business objectives	Dynamic, supportive environment
Level 2: Repeatable	Roles and responsibilities defined inconsistently at team level Reactive sourcing response to shifts in demand Budget-based hiring and sourcing Skills inventory at team level Use standard HR objective setting and performance management	Share best practices and identify high-value areas Create common set of job and role descriptions, skills inventory and career development plans Establish consistent set of sourcing policies for services	Communicate rationale to avoid paranoia Make individual managers responsible for processes
Level 1: Ad Hoc	Roles and responsibilities informally defined No formal sourcing process Work assignments are arbitrary, within capability of narrow teams Performance and development are informal and inconsistent	Clarify and communicate roles Identify skills gaps Provide regular feedback	Strengthen management discipline and collaboration among managers

Reference: ITScore for Application Organizations: Staffing, Skills and Sourcing, 17 September 2010, ID: G00200512

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