



# Assessment Results

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If there is an area from the TSI rubric for which you were particularly interested in obtaining recommendations but does not appear on your results above? Because you've obtained a profile of your district or school you are eligible to view all possible recommendations. [Click here to view all possible recommendations](#) — this links to a page that is restricted only to those who have completed the profile.

## Technology Profile and Action Plan for Improvement

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### Overall Result Summary

According to the Technology Support Index (TSI) your system is considered "Satisfactorily Efficient" requiring limited improvements. The "Satisfactory Efficiency" level of development refers to a system that is doing a very good job of support in many areas. Improvements in a number of areas will enhance the organizational capacity to effectively implement technology.

Following is your technology profile and action plan for improvement, by domain:

## District Profile

### 1 Equipment Standards

	Low Efficiency	Moderate Efficiency	Satisfactory Efficiency	High Efficiency	Impact
<b>Cycling of Equipment</b>	<i>No, we do not have a replacement cycle.</i>	Yes, we replace computers every 5-7 years.	Yes, we replace computers every 4-5 years.	Yes, we replace computers every 3 years.	Significant - Requires a strategic organizational and financial commitment
<b>Brand Selection</b>	The brand purchased is up to the individual school.	There is a brand recommendation list, but I am able to easily purchase non-standard equipment AND the brand changes frequently.	There is a brand recommendation list with 1-2 brands, but I am able to easily purchase equipment that is not on the list.	<i>We have 1-2 specific brands that we purchase over a multi-year period. All purchases are made from that brand.</i>	Neutral - Savings can be gained with multiple year contracts.
<b>Model Selection</b>	We can select any model within a brand or manufacturer.	A model line is defined, but many choices are provided in that line.	There are 3-5 models that we can select from for purchase.	<i>Specific models from a brand are defined and are limited one or two models with few variations.</i>	Neutral

<b>Platform</b>	Two or more platforms are supported in the district, and in any given school individuals are given platform choice and multiple platforms are found.	Two or more platforms are supported in the district, but platform decisions are made at the school level and most equipment at any given school is one platform.	<b>Two platforms are supported in the district, but one platform is predominantly used with a second platform limited to specific program areas or instructional applications.</b>	Only one platform is allowed regardless of application or impact.	Neutral - Savings can be gained with a single platform
<b>Standard Operating System (OS)</b>	Four or more with all operating systems supported.	<b>Three, with older equipment either migrated or not supported.</b>	Two, with most equipment migrated to the most recent OS.	One, with all equipment migrated to the standard OS.	Moderate - Keeping a consistent OS with new purchases has no cost implications. Migrating existing machines to a current operating system can have moderate costs to purchase the new OS and upgrading hardware to run it.
<b>Application Software Standard</b>	A supported software list has not been adopted, and users can install any software.	<b>Users are able to install titles that are not on the district list, and will receive limited support.</b>	Users are able to install titles that are not on the district list, but will not receive any support.	A software application list has been adopted and only those software titles on the list are permitted on school computers.	Neutral
<b>Donated Equipment</b>	We accept any donated equipment.	Equipment is accepted if it meets minimum performance requirements. Brands and age are variable.	<b>Equipment is accepted if it meets specific performance requirements, is less than three years old, and matches the brand(s) of the district.</b>	Equipment is accepted if it meets specific brand, model, and performance requirements and is less than two years old. Cash donations are encouraged instead of equipment.	Neutral
<b>Granted Equipment</b>	All granted equipment is accepted.	Grant equipment is accepted regardless of brand and specification, but the district is consulted about standards.	<b>The technology department approves grants involving technology equipment before they are submitted, and standardization is encouraged but is not consistently enforced.</b>	All equipment from grants must meet district brand and performance specifications or it is not allowed.	Neutral
<b>Peripheral Standards</b>	No peripheral standards are set.	Peripherals are standardized by brand, but models within the brand are not and the list changes frequently.	Peripherals are standardized by brand, but many models are allowed and are typically consumer rated.	<b>All equipment is standardized on a small number of brands and models with equipment that is rated for industrial/school use.</b>	Minimal - Industrial versions of peripherals are more costly, but are typically balanced with longevity and reduced support costs.
<b>Surplus Practice</b>	<b>Surplus equipment is used until it is no longer functional and is supported.</b>	Surplus equipment is supported by district personnel, but as a low priority.	Surplus equipment is no longer supported by district personnel, but can be used by schools.	Surplus equipment is taken out of service when it reaches the replacement age, even if it still works.	Neutral
<b>Break/Fix Agreements (Warranties)</b>	No additional warranties are pursued beyond the standard warranty (1 year).	<b>Extended warranties are purchased for computers only but don't cover the life of the equipment and doesn't include peripherals (3 years, computers only).</b>	Extended warranties are purchased in addition to the standard warranty on computers and peripherals but don't cover the life of the equipment (3 years, all equipment).	Warranties are purchased to cover the life of the equipment (5 or more years).	Moderate to High - Warranties beyond 3 years can be expensive
<b>Security Procedures</b>	Security guidelines are loosely defined or do not	Fairly secure guidelines are in place but are not closely	<b>Fairly secure guidelines are in place and followed, but more</b>	Very secure guidelines and practices are in place and are	Neutral - Most organizations have security tools at their

