

Key Findings

Service on the Front Line: The IT Help Desk in Higher Education

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Help desk service quality is often a key factor in the institution's perception of its central IT organization. For this reason and others, IT help desks continually seek to improve their support services. User satisfaction, improving help desk efficiency, and meeting changing client needs are all drivers for help desk service improvement. Today's help desk is also challenged by the need to support a diverse range of institutional users and a diverse set of technologies, within rigid funding and staffing constraints.

This study, *Service on the Front Line: The IT Help Desk in Higher Education*, was undertaken to more fully understand the current state of higher education's IT help desk services, investigate the extent of adoption of formal IT service management (ITSM) practices, evaluate service costs and benefits, gauge service success, and provide guidance to institutions concerned about the service quality of their own central IT help desks. Detailed questions framing this study included those surrounding the roles of centralized and decentralized support organizations, goals of the central IT help desk, organization of help desk services, tools used, state of adoption of formal ITSM practices, and the impact of service improvements.

Methodology

ECAR employed a multipart methodology for this study, including

- a literature review to identify issues and establish the research questions;
 - consultation with a select group of CIOs to identify and validate research questions;
 - a quantitative Web-based survey of IT administrators at 454 higher education institutions;
 - postsurvey qualitative interviews with 36 executives and staff members involved in help desk management at 24 institutions; and
 - four case studies examining help desk and service management practices.
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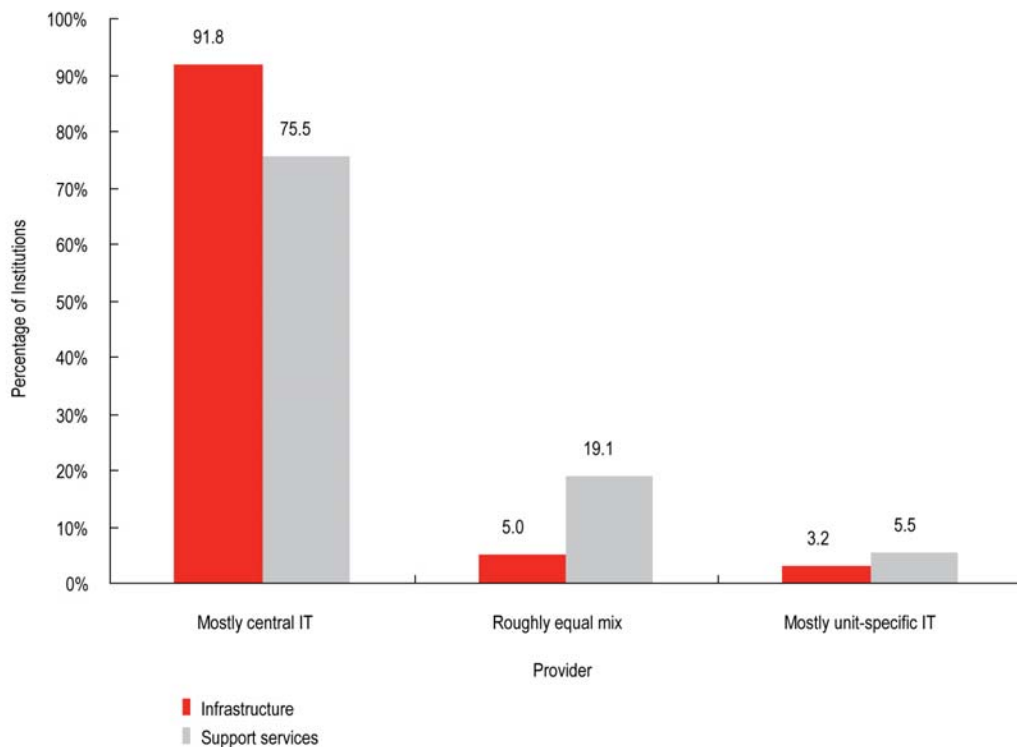
Defining the Help Desk

For the purposes of this study, the term *help desk* refers to the organization that provides IT clients with the first line of response on technology questions and issues. In some organizations this unit has a different name, but its services are generally the same. The help desk most frequently provides its services over the telephone or via e-mail. Walk-in interactions and assistance delivered at the client's location are also very common.

