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Executive Summary

With increasingly tight budgets for administrative functions, including IT support, educational institutions are continually under pressure. This financial pressure makes hiring and retaining adequate staff within these educational institutions increasingly difficult. At the same time, there is a recognized need to implement and maintain state-of-the-art computer systems and networks for student learning and administrative processing. The need is exacerbated by growing demands for accountability, competitiveness, provision of instructional technology, developing technology literacy, as well as provision of safety, privacy and security for the computing environment.

The increasingly complex IT infrastructure makes the historically informal support approaches less adequate or practical. At the same time, the increased usage of computers and external networks in the classroom demands a higher level of support and needs to be reliably available for use by staff and students.

As educational institutions address these issues, it is not surprising to see these institutions turning to outside organizations for many IT support functions. While the percentage of educational institutions that outsource IT functions lags firms in the private sector, the rate is growing. (It is also important to note that outsourcing is not a new concept to schools. Food services, transportation and building maintenance, payroll preparation, printing and security are currently being outsourced by a growing number of colleges and school districts.) Appendix A provides further definition of outsourcing, as it applies to IT.

The main drivers for outsourcing IT functions in K-12 schools and small colleges driven from the need for:

- Attracting and keeping additional qualified IT personnel in competition with the commercial sectors
- Improving service levels (e.g., student and teacher support outside normal school hours)
- Freeing faculty and staff to focus on the core mission of education
- Acquiring the expertise to exploit new information technologies.

Most school districts and small colleges prefer to outsource to familiar vendors that have a local presence and a strong focus on academic environments. The most important selection criteria are proven capabilities, technological expertise, financial stability and the capacity to become trusted partners.

The key benefits of IT outsourcing reported by Gartner clients include:

- The allowing of faculty and staff to focus on their core competencies in education with instructional time for students and faculty
- Rapid development and/or deployment of technology-based projects and services
- General reduction in overhead costs while maintaining or improving the level of service.
IT Initiatives in K-12 and Small Colleges

There was a time when K-12 school administrators could successfully manage their schools or districts by paying attention to the three R’s and basic services, such as transportation and cafeteria services. Those days are long past, driven away in part by increased public demand for accountability and in part by the way technology has changed the way we live and work.

Higher education is dealing with intense competition for quality faculty and students. These institutions are also being bombarded by a new wave of IT applications which extend instruction and research capabilities, as well as attract faculty and students. However, these applications require a sophisticated IT infrastructure and related support. Small colleges are hard put to keep up with their large university counterparts when it comes to providing IT networks and support.

Despite differences on the specifics, both K-12 and small colleges are finding their IT initiatives being driven by similar sets of demands:

- **Accountability:** There have been a number of reports about the “failure” of public schools to provide a sound education for children. This has led to an increase in public scrutiny and a greater demand for accountability. The requirement for the necessary data and analysis to respond to these criticisms has led, in turn, to the search for more efficient and effective technology for business and student data systems.

- **Competitiveness:** Private schools and colleges competing for the best and brightest students need to display state of the art campus networks and computing centers, and to have robust and regularly updated Web sites.

- **Instructional Technology:** There is a strong expectation of a technological presence in instruction. The U.S. Department of Education has promoted an agenda for educational technology that envisions technology as a change agent for teaching and learning. Schools are now challenged to build and maintain the infrastructure needed to support the use of computers and related equipment in almost all areas of the curriculum. Instruction that is web-based in part or in whole, and a dependence on access to remote learning Web sites will soon be a part of the instructional agenda.

- **Technology Literacy:** Familiarity with technology will be on a par with the three R’s as a basic requirement leading to jobs after graduation. The efforts to eliminate technology “haves” vs. “have nots” require that technology be available and used in all schools. There is tremendous interest in eliminating this “digital divide.” As the lack of familiarity with technology will become a major barrier to employment, schools must include computer skills in the curriculum.

- **Safety, Privacy and Security:** The widespread use or anticipated use of the Internet as an instructional tool has spawned another level of federal regulations intended to protect children’s privacy and to keep pornography and other unwanted intrusions out of the classroom. This requirement necessitates the implementation and support of communications routers and firewalls.
Communication and Marketing: As society becomes increasingly technological, the public demand for more varied technologies as a communication tool has also increased. Public school organizations and colleges are expected to have informative and current Web sites, including e-mail addresses for public inquiries. We are already at the point where many college students expect to access grades, assignments and attendance information, and enroll in classes on-line; K-12 parents will soon be expecting that level of electronic access as well. Staff and faculty require a reliable email system with remote access, as do students (primarily college students at this point).

Using Technology to Address the Challenges Facing K-12 and Small Colleges

As a result of the current and emerging demands on educational institutions, instructional institutions have asked for technology services that:

1. Provide timely and accurate reports based on available data from any number of organizational departments.
   - The growing emphasis on accountability has created a demand for obtaining data from any number of school systems that can be aggregated into specific reports. Currently, such reports require searching through a variety of data formats, including printed records, and then re-formulating the data into a single format. The demand for these reports will only increase.
   - A move towards data-driven decision-making has also led to the requirement that data from various, and often diverse, data systems be made available throughout the school, including the teacher’s desktop. Issues of data warehousing or data mining, the integration of data sources, security policies and procedures, and support for the network infrastructure and workstations need to be addressed to provide accurate and up-to-date data collection and dissemination throughout the organization.