	exist resulting in substantial vulnerabilities.	followed.	<i>stringent guidelines would provide a more secure environment (e.g. password rotations, etc.).</i>	consistently practiced including limited administrative access to machines, password rotations, and "strong" passwords (letters and numbers).	disposal, but often under utilize them.
<b>Security Hardware and Software</b>	No firewall or software security standards are in place.	A firewall is in place but ports are commonly opened. Software security standards are limited to promises by the vendor with limited auditing activity.	<i>A firewall is in place with some opening of ports. Software security audits are in place for major systems with periodic security audits.</i>	A firewall is in place and opening of ports is very limited. Software security standards are in place for all software along with periodic security audits.	Minimal to Moderate

**Domain Result Summary:** According to the TSI your Equipment Standards (Domain 1) is considered "Moderately Efficient" requiring attention and improvement. The "Moderate Efficiency" level of development refers to a system that has some areas of excellence, but typically isolated and limited in implementation. While there is some good support in place, improvement will be required to overcome technology challenges

**Recommendation:** The support costs for technology equipment rise exponentially when it is left in service beyond its normal expected life. Most school districts continue investing in older technology equipment even at extraordinary cost and limited capability because a systematic replacement cycle has not been adopted. An adopted cycle (3-5 years), either through equipment leasing or by purchase and replace is recommended for your school district.

**Cost:** Significant

**Resources:** School districts committed to the use of technology are adopting replacement cycles to avoid obsolescence. Lake Washington School District ([www.lkwash.wednet.edu](http://www.lkwash.wednet.edu)) adopted a 5-year cycle and 4:1 student to computer ratio for their entire district. Tucson Unified School District ([www.tusd.k12.az.us](http://www.tusd.k12.az.us)) adopted a replacement cycle through a leasing program called Eduflex replacing all equipment every 3 years ([www.compaq.com/education/k12/success/tucsonunified.html](http://www.compaq.com/education/k12/success/tucsonunified.html)). Most manufacturers (e.g., [www.compaq.com](http://www.compaq.com), [www.apple.com](http://www.apple.com)) offer leasing programs.

**Recommendation:** Decades of funding issues in schools has created a culture that uses every resource to the very end of its life. Unfortunately with technology when equipment has reached the end of its reasonable life it begins to cost the district enormous resources to keep it in service. Even if no support is provided, staff time for troubleshooting and other indirect resources are substantial. Like textbooks that are replaced and surplussed on a cycle, technology should be surplussed after its usable life even if the equipment may still work. This strategy can be challenging for districts that have a culture of extreme frugality or do not have an adopted upgrade cycle.