Institutional IT Infrastructure and Support Services

Among respondent institutions, IT services are still highly centralized. At most institutions (88.5 percent), there is only one central IT organization. Among institutions with at least one unit-specific (decentralized) IT organization, nine-tenths say that IT infrastructure such as data networks, Web and e-mail servers, and administrative data systems are provided mostly by the central IT organization. Three-quarters report that central IT provides most support services such as application support, remote troubleshooting, and username/password assistance.

Figure 1. Providers of Infrastructure Elements and Support Services (N = 220)



Most respondent institutions (68.5 percent) report that central IT's goal is to provide IT infrastructure and services that further the institution's strategic goals. At only 4.0 percent of institutions is it central IT's goal to provide infrastructure and services to create institutional competitive advantage; at such institutions the pace of adoption of new technologies is higher, and budget increases in the past three years have been more common.

Nearly three-quarters of responding institutions provide all help desk services from one or more central IT help desk(s) and have no unit-specific help desks. Only about a quarter of respondents' help desk managers report directly to the CIO; most of the rest report to the head of a central IT service area. Outsourcing of help desk services is relatively rare, with just over 16 percent of respondents outsourcing any of them. Among those, a strong majority is outsourcing 25 percent of services or less.

Majorities of our respondents' help desks support a wide range of infrastructure and identity-related services, the most commonly reported of which are password changes, user account generation, username changes, and support for operating system software, central hardware, and the data network. Respondents also report providing assistance with common instructional and administrative applications. Most frequently supported are campus e-mail applications, personal productivity applications, and campus calendar applications. Least frequently supported are campus research applications and programming languages.

Help desk services are most frequently offered by telephone, e-mail, and in-person interaction, either at the help desk or the user's location. Surprisingly, help desks use interactive text communication (chat, instant messaging, and text messaging) infrequently or not at all to provide support.

Larger institutions are most likely to provide help desk services 24 hours a day, 7 days a week; just under 5 percent of respondents' help desks are this available, and more than half of these are at institutions with enrollments of more than 15,000 FTE. About two-thirds of respondents' help desks are available beyond standard campus business hours, while a surprisingly high 30.5 percent are available only during standard business hours. Reassuringly, only 1.3 percent report less availability than that.

Funding and Staffing the Central IT Help Desk

Obviously, the financial resources available to the help desk can make a difference in that organization's service level. A major source of help desk funding for 92.7 percent of the responding institutions is the central IT budget. Other sources, such as student technology fees, recharges to other campus units, fees for services, and grants, are rarely cited as major or moderate sources of funding.

When asked about the adequacy of help desk funding, over half (55.7 percent) of respondents rate funding as less than or much less than adequate; only 3.2 percent say it is more or much more than adequate. For almost two-thirds of respondents, funding for the help desk is at or below 10 percent of the central IT budget.

Despite user populations in the thousands and tens of thousands, help desks provide their services with remarkably few staff. At institutions of 4,000 FTE student enrollments or fewer, the mean number of full-time equivalent help desk staff is about 7, at institutions with 4,001–15,000 FTEs the mean is about 10, and at institutions with more than 15,000 FTEs it is just under 18. These figures include student employees.

Institution size, Carnegie class, and institutional control are all associated with the number of FTE students served per FTE help desk staff member (see Table 1). For the most comprehensive demographic, size, the mean is 1,264, with a median of 861. Even though they have generally larger numbers of help desk staff, larger institutions serve more students per staff member than smaller ones. Numbers vary by Carnegie class and institutional control as well. Each help desk staff member at doctoral and associate's institutions serves a mean of almost 1,800 students, three times as many as at bachelor's institutions; the number for master's institutions is around 1,100. And on average, each public institution help desk staffer serves twice as many students as staff at private institutions.

