



research report

Rebooting IT Support:
How Large Organizations are Restructuring End-User
Services to Meet Insatiable End-Users,
Proliferating Devices, and Soaring Complexity

Executive Summary

In most large organizations today, when technology doesn't work, the end-user's performance suffers, and the organization is increasingly at risk. In nearly three-quarters of large organizations (> \$1 billion in revenue) that participated in the Unisys End-User Services Research Study, 90% of the end-users use at least one digital device that is supported by the IT function. When the technology doesn't work, or the end-user doesn't know how to use it, performance levels are significantly impacted, as many client-facing functions (sales, customer service, field repair, marketing, accounts receivable, etc.) now depend heavily on technology.

In fact, the risk to revenue when an end-user's desktop computer, laptop, PDA, mobile telephone, or other digital device doesn't function has increased in the last five years. This is partly attributed to the fact that technology usage by end-users at all levels has increased by at least 50% in nearly two-thirds of the large organizations we surveyed (63%). In nearly one-third of the organizations polled, employees are using digital devices at least twice as long each day than they did five years ago.

While end-users depend far more on the technology they use, technology support in most organizations has become far more expensive and difficult to provide effectively. Technology support costs – which can be twice or more than the cost of the hardware or software itself over the useful life of a digital device – are on the rise. Almost half the organizations surveyed (47%) reported that their end-user services budgets have grown at least 50% since 2001. Some 10% have doubled their spending on technology support. The increasing difficulty of providing effective IT support can be seen in end-user satisfaction ratings. Less than a quarter (22%) of the end-user services executives we polled said that end-users in their organizations would rate IT support as excellent; 50% reported that end-users would rate support as “good,” while 24% said satisfactory and 4% said poor. And those numbers are quite higher in studies conducted with end-users themselves, which have found the end-users of nearly half the large organizations surveyed to be dissatisfied with their IT support.

Yet despite increasing spending on IT support, it's become very difficult for many end-user services groups to keep pace with soaring support demands and the need to resolve technology problems faster. Four forces are driving the cost and complexities of end-user support to often unmanageable levels in many organizations:

1. Rising end-user dependence on a fast-increasing number of computing devices.
2. Increasing complexities in the technology itself.
3. Significant variability in the organizational value of providing support to different end-user segments.
4. End-users' widespread mixing of personal technology to perform business tasks and business-issued technology to do personal tasks.

Traditional approaches to addressing the support crisis are experiencing limited success. Service level agreements are commonly out-of-date within months of being established because end-users' dependence on technology (and thus their needs for their technology to work) continually increase. Tiering support to two levels – especially based on top executives versus the rest of the organization – doesn't necessarily mean that the end-users who are most worthy of top-notch support (i.e., those in roles with greatest impact to daily revenue) will receive the support they require, which could put revenue at risk. Adding technical support staff can temporarily address the problem, but it can also raise support costs tremendously. And, simply adding technical support doesn't necessarily mean their expertise is applied across the organization. Clamping down on corporate technology standards can simplify life for the IT department, but it can also lead some end-users whose jobs a) are critical to bringing in revenue, and b) require non-company-standard hardware or software to deviate from the corporate standard or accept lower productivity.

By comparing the differences between large organizations that were providing highly effective IT support and those that were struggling with support, Unisys found six important differences in the way the IT support function is structured, managed, and operated. The organizations that are best at IT support:

- 1. Base support levels on the organizational impact of end-users' roles.** Support leaders provided higher levels of IT resources for the most critical end-user segments not only for technology support, but for business process improvements as well. By implementing a more sophisticated tiered service structure, the IT function was able to deliver support where and when it was needed most – keeping service delivery in line with the evolving needs of the organization.
 - 2. Capture and share the collective knowledge of the end-user services group to solve difficult and recurring technology problems.** Knowledge bases and data mining were critical to improve the quality of service to end-users, take proactive measures to avoid escalating problems, rapidly adapt to new technologies and service expectations, and improve the efficiency of support operations.
 - 3. Standardize support practices, not just technologies.** Standardizing the hardware and software “image” that end-user support groups install on the technology they furnish to end-users is vital to reducing support problems. However, standardized technology is not enough nor is it fully achievable. Implementing standardized practices enabled the support leaders to gain control over their infrastructure despite the variety of technologies and applications found across their organizations.
 - 4. Exploit technologies that automate support processes, including technologies that take control of support from afar.** Aggressive use of technology such as remote diagnostics was one of the key factors separating the support leaders from the support laggards. Leaders were also pioneering application virtualization, desktop virtualization, and desktop safety net capabilities to better manage end-user services. And technologies to support end-user self-service and online learning were also key to enabling more end-user self-help.
 - 5. Strike the proper balance of central and field support.** Providing highly effective support does not mean that support resources have to be concentrated in the field, close to end-users. In fact, with today's technologies, organizations can actually improve support by shifting much or most of it to central offices. The organizations that provided the best support used remote diagnostics technology to shift technology problems that previously had to be fixed in the field to a central location. They then shifted resources from handling telephone support to conducting remote problem resolution and into the field to provide in-person support. With less problem resolution to handle in the field, local support resources were freed to focus on fixing business process problems through technology – especially those of the end-users with the greatest impact on the organization's revenue.
 - 6. Escape the SLA trap by shifting support measures from those monitoring the effectiveness of the IT support group to those tracking end-users' job effectiveness.** The organizations that were best at support were much more likely to tie their measures to business unit and end-user performance goals than were the support laggards. The support leaders realized that end-user service expectations are a fast-moving target and that relying on the IT measures that make up most service level agreements was a losing game. Leading support organizations have progressed from measuring IT service performance to measuring end-user satisfaction and the performance impact of service issues across the organization.
- Organizations that can accomplish these management and operational capabilities are able to rein in IT support costs – and provide far more effective and selective support. By controlling IT support costs, they can redeploy some of their IT resources to helping end-users in sales, marketing, research and development, manufacturing, and other key business functions improve the way they work and better leverage technology. That is, they can shift from reactive response to broken technologies to proactive solving of business process problems.