**Cost:** Neutral

**Recommendation:** Every software application introduces a new set of variables for support personnel. In addition to application functionality, each software application interacts with the operating system and all of the features of the district's technology solution. Each application that is used should be tested before it is introduced for full deployment. A list of tested applications and the known issues should be made available to users. To completely contain technical issues, installation of applications that are not on the list should not be permitted.

**Cost:** Neutral

**Recommendation:** Every operating system has its own set of advantages and disadvantages, along with technical requirements for operating effectively and efficiently. When multiple operating systems are supported in a district, the knowledge base required is greater, and troubleshooting becomes more challenging. Most technical issues are related either to hardware or operating system issues. As such, limiting the number of operating system versions in district is highly recommended.

**Cost:** Moderate

**Recommendation:** Most technology companies offer standard equipment warranties of 1-3 years. Equipment warranties save district support costs both in time and real dollars. In some cases a good warranty program can actually generate revenue for the district if they are a self-supporting warranty organization and receive warranty reimbursements. A good warranty program ensures access to equipment, specific expertise and timely service. At the time of purchase most companies will provide and extended warranty option. It is recommended that a district consider purchasing agreements that include a warranty matching the expected service life of the equipment.

**Cost:** Moderate to High

2 Staffing and Processess

	Low Efficiency	Moderate Efficiency	Satisfactory Efficiency	High Efficiency	Impact
<b>Organizational Structure</b>	The technology support comes from multiple points within the organization, and reporting is not functionally logical. Cross-functional collaboration is difficult or non-existent.	The reporting structures are difficult to identify, and direction comes from multiple points in the organization. Cross-functional collaboration exists.	The technical support functions and instructional technology functions report differently, but each unit is cohesively organized and there is effective communication between units.	<b>All of the technology functions report through the same unit in the organization, providing for a logical chain of command and communication structures.</b>	Neutral
<b>Contracted Primary Support</b>	<b>No, outside support is not used as the primary support strategy in the district.</b>	Yes, all support is contracted out, but the performance specification is written to personnel minimums, not a performance contract.	Yes, all support is contracted out and written to a performance specification requiring no more than a 5 day turn around on technical issues.	Yes, all support is contracted out and written to a performance specification requiring no more than a 72-hour turn around on technical issues.	High
<b>Contracted Supplemental Support</b>	No, contracted support is not used.	Yes, contracted support is used for emergencies but is not built in as a planned strategic support strategy.	Yes, contracted support is used as a part of the overall strategy but has not been closely evaluated to determine the most strategic places to use this support.	<b>Yes, contracted support is used strategically as a part of the overall strategy for complex problems or in areas where savings/efficiencies can be easily realized.</b>	Moderate
<b>Staffing to Computer Ratio</b>	<b>Our computer to technician ratio is over 250:1.</b>	Our computer to technician ratio is between 150:1 and 250:1.	Our computer to technician ratio is between 75:1 and 150:1.	Our computer to technician ratio is less than 75:1.	High
<b>Formula-Driven Technology Staffing</b>	<b>Staffing formulas are not used or considered.</b>	Formulas for staffing are considered but are limited in scope and are not used to drive staffing.	Comprehensive formulas have been developed considering multiple dimensions of the environment but are only used as a guide and do not drive staffing.	Comprehensive formulas have been developed and drive staffing as a normal part of operations. Formulas include multiple dimensions of the environment.	Moderate to High - Depending upon the nature of the formula, over time additional staffing is typically generated unless the desired computer penetration has been accomplished.
<b>Certification of Technical Staff</b>	Certification is not a priority in the organization and concerns are raised about time away from the job to pursue certification.	Technical staff is encouraged to become certified, but no support is provided toward certification.	<b>Some technical staff is certified in appropriate areas, others are involved in district supported programs toward certification.</b>	Most technical staff is certified in appropriate areas (e.g., Cisco, MCSE, etc.). New certification is encouraged and supported.	Minimal to Moderate
<b>Differentiated Job</b>	<b>Technical support</b>	Technical support	Some differentiation in jobs has	Job descriptions are fully	Neutral