Table 1. Student Enrollment (FTE) per Help Desk Staff Member, by Demographics

Institution Size (FTE)	N	Mean	Std. Deviation
1–4,000	194	628.07	565.191
4,001–15,000	159	1,571.22	1,418.754
More than 15,000	73	2,284.59	2,280.909
Total	426	1,263.95	1,474.303
Carnegie Class			
DR	108	1,789.96	1,998.358
MA	118	1,184.52	1,120.478
BA	85	535.04	461.277
AA	59	1,779.57	1,703.618
Total	370	1,306.93	1,518.794
Control			
Private	180	756.07	981.601
Public	232	1,634.99	1,662.355
Total	412	1,250.99	1,470.823

When asked whether campus expectations of the help desk are aligned with help desk resources, fewer than a quarter of respondents are neutral, and 40 percent agree or strongly agree that expectations are aligned with the resources. Not surprisingly, those who feel strongly that help desk funding is adequate are more likely to agree that campus expectations of the help desk are aligned with the resources the help desk can draw upon.

Help Desk Tools

Majorities of respondents report that they have fully implemented the automation of each of five help desk functions: call logging, call routing, call escalation, call database, and query and reporting tools for the call database. More than two-thirds of respondent institutions are using an integrated suite of help desk automation tools.

Among online tools for help desk staff members to use in assisting clients, only Web sites for help documents have been fully implemented by a majority of respondents. Knowledge bases or expert systems have been implemented by only 22.9 percent. At more than half of the responding

institutions, client support tools such as Web sites for user help documents and tracking of incident status are either implemented or implementation is in progress. Opinion is fairly evenly divided about the effectiveness of the help desk's use of self-service tools to reduce help desk demand, though opinions are significantly more positive among institutions where more such tools are in use.

Adoption of IT Service Management Practices

As personal computers and network-based applications have proliferated and IT has become critical to most scholarly and administrative activities, the importance of help desk services has grown. The resulting pressure to improve help desk services has resulted in the development of a number of service frameworks and best practices for IT service management (ITSM). Foremost among them, and the framework upon which most are built, is the IT Infrastructure Library (ITIL), a trademarked product of the United Kingdom Office of Government Commerce.¹

This study investigated five of the dozen most common ITSM practices. These are

- capacity planning, which ensures that systems and services are sufficiently robust to support the organization's commitments to users;
- availability planning, which ensures that systems and services are available when, where, and to whom the organization says they will be;
- change management, which ensures that changes to systems and services are orderly, support the organization's commitments, and so forth;
- release management, which ensures that new systems and services are well tested, that version control is maintained, and so forth; and
- service level management, as embodied in service level agreements (SLAs), which specify the nature and extent of the services the provider commits to deliver and that the recipient agrees to accept.

Except for service level management, a majority of respondents have adopted formal guidelines for each of these practices, and analysis of the data shows that many quality-oriented outcomes are associated with their adoption. For example, as Table 2 illustrates, the adoption of formal guidelines for each of these four practices is associated with an increase in overall service quality of about four-tenths of a point on our five-point scale.

Table 2. Overall Service Quality, by Adoption of Basic ITSM Practices

ITSM Practice	N	Mean*	Std. Deviation
Capacity Planning			
No formal guidelines	191	3.39	0.851
Formal guidelines in place	231	3.73	0.849
Total	422	3.58	0.865
System Availability Planning			
No formal guidelines	137	3.36	0.872
Formal guidelines in place	294	3.67	0.861
Total	431	3.57	0.875
Change Management			
No formal guidelines	157	3.36	0.892
Formal guidelines in place	266	3.71	0.853
Total	423	3.58	0.883
Release Management			
No formal guidelines	161	3.37	0.907
Formal guidelines in place	259	3.70	0.858
Total	420	3.58	0.891

*Scale: 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent

Many of the responding institutions' help desks use the basic ITSM practices, with over three-quarters of respondents having adopted at least one. While just over a third of the entire respondent pool has adopted all four, among those who have adopted SLAs half again as many (52.7 percent) have done so, supporting our assumption that organizations often adopt ITSM practices in concert. The practice of strategic planning for the help desk is also more common where the four ITSM planning and management practices and SLAs are in use.