The Growing Dependency on IT

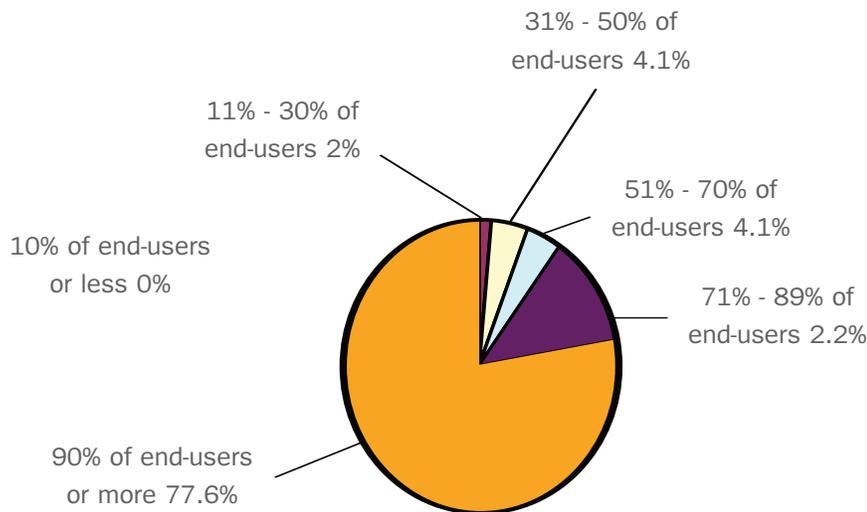
Nearly every job in most large organizations today relies on information technology – from frontline employees to executive-level. Even many chief executive officers who not so long ago delegated “computer work” to assistants have become addicted to digital devices. And whatever the job level in the organization, the word “rely” has perhaps become an understatement. “Absolutely, vitally depend” may be more accurate. How else could one describe the technology dependence of people like Wall Street traders glued to computer monitors with millions riding on their decisions, laptop-toting pharmaceutical sales representatives demonstrating drug efficacy in physician offices, or Washington lobbyists using PDAs to communicate with clients while meeting with legislators in the midst of drawing up new laws? For a fast-growing number of organizations, if technology breaks down or employees don’t understand how to use it, serious revenue can be at risk.

According to the Unisys research study on end-user services, a clear majority of end-users in large organizations surveyed use at least one digital device that is supported by the internal IT function. In about three-quarters of these organizations, 90% of end-users use computers or other digital devices. In about half the organizations (51%), at least one-third of the end-user base uses more than one digital device: desktops, laptops, PDAs, mobile telephones, or other. And it’s clear that dependency on technology has increased dramatically, at least on one measure – how much of their work time they use technology. In nearly two-thirds of the organizations (63%), end-users spend at least 50% more of their work day using computers or other computing devices than they did five years ago. In almost a third of the organizations (29%), end-user usage has at least doubled.

So today, when technology doesn’t work, it has a much greater negative impact on organizational performance than ever

Exhibit 1

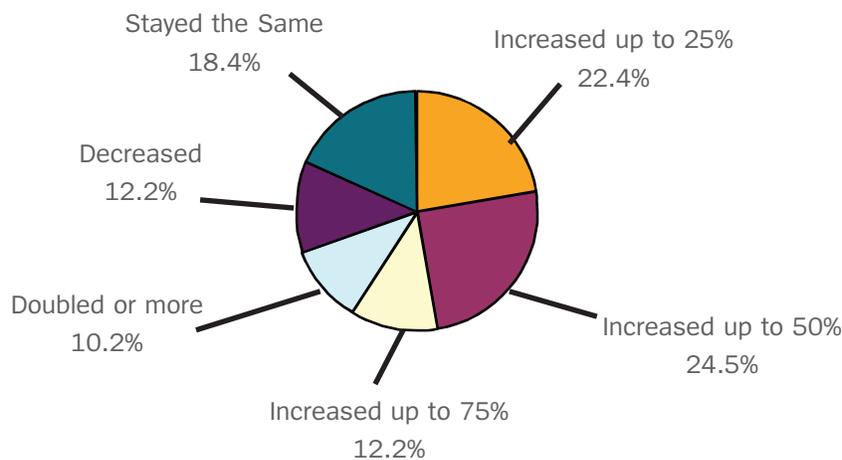
Organizational Dependency on Computers: Percentage of End-Users



before. That is, with technology far more important to their jobs, end-users are far less forgiving with the IT support group when technology doesn't work. The impact of inadequate technology support is immediately evident at the employee level. That's why the end-user services group has become a crucial function in nearly every large organization. And that's a big change for many end-user services groups which have typically been perceived as a cost center composed of a bewildering tangle of technologists and technologies.

related, Gartner not only includes those costs of the support operation, it also includes end-users' time in trying to repair a computing device, which the research firm has found to be more than three times the cost of the technical support department. Technical support (operations and administration) averages \$1,251 per desktop – nearly the cost of the technology itself. Support costs for other technologies are even higher. The cost of supporting end-users who use a notebook computer largely at the office is

Exhibit 2 Changes in IT Support Budgets Over The Past Five Years



The Support Crisis: Increased Spending, Decreased Satisfaction

As job performance depends increasingly on technology, end-users need better IT support to be effective – four-hour turnaround, not ten, for instance. As a result, the support budgets of the large organizations that we surveyed, by and large, have grown significantly over the last five years. In almost half the organizations (47%), end-user services budgets have risen as much as 50% since 2001. Some 10% more than doubled their spending on technology support.

Given that supporting end-users' technology is more expensive than the hardware and software itself, it becomes easier to understand why support costs have surged. For example, some 79% of the total cost of owning a desktop computer in 2001 – \$5,412 out of \$6,845 – was support-related, according to IT researcher Gartner Inc.¹ By support-

\$8,241. That figure rises to well over \$10,000, if the end-user is on the road at least 80% of the time. The cost of those end-users – far from the home office – in fixing their own notebooks is 50% higher than it is for notebook end-users located at the office.

Every device that each employee adds to his or her arsenal of technology tools heaps additional support costs on the IT support department. For a typical executive with a desktop, notebook, and PDA, the total support costs approach \$13,000. For a global company with 1,000 executives, that's \$13 million a year. Now imagine a pharmaceutical giant with a large sales force. Assume that the company has 36,000 sales representatives around the world, and that every sales representative has a laptop and a PDA. According to Gartner's total cost of ownership data, the pharmaceutical giant's IT support costs would be \$343 million – just for supporting the sales force. Again, this includes end-users'

¹Gartner Inc., Total Cost of Ownership Study, 2001

time in fixing their own devices. Strip out that cost and the cost of the IT support group is about \$90 million, still a hefty expense. And don't forget that both those numbers don't include the hardware and software – an additional \$120 million. Given this scenario, the pharmaceutical company's total costs of sales force technology and support would equal nearly half the revenue of a blockbuster drug (considered to generate \$1 billion in annual revenue).