<b>Descriptions</b>	<i>employees do it all; redundancies and inefficiencies are created as a result.</i>	employees do it all, but redundancies are not created due to small size and/or staffing levels.	occurred, although assignments are not provided based upon skill-set competencies.	differentiated creating specialization and efficiencies, and a clear avenue for support.	
<b>Technician Retention</b>	Technical staff turnover is very high; employee satisfaction is low.	Technical staff turnover is high due to other employment opportunities; employee satisfaction is fair.	<b>Technical staff turnover is moderate (excluding retirement); employee satisfaction is high.</b>	Technical staff turnover is very low (excluding retirement); employee satisfaction is very high.	Minimal
<b>Competitive Compensation</b>	Technical positions are poorly competitive, offering compensation in the bottom 50% of equivalent positions in the area.	<b>Technical positions are moderately competitive, offering compensation in the 50th to 75th percentile of equivalent organizations in the area.</b>	Technical positions are competitive, offering compensation in the 75th to 90th percentile of equivalent organizations in the area and offer competitive non-compensation benefits.	Technical positions are very competitive; offering compensation in the 90th percentile of equivalent organizations in the area and, in some cases, compete with private businesses for talent.	Moderate to High
<b>Escalation Process for Technical Issues</b>	<b>No escalation process is in place, and the path for resolution is unclear.</b>	A clear path for resolution is in place, but no escalation process is recognized.	An escalation process is in place with two steps of escalation, and significant crossover between levels.	A well-defined escalation process is in place, with three or more steps of escalation, and a clear path for resolution.	Minimal
<b>HelpDesk</b>	No HelpDesk support is provided.	A HelpDesk is provided for staff but is not fully staffed. The HelpDesk is used for emergencies only and is not used as first line of defense.	<b>A central HelpDesk is in place, but the organizational culture has not adopted the HelpDesk systemically.</b>	A central HelpDesk is in place with trained HelpDesk staff, and a culture of using the HelpDesk as the first line of defense is pervasive.	Minimal to Moderate
<b>Use of Online Knowledgebase for Technical Help</b>	Staff seeks no online help due to both availability of resources and district culture.	<b>Some staff seeks online help, but the behavior is not pervasive and resources are limited.</b>	Many staff seek online help, but not as a first line of defense.	Most staff seeks help from an online knowledgebase as their first line of defense for most issues.	Minimal to Moderate
<b>Software Support Protocols and Standards</b>	<b>No list of supported software is provided for users.</b>	A list of supported software is provided, but no differentiated processes are provided for limited support products.	A list of supported software is provided with differentiated processes, however users and staff do not follow them closely.	A list of supported software is provided, with clear differentiated processes for each set of software that are consistently used.	Neutral
<b>New Equipment Deployment</b>	The local school staff is responsible for the deployment of new equipment.	<b>The regular technical staff manages all aspects of new equipment deployment resulting in a reduction in regular service.</b>	Additional help (internal or by contract) is utilized for imaging and tagging of new equipment, but setup is the responsibility of the regular technical staff creating some delays in regular technical service.	Additional help (internal or by contract) is utilized for all aspects of new deployment resulting in no disruption to regular technical support services and the instructional program.	Moderate
<b>Documented Procedures</b>	Little or no documentation exists for technical tasks, requiring users and technical staff to invent their own solutions.	<b>Some documentation exists for technical tasks but is not widely shared or used. Most documentation is limited to few technical staff only.</b>	Documentation exists for technical tasks but is poorly written and is not systematically updated as procedures are developed.	Documentation exists for most technical tasks and is used by most user groups. Well-written documentation production is a normal part of operations.	Minimal to Moderate
<b>Support by Teachers</b>	Teachers and librarians provide all of the technical	Teachers and librarians provide much of the	Teachers and librarians serve as the contact point, and	<b>Teachers and librarians are used as the contact point in the</b>	Neutral

	assistance in the building.	technical assistance in the building with release time or stipend.	perform some of the technical work in conjunction with technical staff.	<b><i>building but do not perform technical support work.</i></b>
<b>Student Support</b>	Students provide support for school in an ad-hoc manner due to limited district support.	Students are used extensively, in an official capacity, and supplant district support.	<b><i>No student support is provided.</i></b>	A curricular program is designed to train students in technical support. They support district technology, but in a peripheral way as part of their instructional program only.