Only 20.5 percent of respondent institutions have SLAs in place for help desk services, and a surprisingly high 38.1 percent of respondents say they have no plans to implement them. The most common reasons reported for not using SLAs are that the practice is incompatible with institutional culture and that help desk staff have higher priorities than developing SLAs. Most planned or in-progress SLA implementations have executive or management sponsors; fewer have dedicated staffing, completion dates, and/or have the participation of clients. Fewer still have dedicated funding.

Where SLAs are in place, they primarily include lists of supported hardware and software, as well as goals for service availability and response time. Few SLAs include the terms and conditions under which they are to be renegotiated, and even fewer specify consequences for failure to meet the terms of the agreement.

Help Desk Strategies and Plans

Well over three-quarters (84.2 percent) of respondents have documented goals in place for help desk service availability. Roughly two-thirds report a cluster of 3 documented goals: percentage of user

satisfaction, help desk calls resolved at first contact, and number of incidents the help desk resolves per unit of time. Majorities of respondents also report tracking the time it takes to resolve incidents that can't be resolved during initial user contact and the number of incidents handled per staff member per unit of time.

Improving help desk services is a focus for many responding institutions. Important drivers of central IT help desk improvement include improving user satisfaction, meeting the changing needs of help desk clients, and improving help desk efficiency. Important barriers to improving the help desk include rapid growth in user demand, lack of adequate funding, and lack of staff expertise.

Only 40 percent of respondent institutions have strategic plans in place for their help desks. Most of these plans are integrated into the central IT organization's strategic plan; only an eighth of respondents with plans report having a stand-alone strategic plan for the help desk.

Majorities of respondents say the help desk is adequately included in central IT activities related to ITSM practices (see Table 3). Where this is the case, the priority that central IT places upon deploying easy-to-support systems is higher, suggesting better communication between the help desk and other parts of the IT organization.

Table 3. Help Desk Personnel Are Adequately Included in ITSM Activities

ITSM Activity	Percentage of All Respondents (N = 427)	Percentage of Respondents with Guidelines in Place (N = 224)
Availability planning	71.8%	77.2%
Change management	69.2%	82.6%
Release management	63.1%	76.9%
Capacity planning	59.2%	69.6%

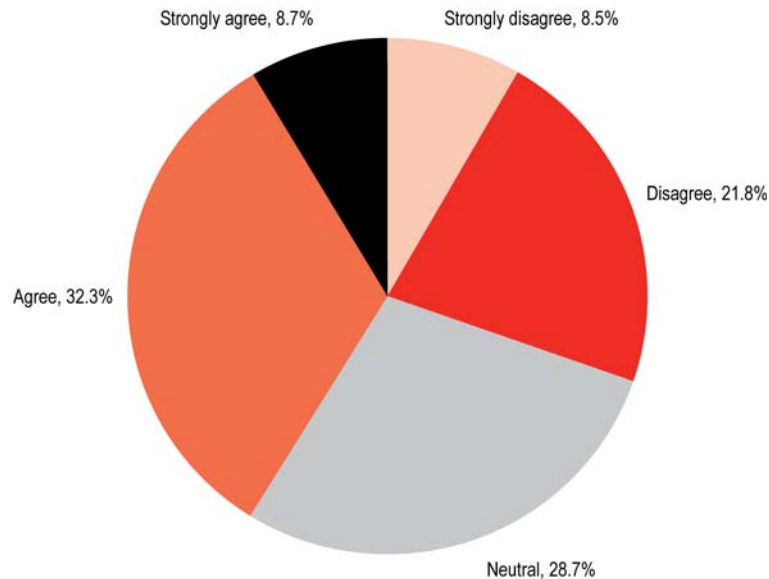
Our findings indicate that the quality of help desk services is closely associated with the institution's perception of the central IT organization. For this reason it is surprising that only 18.4 percent of our respondents have implemented customer relationship management databases. While another 42.0 percent have implementations under way or in the planning stages, the remainder—nearly 40 percent—say they have no plans to do so. Fewer than half of respondents have implemented ITSM-recommended configuration management and asset management databases, though near-majorities either have implementations under way or in the planning stages.