These aren't the only signs of a crisis in technology support. Take the sheer number of technical support people that organizations need today. The average large organization maintains 13 service desk and technical support people for every 1,000 employees.² Some industries have much more – financial services average 20 per 1,000, and healthcare organizations average 18 per 1,000. IT support jobs in the U.S. are more numerous than any other IT position, except software development. In 2004, nearly one-fifth (19%) of the United States' 10.5 million IT jobs were in technical support, trailing just behind computer programming (20% of total).³ Between 2003 and 2004 alone, technical support jobs increased 5.4% – more than any other IT position – while programming employment

dropped 1.3%. Some prognosticators predict that technical support jobs will outnumber software development jobs in the United States this decade.⁴

With so much money and people devoted to end-user services, one would think that end-users in most organizations would be content with their IT support. Unfortunately, this isn't the case. Unisys and other research suggests otherwise. Our survey found that only 22% of end-user services managers would expect their end-users to rate technical support as excellent. Research also showed that 50% believed their end-users would rate support as good, but 24% reported that end-users would rate service as satisfactory, and 4% would rate it as poor. That's the view from the support side of the house.

From the other side of the house – the end-users themselves – the picture becomes far less rosy. In 2005, Forrester surveyed 2,138 technology end-users in U.S. companies with at least 500 employees.⁵ Nearly half (47.5%) reported dissatisfaction with their support, while 52.5% were satisfied or very satisfied. In any event, neither study is a ringing endorsement of the state of technical support.

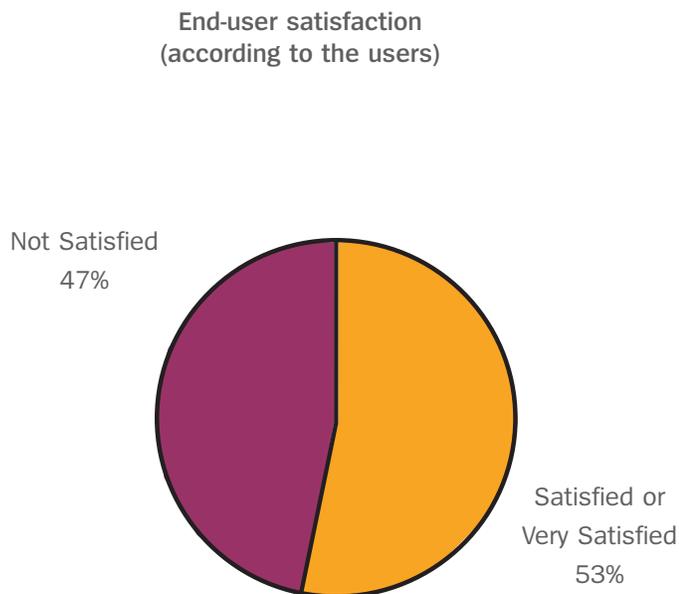
²Computer Economics' report, "Help Desk Staffing Benchmarks," November 2005. The ratio is for companies with annual revenue of more than \$750 million.

³Information Technology Association of America Annual Workforce Development Survey, September 2004, <http://www.ita.org/workforce/studies/04wfstudy.pdf>

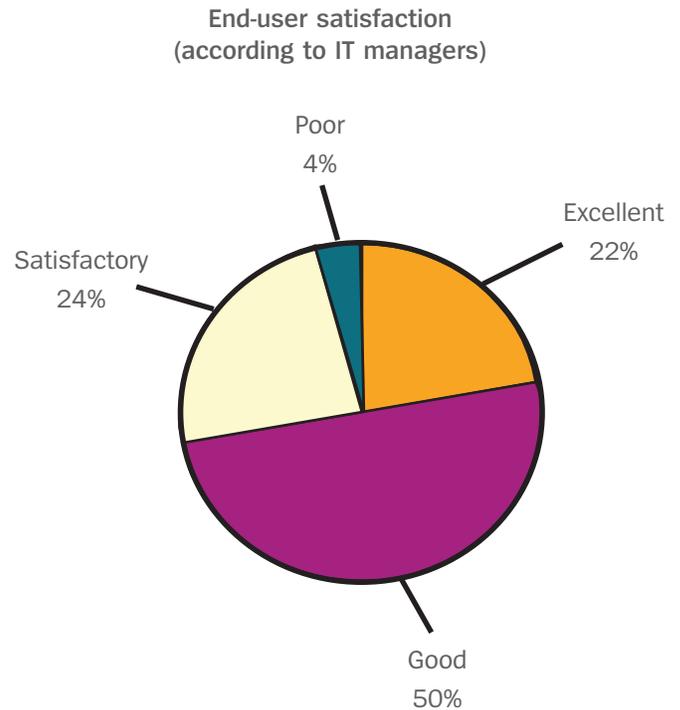
⁴Ron Muns, founder of the Help Desk Institute, predicted that tech support jobs would exceed programming jobs by end of 2005.

⁵"Thirty-One Best Practices For The Service Desk," by Chip Gliedman, Forrester Research report, June 28, 2005.

Exhibit 3 End-User Satisfaction with IT Support



Forrester Research survey of 2,138 technology users in U.S. companies without least 500 employees



Unisys survey of IT executives; organizations > \$1B

Sorting Out the Mounting Support Complexities

Our study found a good reason why end-user dissatisfaction was so high: the growing complexity of providing efficient and effective end-user services. In short, it's getting much more difficult for many end-user services groups to keep up with the rising intricacies of support. Four factors loom large in creating these increasing complexities:

1. Increasing employee dependence on technology.
2. Growing complexity of technology itself.
3. Vast diversity in end-user needs and sophistication with technology.
4. Consumerization of technology – the growing support demands and security risks stemming from employees who use company technology for personal tasks and their own technologies for company tasks.

In the section below, we discuss the burdens these factors place on the end-user services function of large organizations.

The Technology Dependence Issue

As we mentioned earlier, nearly every employee in most large organizations now relies on computers and digital devices to do their work. When the e-mail system is down or laptops can't download e-mails for a day, end-users must go without vital updates to price lists, service bulletins, sales call strategies, changes in engineering or product designs, and other crucial information. However, the technology dependence problem is not just due to having a greater share of the workforce relying on more gadgets to do their tasks. The technology dependence issue is also one of location, time, and expectations.

First, the technology and people whom end-user services groups support are not located down the hall anymore – they work at home or travel for business. Yet, they demand

the same high level of support as if they were down the hall. In fact, they can demand *more* support because they often are on their own when they are out of the office.

As a result, not only do many employees use technology during more of their office hours – their “offices” are increasingly on the road and in their homes. Of course, technology and progressive work policies have liberated many employees from having to check into an office every day. In about a third of the large companies that we polled, 21% of the employee base uses wireless mobile computers or other electronic devices. This helps to mark one of the biggest shifts in the end-user population in recent years: the technology that the end-user services group must support is in motion around the world.