**Domain Result Summary:** According to the TSI your Staffing and Processess (Domain 2) is considered "Moderately Efficient" requiring attention and improvement. The "Moderate Efficiency" level of development refers to a system that has some areas of excellence, but typically isolated and limited in implementation. While there is some good support in place, improvement will be required to overcome technology challenges

**Recommendation:** School districts are finding that under certain circumstances completely outsourcing a function of the organization is not only desirable but preferred. By doing this, it allows the school district to concentrate on its core competency, educating children. Technical support if managed appropriately can be effectively outsourced providing an efficient and effective technology support strategy.

**Cost:** High

**Recommendation:** Certainly the most challenging (and costly) issue related to technology support in schools is staffing. Most private industries staff technical support with a technician for every 50 to 100 computers. School districts, on the other hand, will commonly see ratios of 250:1 or greater. It is recommended that technology staffing is prioritized to ensure that downtime is minimized and that staff and students can readily depend upon the district's technology.

**Cost:** High

**Recommendation:** The most effective support organizations are those that can match the identified problem with appropriate expertise as quickly as possible. Efficiency is will make or break a support strategy. Further, to contain costs routine tasks should be handled by employees with less expertise (and salary) while high-level employees should be focused on only the most complex problems to resolve. Appropriate matching of issues to employees is most effectively handled through an escalation process with multiple levels of support. All tasks start at the lowest level of expertise for identification and are escalated up the organization according to complexity and urgency. Districts of all sizes should have an escalation process in place.

**Cost:** Minimal

**Recommendation:** Unlike the business environment that supports a relatively limited number of software applications, in education there are hundreds of titles. In today's environment it is impossible to fully support every product. It is important to establish guidelines for support that will help guide in the purchase of software, and will establish reasonable expectations for staff. This typically results in a list of software with different categories of support and expected action. So that support activity matches employee expectations, it is recommended that a supported software list and protocols is put into place.

**Cost:** Neutral

**Recommendation:** Specialization creates efficiencies for an organization. In particular areas of expertise, specialization is particularly effective. With a broad spectrum of knowledge in technology, job descriptions and hiring practices that have a defined skill set are important to help delineate workflow and reduce redundancies. It is recommended that clear delineated job descriptions are part of your technology organization.