Help Desk Metrics

The use of metrics is highly recommended in most service quality improvement frameworks. Of the eight help desk metrics we asked about, majorities of our respondents regularly analyze two: call/contact load, and number of users supported. Near-majorities regularly analyze three others: the number of problems resolved at first contact, the time it takes to resolve a problem that cannot be resolved at first contact, and the number of devices the help desk supports. Respondents normally report these metrics only within the IT organization; fewer than 40 percent of respondent institutions report them to non-IT senior administrators, and about 20 percent report them to deans.

Only 41 percent of respondents agree or strongly agree that their help desks use these metrics effectively to improve user services (see Figure 2). However, among those who report their metrics more widely, agreement is more frequent, as it is among those who have adopted more basic ITSM practices.

Figure 2. Agreement That Help Desk Uses Metrics Effectively (N = 449)



Help Desk Success: Assessing Outcomes

Following definitions derived from the Capability Maturity Model Integration (CMMI) framework,² developed by the Carnegie Mellon Software Engineering Institute, we asked respondents to rate the maturity of their help desks. Slightly more than one-third of responses fall in the lower “initial” to “repeatable” maturity levels; a slightly larger group, 40.0 percent, reports the middle level of maturity, “standardized”; and not quite one-quarter of responses fall into the more mature “managed” and “optimized” levels.

A constellation of practices appears to be associated with help desk maturity. Institutions that chose the higher levels of “managed” or “optimized” tend to have adopted more of our four basic ITSM practices. They also tend to agree more strongly that the help desk is adequately involved in basic ITSM activities; have a strategic plan for the help desk; regularly analyze more metrics; and agree more strongly that help desk costs and value are well understood on their campuses.

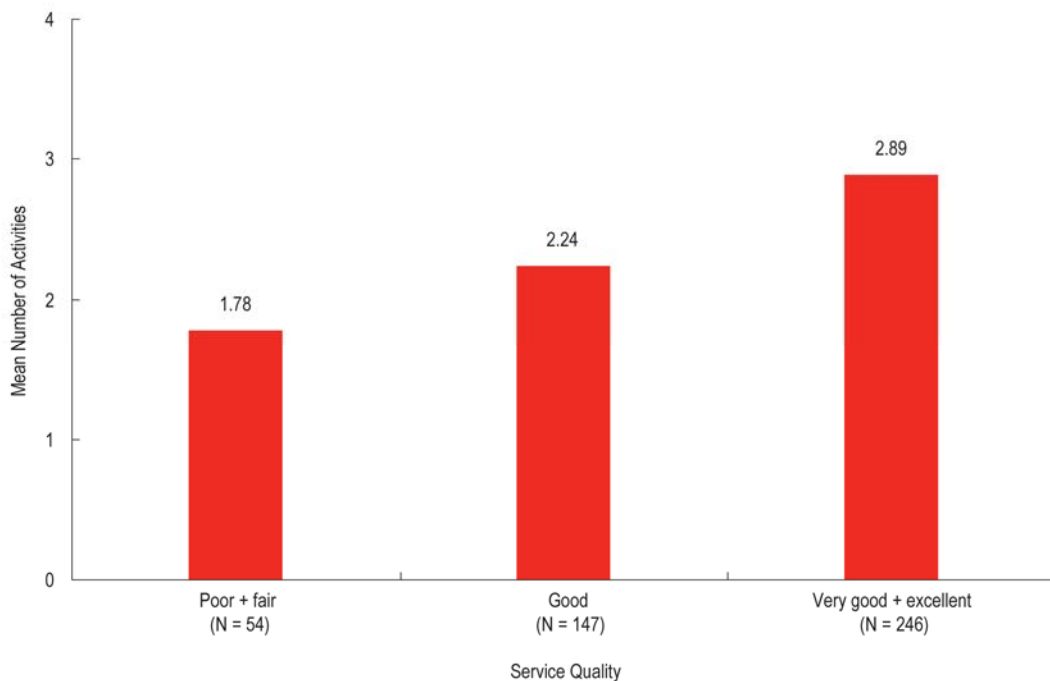
We also asked respondents to evaluate their help desks’ positive impact on various service areas. By a wide margin, the two areas of greatest positive impact are, in a sense, self-serving: more than 80 percent said the help desk has a high positive impact on campus perception of central IT services’ value and on the unit’s reputation. The percentages for these public relations indicators exceed those for the strategic university areas of research activities (8.1 percent), instructional activities (53.4 percent), and administrative activities (68.2 percent).