2. Build and maintain a reliable and scalable technology infrastructure.
   - Designing and building a wide-area network (WAN) for the district, and local-area networks (LANs) for the schools requires expert attention to be paid to key issues. These issues include network cabling plant design and specifications, electric power requirements, asbestos and lead paint abatement, network electronics, network protocols, network server configurations, and computer workstations. In addition, a means of connecting two or more buildings, by a high-speed line or a fiber cable connection, must be designed and then installed (or leased when joining separate campuses). Scalability, with an understanding of future growth requirements, needs to be a part of the design for the communications and computing systems infrastructure.
   - Upon completion of the design and build phase, resources need to be found to maintain the WAN and LAN infrastructure, provide for network growth and improvement, maintain network servers and network electronics, and provide end-user support for both central office and school-based computers.
3. Increase the communication channels within the organization and with the community.

- Schools are expected to have a Web page that promotes a positive image of the school and provides up-to-date information about school resources and events. The public will notice when the Web site is awkward to navigate or is apparently out of date. After all, schools do not promote a positive image by advertising last month’s cafeteria menu. Colleges have further intranet Web site obligations to students for posting schedules, posting grades and registering for courses online.

- School personnel and the community have come to accept e-mail and depend upon a convenient and reliable e-mail system as a standard form of communication. Operating a school-wide e-mail system is not a trivial matter, especially if a school or district elects to include students as eligible e-mail clients (a requirement for colleges).

- Remote access is growing in importance as faculty and students are increasingly required to access the school or district network from home or another location remote to the school system. College students need to remotely access the school network for e-mail and course related information.

4. Maintain safety, privacy and security throughout the technology system.

- Schools are intended to be a safe and secure environment for students. To that end, the federal government requires that schools ensure that a child’s privacy is maintained and that no information about a student is passed outside the school or district environment without parental approval. This was a simpler task when records were kept on paper.

- School organizations have developed acceptable use polices and have implemented filtering technologies to keep school computers free of objectionable material. In fact, the eligibility for the federally subsidized funds for telecommunication, the E-Rate program, requires preventing pornography and other questionable material from reaching school computers. This requires protecting the school network from unauthorized use, commonly called hacking.

- Like any organization that uses technology as a means of collecting, storing and disseminating information using networked technology, school organizations are vulnerable to outside intrusion or unforeseen catastrophic events unless security and disaster recovery measures are taken. School organizations need to develop and enforce a security policy that includes an electronic firewall to prevent unauthorized access to the school network with passwords for authorized users and provisions to periodically change passwords. Appropriate back up and restore processes need to be maintained in preparation for potential disasters and system failures.

5. Implement and maintain a technology presence in the instructional program.

- Parents have come to expect that their children will use computers in schools. While some educational stakeholders continue to debate the value of having technology in schools, computers and networked technologies are increasingly commonplace. To some extent, school organizations are judged by the student-to-computer ratio and by the amount of Internet access they can provide to their students. Computer literacy and use within coursework, including network attachment, is assumed for colleges.
• The integration of technology into instruction requires curriculum development and professional development, as well as technical support. Schools are challenged to find support for their technologies. Too often, teachers or other curriculum experts who are assigned to support the instructional use of technology spend most of their time doing purely technical work. On the other hand, some schools hope to avoid that mistake by hiring technicians to support the technology; however, that strategy backfires when they come to find out that the technician is beginning to make curriculum decisions. The dilemma that faces administrators is how to effectively support the strategic use of technology and the related infrastructure while also training teachers or faculty.

6. Support other emerging technical issues for school organizations.
• Schools are planning for the convergence of voice, video and data technologies over the same network.
• The use of technology is being sought to support the collection and dissemination of data for special projects and reports. Schools have realized that the time and cost of printing and distributing surveys and then scanning or hand-entering the results could be avoided by adopting an electronic format distributed over the WAN or LAN. The challenge is to find the resources to configure and maintain a system that can collect the data and make it available for analysis.
• Schools collect scores of legal documents and other printed material every day that is archived in filing cabinets and storage closets. Thinking ahead, some educational institutions have begun to relieve themselves of the storage burden by adopting an electronic scanning and storage system. By using such a system, schools save storage space; and, if the technology is supported, retrieval and use of archival information is less time-consuming and more efficient.
• An increasing number of colleges are adopting admissions processes that depend upon the electronic transfer of transcripts and examination scores.
• Online and distance learning courses are being used to provide instructional enrichment and remedial learning for students. Technology support for both teacher and students is needed to make such coursework available. The technology may include one- or two-way video connections, which would require another level of support. Districts are also using networked technology to deliver professional and staff development activities to the workplace or to the home.
• Scheduling and collaboration software packages are being used to arrange meetings online and to facilitate group discussion. Those packages require technical support, but save faculty and administrators from climbing into cars and driving to meetings.
• Schools and districts are investigating and using desktop lockdown techniques to reduce the number of service calls required to restore workstation configurations.
• Help desk operations are being implemented as a means of providing timely and improved service to users. A well-managed help desk can cut down on the number of service calls, collect information about common technical problems, and use that information to help solve future problems. They can also provide service technicians with the information they need to solve a problem on their first visit to a site. A good help desk operation serves to encourage the instructional use of technology by reducing perceived lack of support and the frustration of downtime among the instructional staff.
Support Requirements

These new initiatives create additional demand on the IT departments both in terms of increased headcount and new skill sets. K-12 and small colleges must compete not only with large universities, but also with private sector employers to find people who can integrate and support many of the following technologies:

- Web page development and support
- External networks and access
- E-mail systems
- Routers and firewalls
- Work group collaboration applications
- Remote (Internet-based) learning systems
- Data warehousing and mining
- Video and other multimedia
- Wireless network infrastructure
- Internal networks, including classroom, computer lab and administrative
- Electronic curriculum.