**Cost:** Neutral

3 Professional Development

	Low Efficiency	Moderate Efficiency	Satisfactory Efficiency	High Efficiency	Impact
<b>Comprehensive Staff Development Programs</b>	<i>There is no formal staff development program in place. Training is provided infrequently, and the organization depends upon individuals' own motivation to build expertise.</i>	A staff development program is in place but is limited, voluntary, and uses a single dimension in its delivery.	A staff development program is in place but is not comprehensive in nature in that it does not impact all staff and does not offer the depth required to change the organization.	A comprehensive staff development program is in place that impacts ALL staff. The program is progressive in nature, and balances incentive, accountability, and diverse learning opportunities.	High
<b>Online Training Opportunities</b>	<i>Online training opportunities do not exist.</i>	Online training opportunities exist but are limited in scope and are available to a limited number of employees.	Online training opportunities are available for staff onsite and remotely but are limited in their offerings.	Online training opportunities are provided for staff both onsite and remotely, and represent a diversity of skill sets.	Minimal to Moderate
<b>Just-in-time Training</b>	<i>No just-in-time training process or delivery system has been put into place.</i>	Just-in-time training is used, but the process and delivery system has not been refined so it can be used realistically within the organization.	A process and delivery for just-in-time training is in place, but has not been adopted by the organization as a mechanism for solving issues.	A process and delivery system has been established for just-in-time training organization-wide and is used consistently.	Moderate
<b>Expectations for All Staff</b>	<i>Expectations of staff are not clearly defined and are not part of the organizational culture.</i>	Expectations of staff are articulated but are limited in scope.	Expectations of staff are articulated and are broad in scope, but have not been adopted as part of the organizational culture.	Expectations for all staff are clearly articulated. Performance expectations are built into work functions and are part of the organizational culture.	Neutral
<b>Troubleshooting as Part of Professional Development</b>	<i>No form of troubleshooting is integrated into the professional development program.</i>	Troubleshooting is built into the professional development program but is limited in scope and provided inconsistently. Roles and responsibilities are not clearly defined.	Troubleshooting is built into the professional development program and is used as a major strategy for technical support. Technical versus end-user roles and responsibilities are not clearly defined.	Basic troubleshooting is built into the professional development program and is used as a first line of defense in conjunction with technical support.	Minimal to Moderate
<b>Training for Technical Staff</b>	Technical staff is only given training to take care of the immediate issues in the district. Advanced training is not encouraged.	<i>Technical staff receives consistent training around emergent issues. Advanced training is not district sponsored but is encouraged.</i>	Technical staff receives consistent training around emergent issues, and have limited district-sponsored opportunities for advanced training.	Technical staff receives ample training as a normal part of their employment, and includes training toward certification.	Minimal to Moderate

**Domain Result Summary:** According to the TSI your Professional Development (Domain 3) is considered "Low Efficient" requiring significant attention and improvement. The "Low Efficiency" level of development refers to a system that is at the beginning on a developmental continuum. Without improvements in this area, you will likely experience considerable challenges as you implement technology.

**Recommendation:** Empowering the school employee to use technology effectively is a very effective strategy to address technical support issues. The staff member should not be expected to solve difficult technical problems. However, if simple problems can be solved or merely identified by the end-user, technical staff can concentrate on more complex tasks. It is recommended that an effective training program for ALL staff is put into place. This program should include appropriate incentives, accountability, and a diverse set of

learning resources.

**Cost:** High

**Recommendation:** Organizations that use technology effectively can balance self-help provided by the end user with the additional technical support provided by the district. It is recommended that very basic troubleshooting skills are built into the professional development program decreasing the number of low-level technical support calls.

**Cost:** Minimal to Moderate

**Recommendation:** Organizations that have high expectations for ALL staff with systems in place to provide support will have lower support costs over the long term. While initially support costs are high bringing staff up to speed, as staff become more sophisticated those costs drop. It is recommended that clear expectations are established for all staffs including basic troubleshooting.

**Cost:** Neutral

**Resources:** <http://cnets.iste.org/>

#### 4 Enterprise Management

	<b>Low Efficiency</b>	<b>Moderate Efficiency</b>	<b>Satisfactory Efficiency</b>	<b>High Efficiency</b>	<b>Impact</b>
<b>Trouble Ticketing System</b>	No trouble ticketing system exists.	A simple ticketing system is in place but is not electronic and/or is simple in its implementation not allowing for universal tracking of issues and establishing trends.	<i><b>A trouble ticketing system is in place and is used extensively for responding to technical issues. Analysis of issues, response time, and possible trends is not done.</b></i>	All technical issues are recorded and delegated to appropriate resources through an electronic ticketing system. All technical issues are tracked and evaluated through this system.	Minimal to Moderate
<b>Virus Protection</b>	No virus software is used.	Virus software is used, but it is client-based and therefore often out of date.	Server-based virus software is used, but the parameters for its use are loosely defined and updates are not consistent.	<i><b>Server-based virus software is available, used, and automatically updated.</b></i>	Minimal to Moderate
<b>Network Infrastructure and Bandwidth</b>	Network access is limited and is not available in every location.	Network access is available to all locations but does not impact all computers and is limited in bandwidth.	<i><b>Network access is available to all locations, but segments of the network are limited in bandwidth.</b></i>	Robust broadband network access is available to all locations allowing for unlimited network control and tool use.	High to Significant
<b>Desktop and Software Standardization Tools (Profiles)</b>	No desktop standardization tools or practice are used.	<i><b>Desktop standardization tools are in place but are mostly ignored once the equipment is deployed.</b></i>	Desktop standardization tools are in place, but user changes are not automatically accommodated.	Desktop standardization tools are used to provide a common desktop for all users and access to common software. Changes to the desktop are automatically corrected.	Minimal
<b>Network Sniffing Tools</b>	No network sniffing tools are used.	Network sniffing tools are used for problem diagnosis only.	<i><b>Network sniffing tools are used for problem diagnosis and limited preventative</b></i>	Network sniffing tools are used to both diagnose problems and establish performance matrices for preventative maintenance. These	Minimal to Moderate