Some jobs have always required people to be on the road – sales representatives, field service technicians, and senior executives with regional or global responsibilities. However, those people now use mobile technology to do more of their

work in the field. Think of the field service technician or sales representative. Less than five years ago, most were gathering information on paper and returning to the office to “do the paper work.” Today, the vast majority is equipped with laptops or PDAs with real-time access to business applications that enable them to process transactions and retrieve information they need to do their jobs while on the move.

Whether or not they are out in the field, far greater numbers of end-users are working from non-office locations. Technology has even made it feasible for once centralized functions such as call centers to be distributed among home-based customer service representatives. Whether motivated by a desire to provide greater flexibility to employees, recruit the best talent regardless of location, or scale back on office space and costs, organizations are supporting non-office based workers at fast-increasing rates. In fact, 43% of survey respondents reported that more than 10% of their employees worked from non-company locations.

Exhibit 4 Percentage of End-Users That Use Wireless Mobile Devices

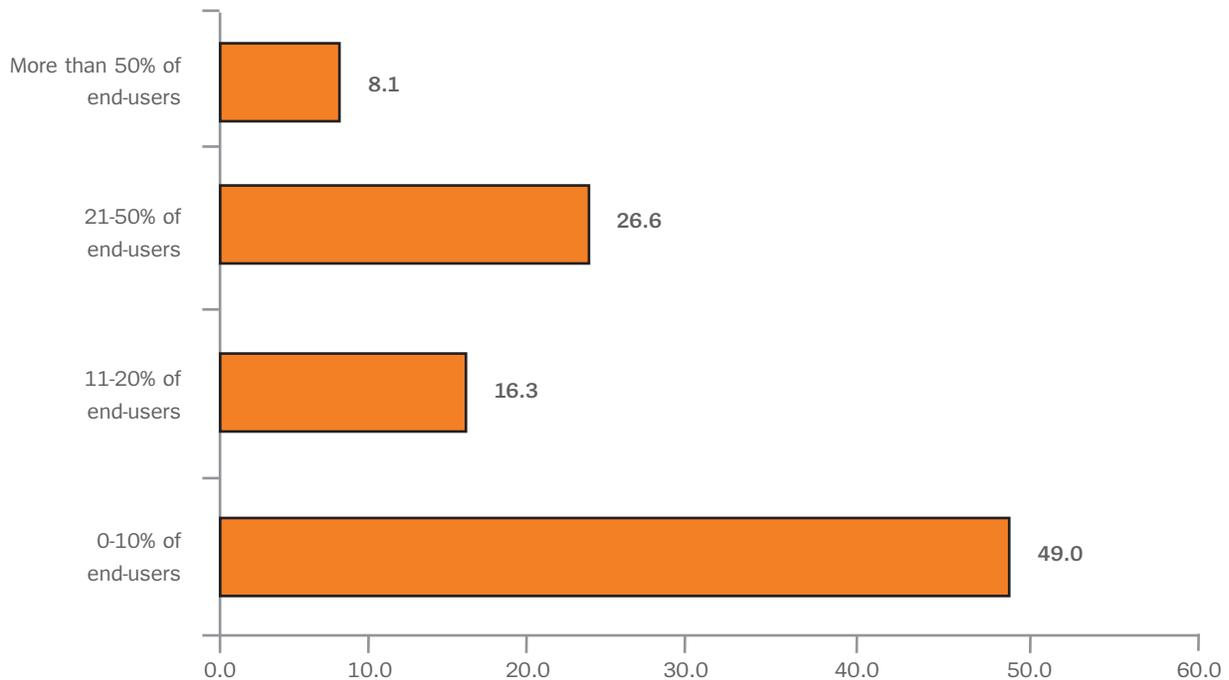
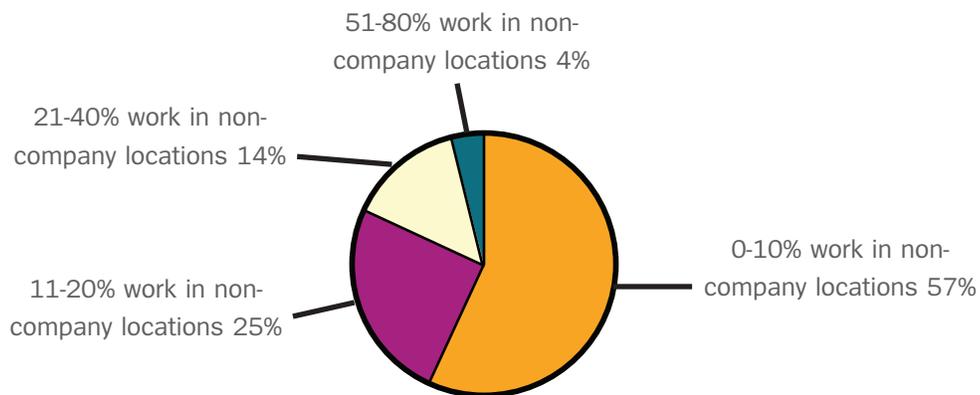


Exhibit 5 End-Users Supported By IT Who Work in Non-Company Locations



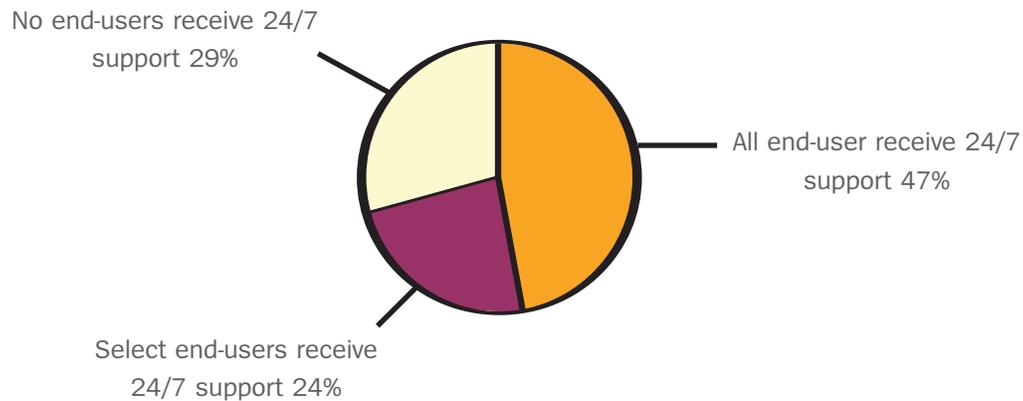
This, of course, increases the complexity of service delivery significantly. To support an employee attempting to access a wireless network at a hotel is one level of complexity. Supporting someone trying to access a wireless network in his home is yet another.

A mobile workforce introduces a large number of data security issues. Mobile devices and the data they contain are more likely to be stolen as they are increasingly used in public places outside of the office. To expedite e-mail access, some employees regularly route strategic documents from their organization's e-mail systems to public e-mail sites, which are often far less secure. While organizations have gone to great lengths to create

networks with several layers of security defense, technology-literate end-users find ways to work around constraints that slow them down.