At the same time, traditional ongoing support requirements of servers, networks, PCs and laptop computers, and midrange or mainframe administrative systems are continuing to grow. The systems already in place are becoming more critical to daily functions, requiring full-time availability. More students are bringing laptops into the classroom and expecting technical support from their learning institutions.

The rise of these issues has not diluted the previous demands on school resources. The response to each of the current issues is constrained by the time, staff, money and space that can be carved out of existing organizational and budgetary capacity. The rise in the scope and complexity of issues has not been met with a proportional increase of funding, staffing, facilities or other support. This rapidly evolving need for implementing and supporting an increasingly complex IT infrastructure in both administrative and student computing, presents an unprecedented demand for adding talented IT staff.

Most K-12 schools and small colleges do not have the human resources to adequately support this increasingly complex environment. Gone are the days when a member of the teaching staff, or IT generalist, and a team of students can support the IT environment.

Appendix B contains additional perspective concerning IT trends in K-12 and colleges.
Outsourcing IT Services

Reasons for Outsourcing

Currently, many schools and small colleges provide support in an ad-hoc fashion. There may be little vision or planning without a formalized IT department focusing on these issues. Equipment may be purchased and installed without much consideration to the corresponding support requirements. Staff members, with other primary responsibilities, are spending an increasing amount of time providing support to their peers and students.

Other institutions with formal IT departments are understaffed and in total react mode, with little time to develop and implement IT plans based on a school- or district-wide plan.

Outsourcing can help school districts and colleges avoid the costs and complexities of acquiring and staffing their own IT operations. The biggest drivers for outsourcing are:

• Attracting and keeping additional qualified IT personnel in competition with the commercial sectors
• Demand for improved and extended service levels (e.g., student and teacher support outside normal school hours)
• Desire to free faculty and staff to focus on the core mission of education
• Need to acquire the expertise to exploit new information technologies
• Requirement for a team of part-time specialists, rather than a few generalists
• Need for help in developing the IT vision for the institution and for developing and implementing a corresponding IT plan. Daily tactical IT system support and operations detract from a focus on initiatives that move toward a vision.

Furthermore, with few exceptions, teachers or professors will adopt only what they can count on to work.

Outsource organizations can often provide important expertise and input to create a road map of technology adoption to meet a school district’s or a small college’s future needs, as well as provide the day-to-day support functions.

Appendix A defines the concept of outsourcing and illustrates the types of services provided.

While the price of services may be an important factor in the actual choice of outsourcing provider, cost savings is rarely cited as the primary reason for outsourcing by educational institutions. Gartner Dataquest has found that satisfaction levels with the outcomes of outsourcing are quite high in school districts; however, satisfaction with the success in improving staff focus on their core competencies far outstrips satisfaction levels relative to any other criterion.

It is important to note that the concept of outsourcing is not new to school districts and small colleges. There is already a strong trend toward privatizing non-educational services to save
money and improve operations. Some of these outsourced functions include food services, transportation and building maintenance, payroll preparation, printing, bookstores and security. Currently, educational institutions lag all other industry segments when it comes to outsourcing IT functions. However, it is worth noting that once school districts or small colleges do make the decision to use outsourcing, they tend to outsource a higher percentage of their IT functions than do other industries. (See Appendix C.)

Deciding Which Services to Outsource

The difficulty for many institutions is deciding what functions to outsource vs. in-house fulfillment. The first step is to develop an IT strategic plan consisting of the vision for the future in concert with the general goals of the educational institution. This plan must address the functions to be performed by IT systems and applications in academic, administrative and student scheduling areas. The value of each component and the overall value of the combined vision should be specified. A key part of the plan is the support structure required to implement and maintain this environment. Once all ongoing IT support functions within the plan are identified, their suitability for outsourcing can be determined.

Typical IT functions within a strategic plan that are candidates for outsourcing include, but are not limited to, the following:

- Help desk end-user support
- End-user desk-side support
- System maintenance and break-fix
- Data center operations or administrative systems operation and management
- Network and system administration
- Equipment moves, adds and changes
- Database administration and support
- Application, system and network maintenance and upgrades
- Implementation services for new hardware, software and networks
- Asset management—system inventory and software licensing and distribution
- Capacity planning and management
- System security
- Staff training on school specific and general applications
- Disaster recovery procedures
- Web site design and administration.

Deciding whether to outsource a function, keep it in-house, or to outsource only a portion of a function depends on existing in-house capabilities, strategic or political considerations and/or factors impacting customer satisfaction. One must look at the mission of the institution and the related focus of the internal IT department. Aggregating all the critical IT functions within the strategic plan into logical functional areas can make the decision easier.
An approach to determining which IT functions are candidates for outsourcing follows, including three service examples:

One way to determine what to outsource is to break complex activities apart. For example, user support can be broken into three major functional areas: desktop services, network systems management and help desks. Each function can further be subdivided into critical activities. None, some or all could be outsourced, depending on the (organization's) specific requirements. Some may be important from a strategic or political perspective or for customer satisfaction.