Respondents are upbeat about overall help desk service quality; more than half rate it as very good or excellent. They tell us their clients would rate help desk service quality highest in specific technology areas such as identity management, desktop computing essentials, and communication applications but lowest in three core areas of higher education: instruction, administration, and research.

This finding, in concert with the reputation-oriented positive-impact findings reported earlier, suggests that the help desk's importance to the institution may be more tactical than strategic. While help desk services are thought to be of generally high quality, they may be too far removed from the institution's core business processes to be of more than tactical value.

In general, we found that the richer the help desk toolset, the better the help desk's overall service quality is reported to be. A positive association also exists between service quality and the number of our four basic ITSM practices for which the institution has adopted formal guidelines (but not with the use of SLAs). As Figure 3 illustrates, the mean number of basic ITSM practices in which the help desk is adequately included is also positively associated with overall help desk service quality.

Figure 3. Mean Number of ITSM Activities in Which Help Desk Is Adequately Included, by Overall Help Desk Service Quality



Other positive associations with overall help desk service quality are the effectiveness of the help desk's use of client self-service tools to reduce help desk demand, the number of documented goals the help desk meets often or almost always, the use of metrics to document help desk performance, and the existence of a help desk strategic plan.

Summary

Service on the Front Line: The IT Help Desk in Higher Education spotlights the organization and management of help desk services in higher education. It reviews these services by examining the adoption of a variety of processes and practices and comparing them with such outcomes as the number of goals the help desk regularly meets, the positive impact of the help desk on various service areas, and the overall quality of help desk services.

An important finding is the association of overall service quality with the number of ITSM practices adopted, the use of metrics to improve customer service, and the existence of a strategic plan for the help desk. These make up a core set of practices that appear to operate together at institutions where the help desk is most successful.

Another important association is between service quality and help desk maturity. More mature help desks use more metrics to monitor their service, are more likely to have adopted ITSM practices, and report substantially higher overall service quality than less mature organizations.

While many aspects of technology use have become simpler in the quarter century since the PC revolution, the tools we use have become more complex at an even faster pace. As has been said about the raising of a child, the effective use of a computer still “takes a village.” As the technology environment changes at a breakneck pace, IT becomes ever more essential to the core missions of higher education. Thus it remains important to ensure that a ready source of technical assistance is available, and for this higher education continues to turn to the central IT help desk.

Endnotes

1. United Kingdom Office of Government Commerce. *Service Delivery*. London: The Stationery Office, 2001 and United Kingdom Office of Government Commerce. *Service Support* (London: The Stationery Office, 2000).
2. CMMI Product Team. *Capability Maturity Model Integration (CMMI), Version 1.1* (Pittsburgh: Carnegie Mellon Software Engineering Institution, 2002), 25.

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A copy of the full study referenced above will be available via subscription or purchase through the EDUCAUSE Center for Applied Research (www.educause.edu/ecar/).