A side effect of requiring more technology help from the road is employees who need assistance at all hours of the day. An accelerating number of end-users in just about every large organization need the technology support department to be available morning, noon, and night back at the office. Yet less than half (47%) of the large organizations we surveyed provide 24/7 support to all their end-users. One quarter provide around-the-clock support to only select end-users. And 29% don't provide any 24/7 support.

Exhibit 6 IT Support Organizations Providing 24/7 Support



Not only are employees more reliant on technology, more of the time and in more places around the world, they have far higher expectations for their technology to be reliable. In fact, they expect company-issued technology to be highly reliable. However, reliable technology may not raise end-user satisfaction; it may only raise end-user expectations for reliability.

All this helps make end-users more demanding on end-user services – and more likely to go around the department and use personal technology for business purposes. A Gartner study (October 2006) predicted that 50% of top executives will conduct 80% of their work on non-company standard PCs over the next two years.⁶ All this raises the cost of support if the end-user group is forced to take care of non-company-standard technology. And it also increases the risk of security breaches.

The Technology Complexity Issue

Further raising the complexities of running an efficient end-user services operation are increasing complexities in technology itself. End-user services groups must support far many people who have devices, more devices per person, more applications on those devices, and more computer

servers from which end-users obtain information and e-mail access. In addition, the IT support function must deal with many more hardware and software vendors.

Our survey found that in about three-quarters (78%) of the large organizations, most end-users – in fact, 90% – had computers and/or digital devices that were supported by the organization. In slightly more than half of these organizations, about a third of the end-users used more than one digital device. As organizations move from desktops to laptops and from hardwired to wireless, the equipment and configurations service organizations must support multiply. In fact, with the introduction of PDAs, the variety of devices and connectivity the service organization must support is exploding.

Even when an organization standardizes its hardware, over time the software image can vary significantly from machine to machine. Not that the large organizations let software anarchy reign. In fact, very few of the ones we studied (only 2%) support applications that end-users install on their machines without permission from IT. And, only 6% support digital devices purchased without the IT department's permission. However, the majority (59%) do allow end-users to request special applications – software that the IT department will support if approved.

⁶Gartner press release, Oct., 9, 2006, "Gartner Says 50 Percent of C-Level Executives Will Perform 80 Percent of their Work on a Non-Company Standard PC Through 2008"

Exhibit 7 IT Support for Non-Standard Technology and Applications

| | % of Large Organizations |
|--|--------------------------|
| Support special applications purchased by end-users with approval from the IT department | 59% |
| Support applications that end-users install without approval from the IT department | 2% |
| Support digital devices purchased by employees without approval from the IT department | 6% |

When the software varies significantly from machine to machine, it can create support nightmares. The end-user services function of AARP, the \$900 million (2005 revenue) association for people 50 and older, supports 300 custom-built software applications as a result of rapid growth and unique association software needs. That makes it very difficult for support professionals to have deep knowledge of each application, which makes problems with these applications harder to solve.

Each machine is harder to troubleshoot today. The ease with which anyone can download new applications easily from the Web means that computers can have many more “moving parts” – software from a multitude of vendors that often conflict. The spread of departmental computer servers

of the last 20 years – and increasing virtualization of technology (in which an application can be spread across several servers to economize on hardware) presents troubleshooting problems as well: pinpointing which server is the offending one. That also makes the service desk’s job of managing directory services a more complex task.

All this makes life much harder for the support group. Our survey found that the biggest impact of increasing technology complexity was increased security risks. End-user services groups have responded with new security procedures and software. They have also responded by shifting support work to third-party vendors and to end-users themselves through self-help support tools.

Exhibit 8

Greatest Impacts of Increasing Technology Complexity on End-User IT Support

| Ranked In Order – Greatest Impact to Least Impact: Organizations >\$1 Billion Revenue | |
|---|---|
| 1 | Increases in security problems requiring new security procedures and software |
| 2 | Increases in outsourcing of support to manage demands |
| 3 | Moving more end-users to self-help support tools |
| 4 | New skills required of support staff |
| 5 | New procedures required to support mixed computing environments |
| 6 | Providing support outside of regular work hours |
| 7 | Increases in networking equipment and networking management |
| 8 | Support staff with deeper expertise |
| 9 | Additional controls over remote use of confidential company information |
| 10 | New policies to manage communications and compliance |
| 11 | Increases in support costs |
| 12 | Increases in size of IT support staff |
| 13 | Additional language skills for local support |

The End-User Diversity Issue

The third major driver of complexity for the IT support function has little to do with technology. It is about the end-users of technology. The complexity can be boiled down to this: While technology has become elemental to the success of many employees, it has become much more difficult for end-user services professionals to determine who in the organization deserves the most support and what kind of support they need. This is especially critical now because the demand for support resources has exploded but the supply hasn't kept pace, judging by the end-user dissatisfaction data that we mentioned.

First, let's examine the wide variation in the type of support necessary today before we look at the issue of who deserves the most support. For many years, an organization's employees have ranged from being highly sophisticated with their technology (in many cases, able to

fix their own problems) to novices. That makes it difficult for IT support professionals to determine who they are more likely to be able to coach, how to communicate (use the jargon, acronyms, and other hundreds of other terms unique to IT or not), and how much time to spend "hand-holding."

To understand just how different the IT support needs of employees in a large organization were, we asked our survey respondents to describe the characteristics and technology support needs of five types of end-users:

- Novice end-users: Those who are just beginning to use technology.
- Single application end-users: Those whose use of technology is limited to one software application, typically on one device.
- Multiple application end-users: Those using several software applications, typically on one device.

- Power end-users: Those using multiple devices, with multiple applications on each device.
- The IT professional: Perhaps the most demanding and sophisticated end-user of them all.

The support needs of these different end-users can vary significantly. According to our research, in general the more that employees use technology, the more they value 24/7 support, self-service tools, remote diagnostics, and having the latest devices. The less employees use technology, the more they desire training and immediate assistance. Mobile support is not highly important to them, as it is to the power end-users.

technology themselves and using Internet tools to do so. Some will go to a web site to solve their problem or log an issue. And yet there are others who prefer human assistance in person or by telephone. Just as important are the senior executives, including the CEO, many who are now fervent technology end-users and place significant demands on the end-user services group.