- **Desktop Services**: Evaluated as a set of activities, it is easier to decide what should be outsourced and what should remain in-house (e.g., procurement, configuration, testing and installation of hardware may be outsourced while all other activities remain in-house). Although desktop services is a commodity-like business, it does not necessarily follow that anybody can do it.

- **Network Systems Management**: This functional area spans the implementation, operations and management of LANs and local-interconnect networks, network enabling hardware and software, and network-connected systems and other shared IT resources. Hardware includes applications servers, routers and hubs. Software includes network operating systems, utilities, middleware and systems software. Within each network management function, activities may be split between the IS organization and a vendor.

- **Help Desks**: The help desk delivers several levels of support. Tier 1 support is the first point of contact for all technical and support issues. Tier 2 analysts have more in-depth technical knowledge or specialized expertise, interact with product vendors to resolve tactical problems and may make on-site calls to users. Outsourcing decisions should begin with an analysis of user requirements. For example, most IS managers recognize that standardization could reduce the number of help desk calls and increase the percentage of inquiries resolved on the first contact. However, business requirements and politics may stand in the way of standardization. Outsourcing may be a viable solution for providing the breadth of expertise required.

Appendix D provides more information concerning selecting and managing an outsourcing partner.

**Types of Outsourcing**

There are four approaches to outsourcing, depending on functions to be performed.

**On-site**

On-site outsourcing implies having staff from the service provider actually reside on campus. These individuals report to work at the school each day, and require appropriate facilities such as office space, a desk and phone to be provided by the educational institution. This approach is most appropriate where full-time support and a physical presence is needed to do the job. Services provided are typically end-user support, operations and systems support functions.

When outsourced, these tasks are best handled by organizations that have a formal support organization in place, as opposed to “body shops” that provide personnel only. Needless to say, the

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on-site personnel need to be trained and knowledgeable in the specific hardware/software product environment, and have appropriate accreditation. If they are providing end-user on-call services, a dispatch and call tracking/resolution system is needed to measure responsiveness and prevent dropped calls.

**On-call**

Where a full-time on-site IT staff person cannot be justified for support areas, but physical presence is required to perform the support function (such as break-fix maintenance), on-call outsourced support personnel may be appropriate, as they support many organizations within a given geography. They will normally contract for a callback time and on-site response time.

As with the on-site support, it is important to look for an organization that has a formal structure, depth of personnel and problem escalation process in place. When servicing hardware, they need to be warranty authorized by the manufacturer. A good dispatch system with call tracking and statistical reporting is a must.

**Remote Support**

Many IT support functions, such as help desk and network administration, do not require someone to be physically on-site. Phones and remote connection to the school’s systems and networks allow economy of scale with availability of qualified personnel - an attractive proposition for outsourcing some of these services.

In this case it is appropriate to partner with an organization that will provide proactive accredited support in maintaining and upgrading the environment. For help desk, a good dispatch system with call tracking and statistical reporting is required, along with personnel trained on the applications to be supported.

**Application Service Provider (ASP)**

ASPs take the responsibility of providing a complete IT application environment, including implementing, running and supporting specific applications. The application itself runs on equipment at the ASP’s location, giving the school remote access via direct, dial or Internet connections. This approach has had most usage for administrative and student information systems. However, schools would be well served to consider the ASP model for many of their instructional offerings. It is interesting to note that this “new” ASP concept of outsourcing has been performed for K-12 by some of the government-supported intermediary units (educational service districts, such as BOCES in New York and ESD in Washington and Oregon) for many years.

The ASP approach and related support is limited to their specific applications. These providers do not typically cover on-site infrastructure and related services such as desktop support.
Types of Outsourcing Organizations

System Vendors—Consist of those that sell directly to the customer and those that sell through authorized distributors. These manufacturers started by providing break-fix maintenance and have branched out to providing other outsourcing services. These organizations have the strength in being to capitalize on the diagnostic and asset management features specific to their systems. Utilizing services from a direct to consumer system vendor (such as Apple, Dell, Gateway and in some cases Compaq) offers the added potential of having a single place to go for both equipment and services.

Computer Resellers—Include a wide variety of national, regional and local organizations (known as systems integrators) that sell computer hardware, software and related services. Familiar names include Compucom, En Pointe and Sarcom. Some of these organizations, notably value-added resellers (VARs), specialize in specific industries. There has been major consolidation of the large national organizations lately, leading to concerns over the stability of some of these organizations. With local offices, these organizations can offer locally managed on-site services, such as break-fix maintenance and end-user desk-side support.

Independent Software Vendors (ISVs) and Software Resellers—Naturally focus on software services, such as software sales and help desk support. The general cross-industry software resellers provide help desk services for these general purpose shrink-wrap desktop, server and networking software applications and operating systems. ISVs that specialize in education specific applications, such as Ventura Educational Systems, Computer Curriculum Corporation and SCT, may be a good source for help desk support covering their specific offerings.

Independent Service Organizations—Are not tied to any specific hardware/software vendors and have built their business by providing services. These organizations range from the large high-end consulting firms, including the former service arms of the major business accounting firms, to former computer resellers now focusing on services, to local and regional specialty service organizations, which may focus on a particular set of services or specific types of organizations and applications.