			<i>maintenance.</i>	tools systematically monitor the network.	
<b>Online Knowledgebase</b>	<i>No online knowledgebase is present.</i>	An online knowledgebase is in place, but it is limited in scope and is not readily used in the organization.	An online knowledgebase is in place and is consulted by users. It is not designed to easily expand and users do not use it as a first line of defense.	An online knowledgebase is in place and is expansive in its detail. It is used readily, and automatically grows based upon the trend data generated in other tracking systems.	Minimal to Moderate
<b>Integrated and Systemic Electronic Communication</b>	Electronic communication is limited and has little use for providing technical support.	Electronic communication is available to many staff but is not integrated into the daily work of employees.	Electronic communication is available to everyone in the organization but is not readily used for technical support.	<i>Electronic communication is available to everyone in the organization and is integrated into daily work, so it can be used for technical support.</i>	Minimal to Moderate
<b>Remote Computer Management</b>	No remote management is available	Remote management is available for servers only.	Remote management is available for all computers but is not used extensively.	<i>Remote management is available for all computers and is used as a primary strategy of support.</i>	Moderate to High
<b>Imaging Software</b>	<i>Imaging systems are not used.</i>	Imaging software is used in the most primitive sense, only providing recovery services for those with the software provided by the vendor.	An image is used for delivery of the machine but is not used to clone all of the software on the machine. Imaging is used as a troubleshooting strategy.	Imaging software is used for delivery of new machines and as a troubleshooting strategy. Software installed through the imaging process is comprehensive.	Minimal
<b>Metering and Application Push Technology</b>	<i>Metering and Push technology is not used as a support strategy.</i>	Metering and Push technology is used for metering but is not used for installation and updates, and its use is limited in scope.	Metering and Push technology is used for metering and some software updates, but major software installations are handled on the individual computer.	Metering and Push technology is used for all software distribution, technical updates, and for metering of software on district computers.	Moderate
<b>Server Farms and Centralized Services</b>	Every site has its own server and in some cases, multiple servers. Backup and server management occurs locally.	Each site has only one server with some services (e.g., e-mail, Student information, etc.) provided centrally.	Many servers are consolidated into a few locations and most services are provided centrally.	<i>All servers and services are centralized requiring minimal server management outside of one location.</i>	Moderate to High
<b>Application Service Providers (ASPs)</b>	No ASP services are used.	One or two ASP services are used, but it does not impact support due to the peripheral nature of the product.	A number of district or commercial ASP services are used but is limited to one category of software (e.g., productivity, research, libraries, content, etc.).	<i>A district OR commercial ASP model is used for most major software applications after a thorough cost/benefit and risk analysis.</i>	Moderate to High
<b>Thin-client Computing</b>	<i>Thin-client computing is not used.</i>	Thin-client is used but is limited to a small number of users for specific applications.	Thin-client is used for most users of administrative systems and some productivity software. (Not instructional applications)	All administrative and productivity software for staff is delivered through a thin-client model. (Not instructional applications)	Moderate to High