If those variations make it difficult for end-user services groups to provide adequate service to all, consider another modern-day complexity that was a far smaller issue 20 years ago: the rise of the contingent worker. The workforce of many large organizations now can include thousands of contract or temporary workers. These people, too, typically

Exhibit 9 Characteristics and Needs of Five Types of Technology end-users

| User Type | Most Common Characteristics | Top 3 Support Expectations |
|-------------------------------|--|--|
| Novice end-user | <ul style="list-style-type: none"> • Uses only company-standard equipment • Works largely from the office | <ol style="list-style-type: none"> 1. No wait time for assistance 2. Technology training 3. IT person on-site to help |
| Single application end-user | <ul style="list-style-type: none"> • Uses only company-standard equipment • Requires very high uptime | <ol style="list-style-type: none"> 1. Issues resolved on first call 2. No wait time for assistance 3. Technology training |
| Multiple application end-user | <ul style="list-style-type: none"> • Integrates systems with many other departments' systems • Requires very high uptime • Uses confidential information away from office | <ol style="list-style-type: none"> 1. IT person on-site to help 2. 24/7 support 3. IT support experts on all applications |
| Power end-user | <ul style="list-style-type: none"> • Uses multiple devices • Requires very high uptime • Uses personal devices with company tools • Uses confidential information away from office | <ol style="list-style-type: none"> 1. Latest devices 2. 24/7 support 3. Mobile support |
| IT professional end-user | <ul style="list-style-type: none"> • Uses latest technologies • Uses multiple devices • Uses personal devices with company tools | <ol style="list-style-type: none"> 1. Remote diagnostics 2. Latest devices 3. Self-service tools |

With these five types of end-users in mind, the services organization must now support a wide spectrum of end-users – from employees who occasionally use technology to software-laden engineers who try to fix problems themselves. A whole generation of workers is iPod-, IM, and YouTube-oriented. They are far more comfortable fixing

need technology to do their jobs. But should they be supported at the same level at which the organization's employees are supported? And what additional security procedures must be in place for people who have less allegiance to the organization?

One of the large organizations interviewed reported that some 20% of their 3,000 employees are contractors. The end-user services group has instituted different policies and procedures for contractors for security purposes. For example, a log-on password reset for an employee typically takes no more than 15 minutes and can be done remotely by the IT support group. Contractors must get approval from their company managers for such a reset, often slowing the process to hours. Contractors rely as heavily on technology as do permanent employees. However, contractors do not receive the training that employees do. This places added stress on the end-user services function in terms of higher call volumes.

All this shows that the technology needs of end-users may vary significantly. But what end-users need in technology support is a quite different issue than what support they truly require. In our research, we found few organizations that linked the level and type of IT support they provided to the end-user role in driving organizational success. This is the resource allocation issue of support: determining what people, jobs, and functions in a large organization deserve the most support. During the last 20 years, organizations have spent billions of dollars collectively on measurement systems to better allocate capital within their business units and product lines. Some capital investments –

upgrades of factories, warehouses, etc. – are more deserving than others. In our study, we set out to understand whether organizations were rationing end-user support with similar financial justifications in mind – that is, whether they were determining what end-users deserved the most support. And, whether the ones who should get the most support – those whose jobs and reliance on technology have the biggest impact on revenue – in fact, are getting higher levels of support.

Responses to two questions in our survey indicate that the answer is largely no. First, we asked end-user services managers to identify what areas of their business received the highest levels of end-user support. The one function, in a company, closest to revenue – the sales department – ranked sixth on the list – below finance, the IT function itself, top management, customers, and customer service. Even worse, the function charged with generating demand for a company’s products or services – marketing – finished at the bottom of the list of internal corporate functions, just above suppliers. The research and development organization, which is responsible for creating the offerings that generate future revenue, finished eighth. All to say that the functions closest to revenue, other than customer service, are not getting the highest levels of end-user support.

Exhibit 10 Business Areas With the Highest Levels of End-User Support

| | |
|----|-------------------------------------|
| 1 | Top executives/corporate management |
| 2 | Customers |
| 3 | IT function |
| 4 | Customer service |
| 5 | Finance |
| 6 | Sales |
| 7 | Human resources |
| 8 | R&D |
| 9 | Procurement |
| 10 | Manufacturing and distribution |
| 11 | Marketing |
| 12 | Suppliers |

Another question provided further evidence that end-user support is not being rationed out in a sensible manner, if the definition of “sensible” in this context is about focusing support resources according to which people have the greatest impact on revenue. This is not to argue that corporate management doesn’t have a great impact on revenue, only that from our research it appears to be commanding an inordinate share of the support pie.

We asked survey participants to rank the importance of six criteria in making end-user support investments. The results were shocking. The least important criteria end-user services groups considered were the importance of the end-user segment to the organization, and whether the investment would produce a competitive advantage. Cost was the number one criteria, followed by end-user satisfaction and end-user productivity. This data suggests to us that most large organizations apportion their end-user support dollars on the wrong basis.

(35%) allow employees to use the organization’s technology for both work and personal use. These end-users work great amounts of time and non-traditional hours (in or out of the office) and use company digital devices to do that work. Mobile devices ensure they’re connected and can work at any time of day, from any location. And as their productivity increases, so do the challenges for the technology support function. Some end-user services groups now provide around-the-clock support; service responsiveness is expected to be the same whether the end-user calls at midnight or during traditional business hours. But arguably, the most difficult support challenge that technology consumerization poses is heightened security risks.

The convergence of consumer electronics with workplace technology also increases end-users’ expectations about the tools and approaches they should be permitted to use for work. And it shapes their expectation of service responsiveness when issues with workplace technology

Exhibit 11 Ranking of Key Criteria for End-User Support Investments

| | |
|---|--|
| 1 | Cost |
| 2 | End-user satisfaction |
| 3 | End-user productivity |
| 4 | Support staff productivity |
| 5 | Competitive advantage |
| 6 | Importance of the end-user group to the organization’s success |

The Technology “Consumerization” Issue

Since the 1990s, there has been an acceleration of technologies in the workplace that were largely first adopted in the consumer space – graphical end-user interfaces, instant messaging technology, mobile phones, and PDAs. This creates significant complexity for end-user services groups, as the end-users they support increasingly mix use – workplace technology for personal tasks and personal technology for work tasks. This has been referred to as the “consumerization of technology.”⁷ More than a third of our survey respondents

arise. “Consumer technologies have increased the level of complexity that end-users are comfortable with and are driving their expectations in terms of the kinds of [devices] they should have at work, their ease of use, and the service levels they receive,” said Dave Wroth, director of IT for Underwriters Laboratories.