Evaluating Outsourcing Partners

School districts and small to medium size colleges, seeking to minimize risk, tend to be conservative in their vendor selection criteria, favoring familiar vendors and familiar arrangements. They also, generally, favor outsource suppliers with a local presence, rooted in the community. Lastly, educational institutions want to work with outsourcers who are familiar with the academic environment. Many larger outsourcers focus on commercial, large enterprise customers. To maintain economies of scale, these vendors tend to apply the same processes and practices to all their customers without learning the specific requirements of the academic environment.

Some general factors to consider as a part of the selection process are the breadth, depth and quality of the services organization:

- How knowledgeable and current are their representatives, and what credentials and certifications do the people who will be providing the support have?
Does the outsourcing organization have a focus on the functions that are to be outsourced?

What is the financial viability of the prospective outsourcing organization?

Do they have a focus on, and experience with, educational institutions?

What is their background and knowledge level in the specific applications?

Are they a national organization (depth of talent), boutique (local, personalized support), or combination (best of both worlds)?

How satisfied are the customer references?

How clearly defined are their management practices? Does this lead to ease of doing business?

Based on interviews with 41 schools that have chosen to outsource at least some areas of their IT operations, Gartner Dataquest determined that the following vendor characteristics were considered important.

Figure 1. Desired Vendor Characteristics

Appendix E provides information concerning contracts managing the performance of an outsourcing partner. While system-measured objectives are covered in Appendix E, it should be noted that a most important performance metric—customer satisfaction—also needs to be measured and be a part of the evaluation of the outsourcing organization.
Benefits of IT Outsourcing

The following information is the result of Gartner analyst discussions with several educational institutions, and helps to put the concepts covered in this paper into perspective. Talking directly to the school or college, this is a response to the question, “What does a well-managed program of outsourcing mean to my college, school or my district?”

1. More instructional time for students and teachers
   - Technology is supported and runs more efficiently with less time spent on making the technology work and more time for teachers and students to use technology productively.
   - Teachers do not spend time on “shadow” support. Teachers who serve as technology coordinators focus on curriculum and instruction instead of taking on the role of technician.

2. Rapid development and/or deployment of technology-based projects and services
   - Outsourcing can either provide the extra hands needed as a new initiative is implemented or relieve current staff of duties so that they are free to work on the new program.
   - New technologies can be configured to school or district specifications and implemented without committing staff to the developmental stage; the learning curve is shortened because the emphasis is on applying the program, not learning how to set it up and make it work.
   - Outsourced projects can take advantage of human resources available on school holidays and over different shifts; projects are not held to a time frame dictated by the working conditions negotiated by employee bargaining units.
   - Applications made available for instruction or administration through the ASP approach: (1) can be provided to the entire school or district at the same time, (2) are all the same version; training and support not complicated by different versions of the same program, (3) can allow a change to a different instructional or administrative application be made without losing all of the initial investment, (4) can allow for software licensing to be metered, not necessary licensed by a copy of a particular software package for each workstation, (5) can reduce technical support for ASP-based applications, (6) can enable students or teachers to sit at any workstation, even at home, accessing many of the same resources.

3. General reduction in overhead costs while maintaining or improving the level of service
   - Staffing can be leveled to reflect maintenance of effort; projects or times of heavy demand can be met with external resources.
   - Office and storage space requirements are reduced when outsourced personnel, parts and other materials are not located on the school or district campus.
   - The school or district is not responsible for recruiting or training staff working on outsourced applications or services.
   - Applications or services are available 24x7.
   - Special tools and materials are provided by the outsourcing organization, not the school.
Conclusion

Educational institutions are facing unprecedented pressure to provide increasingly complex and pervasive information technology for use by faculty, administrators, students and the public. The educators of our youth and young adults have been given the mandate to provide, and have the ability to find or generate the funding required to implement, many of these technologies. Few disagree with the need to eliminate the “technical divide” and graduate technology literate citizens.

Frequently missing from this grand scheme, however, is the ability and/or resource to provide ongoing support of this new-world environment. The issue that ongoing professional support is not an option needs to be addressed. The legacy approach of pulling staff from their assigned duties to provide ad-hoc support is not only inefficient, but will no longer work in this increasingly complex IT environment. Just as a plan for landscaping grounds and planting grass needs to include internal or outsourced provision for ongoing mowing and maintenance, so must the plan for implementation of new and expanded IT technology provide for the ongoing support.

Providing the required ongoing IT support is a challenge, whether provided internally or turned over to a trusted third party (outsourced). For many K-12 and small college institutions, outsourcing of at least some of these services is not only desirable, but is the only viable alternative. An outsourcing organization can provide a greater depth of professional support, including support services outside of school hours.

However, one must keep in mind that it takes considerable effort on the part of the educational institution’s staff to make the outsourcing relationship successful. Selecting the right outsourcing partner requires due diligence; and assuring that the performance of the outsourcing organization meets agreed to metrics requires active ongoing management, monitoring and review on the part of the educational institution’s staff.

This paper has explored the relative merits of outsourcing IT support functions and provides tips on selecting an outsourcing organization and managing the resulting partnership.

With proper planning and execution, outsourcing is an attractive IT support alternative.
Appendix A: Outsourcing Defined

Outsourcing services can be viewed as portfolios of product support and professional services that are brought together to provide the client with the IT infrastructure, applications, capabilities and business processes to help ensure the successful mission of the organization. Outsourcing is divided into IT outsourcing and business process outsourcing (which is partially composed of IT services and therefore overlaps with IT outsourcing).