<b>Vendor-specific Management</b>	Vendor tools are not installed or considered when purchasing hardware.	Vendor tools are available and have been purchased, but they are mostly unused.	<i>Vendor tools are used in a limited way for diagnosis and prevention.</i>	Vendor tools are used extensively for diagnosis of issues, to streamline processes, and for preventive measures.	Minimal
<b>Quality Assurance (QA) and Customer Follow-up</b>	<i>Surveys are done generally as part of other departmental survey work within the organization or not at all.</i>	Quality assurance surveys are conducted, but they are not automated and are only done annually.	Surveys are done specific to technical support; however, they are done only periodically and the data is used sporadically.	Quality assurance is measured by a random and automatic system that tracks customer satisfaction and closed tickets. Data is collected throughout the year. Questions asked are specific to technical support and the data is used to make adjustments.	Minimal
<b>Student/Fiscal/HR/Assessment Systems</b>	Student, Fiscal, HR and/or Assessment systems are not in place.	Student, Fiscal, HR and/or Assessment systems are partially in place, and are not reliable or intuitive.	<i>Student, Fiscal, HR and/or Assessment systems are in place and reliable, but do not integrate well with other systems and are not intuitive.</i>	Student, Fiscal, HR and/or Assessment systems are in place, reliable, intuitive, and integrate nicely with other productivity tools.	Moderate to High

**Domain Result Summary:** According to the TSI your Enterprise Management (Domain 4) is considered "Satisfactorily Efficient" requiring limited improvements. The "Satisfactory Efficiency" level of development refers to a system that is doing a very good job of support in many areas. Improvements in a number of areas will enhance the organizational capacity to effectively implement technology.

**Recommendation:** A thin-client is a computer that does not serve as a full-functioning stand alone PC. The Operating system and applications actually run on a remote server and are all centrally controlled and managed. As a result, the hardware requirements for the end-user are typically substantially less. In addition a thin-client strategy allows a small staff to ensure that users experience a consistent environment and that critical updates and software upgrades can be easily and quickly deployed. While the hardware requirements are very low for the client, they are very high for the server. Costs for hardware and software are marginally lower or neutral but support costs can be dramatically decreased. It is recommended that a thin-client computing environment should be considered for administrative applications that have little or no multi-media requirements and where end-user hardware requirements may be challenging.

**Cost:** Moderate to High

**Resources:** [www.citrix.com](http://www.citrix.com), [www.microsoft.com](http://www.microsoft.com) (Terminal Services)

**Recommendation:** When computers are deployed the installation of district software can be very time consuming; the Office suite alone can take several hours. The use of imaging software (e.g. Ghost) to place all district software on a computer at installation can save an enormous amount of time. Further, if a computer is corrupt, the use of imaging software to repair and re-install software can also save a great deal of time. It is strongly recommended that the district uses imaging software for deployment and as part of the support strategy.

**Cost:** Minimal

**Recommendation:** When a user's computer has a universal setup across the district, technical staff can quickly and easily assist the user. As the desktops change, support becomes significantly more challenging. It is recommended that a common desktop and software setup is implemented allowing for the easy diagnosis and resolution to problems. This is especially true for student computers where malicious incidents are common.

**Cost:** Minimal

**Recommendation:** Software distribution and metering can take place over the network with products like Microsoft's SMS and Novell's Managewise. Enormous labor savings can be gained by distributing software in this way. In addition these products allow for asset management, copyright compliance, and detection of software that may place the system at risk. It is recommended that Metering and Application Push technology is utilized for software distribution and management.

**Cost:** Moderate

**Recommendation:** A large percentage of technical issues that arise are often simple in nature. In most cases, with the right information and a culture that promotes minimal troubleshooting, users can help themselves for many technical problems. An easy to use and searchable knowledgebase is critical to empower users to solve the simple problems themselves. The more effective knowledgebase implementations are those that grow with the organization and are populated by staff that are solving problems. To more effectively use staff time and resources, the purchase and use of an online knowledgebase is strongly recommended.

**Cost:** Minimal to Moderate

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