All of these changes present a far more diverse, dispersed, technology-dependent end-user base that is more difficult to service. There are many more people to satisfy and devices to support. There are more sophisticated technology

⁷Gartner takes credit for introducing the phrase the “consumerization of IT.” Gartner defines it as “the impact that products and services adopted by consumers, or designed for consumer use, have on the rest of the IT world, which consists of developers, technology providers and enterprises.” Gartner research publication “Businesses Need to Explore Consumer Technology Before the Next Internet Revolution Leaves Them Behind,” by David Mitchell Smith and Charles Abrams, Dec. 27, 2005.

problems to solve and more demanding end-users to satisfy. In addition, there is much more riding on how well those end-users are supported because the organization's performance increasingly depends on technology. And there are additional risks to mitigate because an organization's end-users and their increasingly critical technology are in motion around the world.

The net of it is that it's become critical – and very difficult – for large organizations to provide effective (and cost-effective) IT support to their employees. And both the importance and complexities figure to only increase.

Why Traditional Fixes to the Support Dilemma are Now Falling Short

To be sure, end-user services groups have not been standing still while the demands on them have grown sharply. As we cited earlier, approximately 70% have instituted around-the-clock support for at least some portion of the end-user base. About 71% have call centers. Approximately 55% have tiered end-user support, with another 26% planning to do so within 2 years. About 37% of the organizations surveyed provide self-service support, with another 40% planning to offer it within 2 years.

Exhibit 12 Support Resources Planned and In Place

| Resources | In Place | Within 6 months | Within 2 years |
|-------------------------------|----------|-----------------|----------------|
| Call center | 71% | 2% | 4% |
| End-user training | 57% | 16% | 24% |
| Tiered support | 55% | 12% | 14% |
| VIP response | 51% | 6% | 12% |
| Knowledge bases | 45% | 31% | 16% |
| Training for IT professionals | 43% | 14% | 27% |
| Self-service | 37% | 18% | 22% |
| Increase in outsourcing | 22% | 8% | 18% |
| Interactive voice response | 14% | 10% | 20% |
| Decrease in outsourcing | 6% | 6% | 2% |

However, from our research and experience, we believe that many of these efforts will still fall short, for five primary reasons:

1. **Establishing service-level agreements.** With greater frequency these days, SLAs are out of date months after they're established even though they're typically devised to govern service levels for at least a year. SLAs are becoming less-effective tools for ensuring end-user needs are met because technology's importance to end-users is accelerating in many organizations, although unevenly from function to function. An organization that successfully institutes a customer relationship management system for its sales and customer service professionals will see their dependency on technology increase rapidly. Sales representatives who become dependent on the system for preparing their daily call schedules are not likely to tolerate the 24-hour response time defined in the SLA if their laptops aren't functioning. Other departments that get new technology or whose end-users become more dependent on existing systems will add to the pressure to go beyond what was stipulated in an SLA.

2. Tiering support to two or more levels. Our research found that a far greater number of large organizations (65%) provide higher support levels to top executives/corporate management than they do to any other part of the organization. After external customers and the IT function itself, the next most frequently supported function was customer service, with 35% of the organizations polled providing high levels of IT support. It appears that large organizations are more or less separating top executives from the pack. But that doesn't necessarily mean that the most worthy end-users are also getting the most support.

3. Adding technical support staff. Hiring more service desk and IT support personnel to handle the soaring workload is often inescapable. But it can raise support costs significantly. In addition, it doesn't necessarily make each additional support professional more capable of resolving problems, especially if the organization doesn't have adequate knowledge systems by which support people can learn from the experiences of other support people anywhere in the organization.

4. Getting more stringent on corporate technology standards. Some IT managers may feel that the way to reduce mounting support complexities is to dramatically reduce the number of technology "images" in the organization and tolerate no or few exceptions. But first, it's no longer possible: employees have many alternatives today and can get around stringent policies. (Consider how easy it is for end-users to route corporate e-mail to their private e-mail boxes. It doesn't require end-users to buy new hardware or software.) Second, it isn't advisable. Denying key end-users the non-standard technology they need could curb effectiveness and erode organizational performance.

5. Outsourcing to vendors in anticipation of a quick fix.

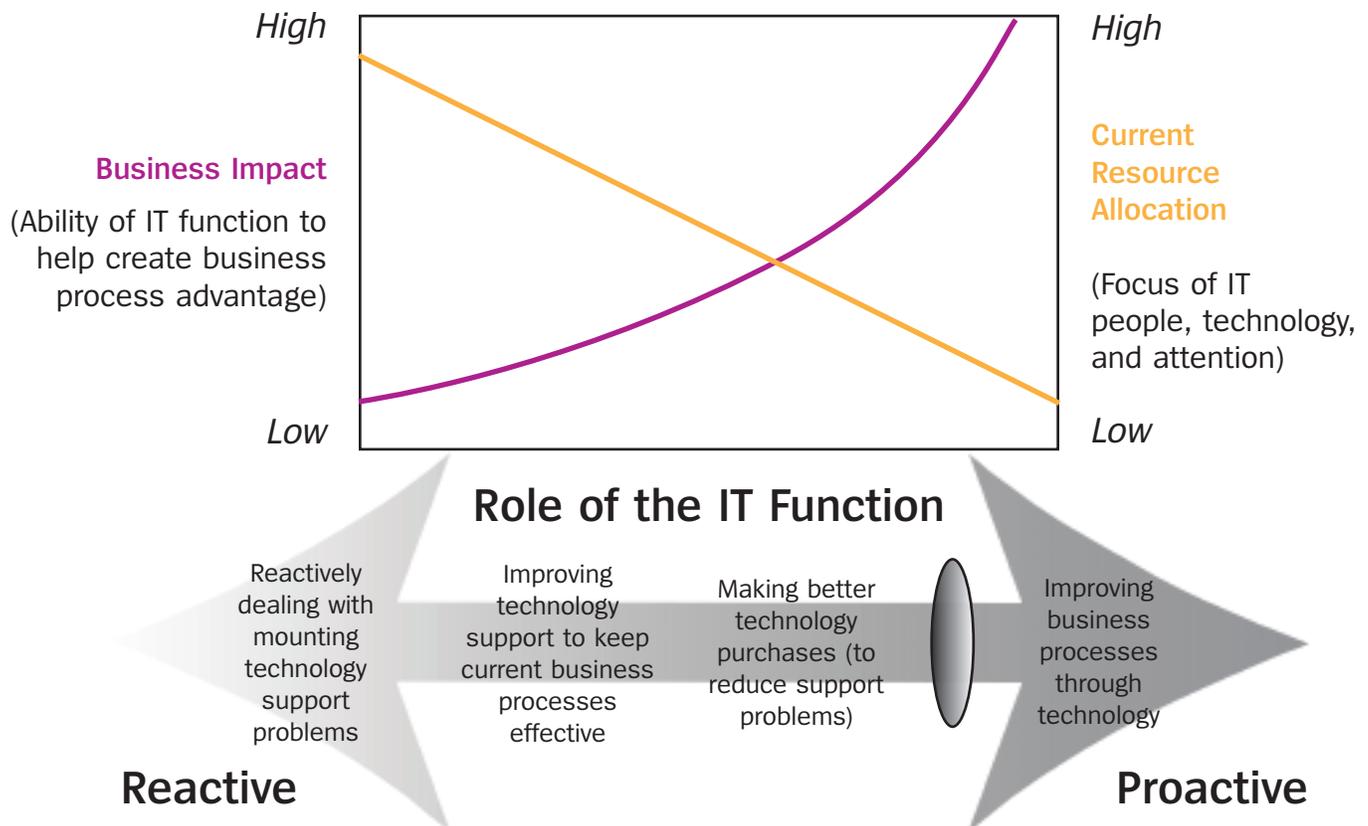
Pushing the end-user support problem on an outsourcing vendor that is inflexible and doesn't possess the capabilities required for effective IT support may help address an organization's end-user support cost problem, but it will not necessarily improve end-user services or solve its end-users' technology support requirements.