IT Outsourcing

IT outsourcing can be further segmented into two categories:

- The computer environments that the contract addresses: Desktop, data center or networking
- Application outsourcing vs. the rest of the outsourcing market.

Outsourcing by Computer Environment

Desktop Management Outsourcing

Desktop management outsourcing is a contractual agreement whereby an external service provider (ESP) takes on responsibility for the operations and management of specific IT functions within a customer’s distributed desktop and associated network environment (including desktop clients, peripherals, entry-level servers and LANs). Desktop management contracts are typically multiple years in length and include assorted maintenance and nonmaintenance services. All desktop management contracts include one or more of the following management services:

- Operations services
- Applications management
- Managed help desk services
- Asset management
- Business recovery.

Asset transfer of technology or employees may also be included.

Dataquest segments the desktop management outsourcing market based on customer buying behavior and service provider offerings. These sub-segments are defined as follows:

- **Selective Desktop Outsourcing**: Selective desktop outsourcing contracts take on the operations or management responsibility for a portion of a customer’s desktop environment. In this scenario, ESPs supplement internal desktop management IT staff. These contracts typically address tactical issues via reactive services. A common goal of selective desktop outsourcing engagements is to improve service levels. All contracts must include the purchase of multiple maintenance and professional services and one management service.

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• **Comprehensive Desktop Outsourcing:** Comprehensive desktop outsourcing contracts take on the full management and operations of a customer’s desktop environment. This scenario typically includes the asset transfer of people and technology. Comprehensive desktop outsourcing engagements typically address strategic business issues via proactive methods. All contracts include maintenance and professional services, and multiple IT management services.

**Data Center Outsourcing**
Data center outsourcing is a contractual agreement whereby an ESP takes on responsibility for the operations and management of specific IT functions within a customer’s data center environment (midrange systems, mainframe computers, super computers, storage devices, associated peripherals and applications). Data center contracts are typically multiple years in length and include assorted maintenance and professional services. All data center contracts must include operations management services.

**Network Outsourcing**
Network outsourcing is a contractual agreement whereby an ESP takes on responsibility for the operations and management of specific IT functions within a customer’s network environment (especially around the wide-area network [WAN] and CPE environments). Essentially, network outsourcing manages and ensures that an organization’s communications needs (between locations, over the Internet or as part of an intranet or extranet) are met. Network outsourcing contracts are typically multiple years in length and include assorted product support and professional services.

**Application Outsourcing**
Application outsourcing, which cuts across the three other types of outsourcing, is another way to view the IT outsourcing space. Application outsourcing is an agreement where the ESP is responsible for all or a set of applications used by an organization. This responsibility includes maintenance, support, integration, deployment and management of the applications being outsourced. Because the activities related to this type of outsourcing crosses environments, application outsourcing may include components of desktop, data center and network outsourcing. Contracts are typically multiple years in length.

**Business Process Outsourcing (BPO)**
Dataquest defines “BPO” as the delegation of one or more IT-intensive business processes to an ESP that, in turn, owns and manages the selected processes based on defined and measurable performance metrics. Dataquest segments the business process outsourcing into the following three categories and seven process areas:

- **Finance and administration:** Administration services, finance services, human resources and payment services
- **Operations:** Manufacturing services, logistics/distribution
- **Sales, marketing and customer care**
Appendix B: IT Trends—Education\(^3\)

Both higher education and K-12 are experiencing the growth pains of technological advance. Clearly, the Internet is having a profound impact on trends and emerging opportunities in both segments. For example, e-procurement is a rapidly growing new application in education, with a growing number of leading institutions automating large segments of their purchasing. Early leaders in e-procurement in education, which are almost exclusively major universities with deep IT resources and experience, have largely followed the model typical of early e-procurement in the public sector: purchasing automation through proprietary networks. In recent months, several new e-market makers have emerged to present opportunities for education to follow federal, state and local agencies’ lead in moving to public sector e-marketplaces.

Trends in Key Segments

Higher Education

Higher education is being transformed as never before by a new wave of IT applications that enhance and extend institutions’ ability to deliver core services (instruction and research) and to cultivate the key relationships that sustain them. In 1999 and early 2000, the following decisive developments occurred in this industry:

- Consolidation of e-learning as a mission-critical and standard application
- Emergence of portals as a potentially critical customer-relationship and service-delivery application
- Early signs of growth in customer relationship management (CRM) and e-commerce (particularly e-procurement).

At the same time, during the past year there has been a steady escalation of the pressures that are driving IT innovation in this industry. These pressures include the following:

- Staffing shortages in campus IT departments
- Political pressure for improved productivity and accountability
- Mounting competition and aggressive vendor initiatives
- Growing centrality of endowment campaigns to institutional revenue models
- Proliferation of licensing and joint-venture agreements that leverage institutions’ intellectual resources to create new revenue streams.

K-12

“E-Rate,” the common name for the universal fund for schools and libraries to secure access to advanced telecommunications technologies for all public and private schools and libraries, has provided over $4 billion to schools and libraries by the end of 2000 primarily for securing Internet access. (*Schools today have more computers and more connectivity than ever before.*) As a result, educators and policymakers are increasingly faced with the need to develop coherent strategies for

\(^3\) Gartner Dataquest, “Industry Vertical Markets: 2000.”
integrating computers into K-12 pedagogy and into the curriculum (and) for managing school networks. The school portal in the K-12 segment is emerging as the focus of educators’ strategy for realizing the potential of the Internet and of the “wiring” of American schools.

**Market Accelerators/Inhibitors**

**Accelerators**

- Organizational complexity (higher education)
- Proliferation of distance learning (higher education) (*rising in K-12*)
- Critical role of relationship management (of stakeholders)
- Increasing acceptance of off-the-shelf solutions
- Budgetary constraints (raising demand for external services)
- Rising enrollments (place greater demands on and expectations for information infrastructure)
- Teacher shortages (budgetary or availability caused), which add to the momentum of distributed learning and reduces the availability of teachers used for on-site technology support
- Educational entrepreneurship and visionaries.

**Inhibitors**

- Lagging institutional and decision-making structures to support new initiatives, such as distance learning (higher education)
- Cultural nuances (for example, faculty reluctance or conservative approach to IT management)
- Intellectual property issues (specific to e-learning initiatives in higher education)
- Technical challenges (disparate systems)
- Pace of technological change (especially in K-12)
- Availability of public funding for ongoing operations (K-12).

**Direction**

Heavy emphasis on distributed learning and related technologies will bring about a shift from administrative to academic computing, with instruction and academic support solutions rising as a percent of overall spending. Distributed learning and new generation administrative and e-business applications allow educators to reach expanded markets, develop new delivery mechanisms and provide better institutional services. In higher education, the next two to four years will see an increasing shift from purchase of new instructional support applications to integration of these applications with the following:

- Back-office administrative and enterprise resource planning (ERP) systems
• A range of customer interface management and CRM functions still in early development stages
• New e-commerce applications.

The momentum in the use of distance (and distributed) learning technologies is toward a broad mix of alternatives, such as the following:

• Dedicated online “virtual” courses
• Inclusion of some online “meetings” in courses alongside classroom instruction
• Use of electronic resources and media available through the Internet to enhance traditional classroom-based courses.
Appendix C: Outsourcing by Various Industries

As a group, educational institutions outsource IT support to external vendors significantly less than other industries. However, it is interesting to note that the school districts and small colleges that do decide to use external providers, tend to outsource a higher percentage of their IT functions than other industries, as shown in Table 1.

### Table 1. Outsourced Technical Support for Organizations that Outsource IT Services (Percentage of Respondents)

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Source: Gartner Dataquest (October 2000)

“Gartner Dataquest’s management services survey queried companies about which catalysts are influential in raising their level of outsourcing of IT or business processes…The top three catalysts cited by the respondents were IT skills shortage, new technologies, and e-business/e-commerce.”

And concerning the education industry: “Although education as an industry group is much less influenced by most of these catalysts than other industry groups, this industry has also demonstrated a dramatically lower level of general interest in outsourcing. Despite the overall trend in outsourcing behavior for education, respondents identified several catalysts as particularly influential: new technologies, IT skills shortage and new IT service offerings. In fact, education is more influenced than other industry groups by new technologies and to a comparable level as the IT services industry.”

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Appendix D: Selecting and Managing an Outsourcing Partner

Proper planning is key to the success of the entire IT organization. From there, selecting an appropriate provider followed by proper management of the service provider are key to making outsourcing work.

Create the Vision and Plan

If you don’t know where you’re going, you will never get there. Knowing this, most school districts and colleges have a plan for building the IT infrastructure, but perhaps not for the ongoing support. It is key to understand the government initiatives and review the needs of administration and academics. This aspect of proper planning is crucial to building an IT infrastructure that will support these initiatives for years. If a plan does not exist or is obsolete, this may be the time to bring in a consultant who brings a strong background in the information needs of educational institutions. A planning committee consisting of members from IT, instruction, administration and management should develop the plan.

The plan—a written plan containing the vision, required components of equipment and support and initial/ongoing costs—needs to formalized. You will also need to provide cost estimates of outside outsourcing agencies and for managing these organizations. The determination of which functions to be outsourced depends upon what can be adequately supported internally as well as the desired level of control over details. If, for instance, one wants full control of curriculum content, then it may not make sense to outsource the selection and maintenance of classroom computing applications. On the other hand, it may make ultimate sense to outsource a need for 24x7 help desk.

Admittedly, costs are estimates based on expert experience, but they need to be a part of the plan. This is a plan that needs to be presented to and adopted by the highest levels of authority, including all key decision-makers.

Whether these functions can be best performed by internal staff or a professional outsourcing agency needs to be analyzed for each support function. It is key to fully understand the support requirements, including skills required, number of personnel required and hours of support.

Selecting an Outsourcing Partner

Once it has been determined what makes most sense to outsource, the outsourcing strategy and the important process of selecting one or more outsourcing organization(s) needs to be resolved.

Some of the considerations include:

- Whether to consolidate several support functions with a single outsourcing partner (providing fewer organizations to deal with). Using the systems supplier (if they offer the required services) provides further vendor consolidation. This approach minimizes finger pointing when problems arise.
• Individually selecting one outsourcing partner for each support function.
• Actually splitting the load of one support area between a couple of outsourcing organizations to keep them on their toes. This alternative works best for larger organizations and requires active management of the outsourcing partners.

Once the approach has been determined, candidates need to be selected to provide the required support services. It helps to talk to friends and associates in both the education community and commercial business to get recommendations. It also makes sense to check with the equipment providers for recommendations.

Initial discussions with candidates and accumulating information from them provides further information. Having determined what is important allows one to ask pointed questions to pre-qualify the appropriate potential partners. It is also frequently useful to create and submit a request for information (RFI) to potential service providers to test the viability of outsourcing these functions in the specific environment.

**The Request for Quote (RFQ)**

For a fair and thorough evaluation, it is appropriate to create an RFQ for response from the prequalified candidates. This process is often a requirement for public institutions. The RFQ should provide details of the requirements, including as many specifics as possible, such as response times, system availability percentages, numbers of systems to be covered, and hours of coverage required. The information collected from the candidates can help assure that the RFQ has covered the requirements.

It is key for the school or college to ask for and follow up on references.

As a part of the RFQ, it is also most appropriate to ask candidates to commit to a level of service via a service-level agreement (SLA) with penalties for missing the required level of service. An SLA has measurable performance metrics by which one can continually evaluate the level of service being provided. SLAs are most appropriate for measuring and monitoring activities with response time requirements.

Actual selection of the outsourcing partner is partially a subjective process. However, the better job that has been done in developing a strong RFQ and follow-up on references, the more there will be to work with to make the best decision.

**Managing Your Outsourcing Partner**

Outsourcing is a partnership. Remember, however, it is the educational institution’s money and environment that is being supported. So, who is going to suffer if the outsourcing organization is not holding up their end of the relationship? As a result, outsourced services should not be turned over to the outsourcing organization and left unmonitored. Careful management of their performance in the form of tracking SLA metrics, using regular statistical reports, and close monitoring of user satisfaction are critical to making the outsourcing relationship work.

The time and responsibility required for managing an outsourcing partner needs to be part of the IT plan, in terms of expense and staff assignment, and needs to be a formal part of an assigned
individual’s responsibilities. Regular (monthly or quarterly) meetings with the outsourcing partner need to be held to review their performance, and if necessary, assess any SLA performance penalties.

For more information concerning performance metrics, refer to Appendix E.

As the educational institution continues to develop and refine the IT vision and related plans, it is important to keep the outsourcing partner informed. They provide valuable input, and can be better prepared to make appropriate adjustments within their organization to maintain a high level of support.
Appendix E: Contracts and Measuring Performance

Metrics for Measuring Performance

Organizations that use an ESP (outsourcing partner) must establish metrics—they are key to communicating to the vendor what is important and measuring the quality of the services provided. Understanding the reasons for external service providers (ESPs) and the expected benefits makes evaluation much easier. For each expected benefit, a metric must be established to define good performance. This must be done before the contract is signed. The metrics must be clearly stated, quantifiable, agreed to by the vendor and reviewed regularly. In addition, in case targets are not met, the contract must define what actions both parties must take, who has responsibility and what impact failure will have on contract terms. Beyond contractual terms, the (organization) must also be confident that the vendor has additional resources and the commitment to deliver those resources, should the contractual arrangement falter.

The metrics for a help desk might include:

- **Response time:**
  - The average number of rings before an answer (e.g., 16 seconds and three rings)
  - The percentage of calls in the queue before an analyst picks up (e.g., 10 percent or less)
  - Average time in queue (e.g., 90 seconds or less)
  - Total time it takes to answer and respond, i.e., ring time plus queue time plus miscellaneous time (e.g., 45 seconds or less, 90 percent of calls answered in 30 seconds).

- **Abandonment rate:**
  - The percentage of calls in which the caller disconnects before an analyst or voice mail picks up.

- **Callback time:**
  - Length of time required for a help desk analyst to get back to the user for status or follow-up work (e.g., next business day).

- **Resolution:**
  - Minutes, hours or days based on a predetermined priority. Priorities may be based on factors such as whether a problem affects one user or several, the location of users and the specific system affected
  - The percentage of calls resolved on first contact with the help desk (e.g., minimum of 80 percent of calls resolved).

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Contracts

ESP (External Service Provider or Outsourcing) contracts should include the following items:

- **Project Content:**
  - Scope of effort, including organization, geographic location and functions or business processes
  - Tasks to be performed and their timing
  - Responsibilities of consultant and in-house personnel
  - Project management procedures
  - Size of team, types of personnel to be included in the project and amount of time and role of each (key individuals should be named)
  - Performance measurement methods and criteria for acceptance.

- **Budget:**
  - Contract type (e.g., fixed price, cost plus incentive, time and materials or value based) and methods by which cost will be monitored. There needs to be some flexibility in pricing, since some surprises will be uncovered. List areas of uncertainty.
  - Payment schedules and sign-off procedures
  - Holdbacks for time and quality assurance (QA) and bonuses if the ESP delivers higher quality or finishes more quickly than expected
  - Time frame for project completion, including conditions under which time frame might be extended and penalties for extensions by vendor outside these exceptions.

- **Precautions:**
  - Procedures for modifying specifications or for technology refreshment
  - Problem resolution for things not included in contract
  - Termination clauses and criteria
  - Post system implementation (e.g., enhancements, training and documentation).

- **Joint Expectations:**
  - Defining mutually agreed upon expectations between client and consultant (e.g., If the billings deviate from previous expectations by more than 2 percent, the enterprise will be notified two months in advance).

Another useful tool in contracts with ESPs is a responsibility matrix. Enterprises and ESPs can also negotiate a responsibilities matrix that addresses four critical questions:

- What does the consumer of the service expect?
- What does the provider of the service expect?
- What are the consumer’s responsibilities to the provider?
- What are the provider's responsibilities to the consumer?