Why the Support Crisis Comes at a Bad Time for the IT Function

The declining effectiveness of traditional ways to solve the end-user support problem couldn't come at a worse time for many IT departments. While it's important to ensure that end-users' technology works and they understand how to use it, top managers in many organizations today are asking the IT function to play a more strategic role: helping every department implement dramatic improvements in business processes. Such improvements are only possible by rethinking long-standing ways of selling, marketing, providing customer service, producing and distributing goods and services, and running other key operations – and by determining how technology could enable such change.

In other words, IT functions must help the organization improve business processes – not just fix technology that isn't working. The former is a proactive process. The latter is reactive. City of Minneapolis CIO Karl Kaiser knows this issue well. Kaiser divided his IT function into two groups: those who support existing technologies and the City operations that use them (what he calls "keeping the lights burning"), and those who improve business processes (what he refers to as "business development"). He outsourced the support group so that his technologists could focus on reengineering the business processes of the City. "Why would I want to own an application and pay license fees and maintenance fees and, every three years, upgrade fees when I can have somebody do that for me?"

Exhibit 13 The Resources of Many IT Functions are Not Aligned to Provide the Greatest Business Impact



Other IT executives told us similar stories. They want to shift the role of their function from the left (see exhibit above) – reacting to technology support problems – to the right: solving business process problems in ways that take advantage of technology. Such CIOs see too much of their resources devoted to fixing broken technology, and too little of it to fixing broken business processes. It’s one of the reasons that more than 37% of our survey respondents said they were likely to outsource end-user support functions over the next three years.

Addressing the IT Support Crisis: Comparing Leaders and Laggards

Our study focused not only on identifying the drivers of complexity for end-user services groups. It also focused on understanding what practices lead to managing that

complexity for the better or for the worse. We did this in two ways, both quantitative and qualitative. On the quantitative side, we compared two sets of survey respondents (again, all with annual revenue of more than \$1 billion): those who said their end-users would rate support as excellent (“support leaders”) and those who said support would be rated as satisfactory, poor, or unsatisfactory (“support laggards”). These two sets of survey respondents were at the opposite ends of the spectrum, approximately in the top and bottom quartile of the survey population.

On the qualitative side, we analyzed the case study research we did on ten organizations, both commercial and public sector. While it was harder to separate support leaders from laggards here, we used the same metric: how would their end-users rate the support they receive? While we did not ask their end-users directly, we did feel that the

IT managers with whom we spoke were a good surrogate given that all of them openly discussed both the progress and struggles of their end-user services function.

In the paragraphs that follow, we explain six practices that we found in our research that distinguished the support leaders from the support laggards. The support leaders were far more likely than the support laggards to:

1. Base support levels on the organizational impact of end-users' jobs, and place increased IT resources on the most worthy end-user segments – not only for technology support but also for improvements in their business processes.
2. Capture and share the collective knowledge of the end-user services group to resolve difficult and recurring technology problems.
3. Standardize support practices, not just technologies.
4. Exploit technology that automates and speeds support processes, including technology that takes control of support from afar.
5. Strike the proper balance of central and field support.
6. Escape the SLA trap by shifting support measures from IT to end-user effectiveness.

Basing Support on End-users' Impact on Organizational Success

The support leaders that we studied were far more likely to allocate IT support resources in a more discriminate manner than the support laggards. They were much more likely to tailor support in the first place, and focus support resources on business functions that more directly tied to immediate revenue. This practice has become vitally important in a world with explosive demand for end-user services.

Determining who should receive what levels of services and responding appropriately is now critical given that all end-users are not created equal. In any large organization, certain business functions (and even employees within each function) have greater impact on daily revenue than others, and depend far more on technology than other functions or employees. The best practice organizations that we studied were much more likely to recognize this factor, and adjust end-user support accordingly.

The support leaders were far more likely to tailor IT support. Nearly half (46%) saw it as a high priority, which was more than twice the number of the support laggards (21%). And where support leaders provided high support, indeed, differed significantly from where the support laggards focused their resources. Support leaders were more than twice as likely than support laggards to provide high support levels to their customer service function; nearly four times more likely to provide high support to sales and R&D; and far more likely to provide high support levels to marketing (a function for which none of the laggards reported providing high support). Leaders were also somewhat less likely to provide high support levels to the top executives of their organizations, although nearly two-thirds said corporate management did receive high levels of support.

Exhibit 14

Basing Support on the Organizational Impact of End-Users' Jobs

| Function | % of Support Leaders Providing High Support Levels | % of Support Laggards Providing High Support Levels |
|----------------------------|--|---|
| IT | 73% | 43% |
| Customers | 64% | 43% |
| Customer service | 64% | 29% |
| Top executives | 64% | 71% |
| Sales | 55% | 14% |
| R&D | 55% | 14% |
| Finance | 55% | 29% |
| HR | 45% | 21% |
| Purchasing | 45% | 15% |
| Marketing | 36% | 0% |
| Suppliers | 18% | 0% |
| Manufacturing/distribution | 9% | 21% |

Underwriters Laboratories Inc., a \$680 million non-profit product testing and certification company, has two levels of support that are based largely on the impact of internal business functions to overall organizational success and their reliance on technology. Most employees of the Northbrook, Illinois-based company (90%) use desktops, laptops, and other technology. The functions with highest business impact are customer service and field service. An additional factor it uses to segment support is the severity of an end-user's technology problem.

The City of Chicago recently moved from one to two tiers of end-user support. First-tier end-users are those in revenue-collecting functions. Second-tier end-users are in non-revenue collecting functions. Those in revenue-collecting functions have a four-hour response time. All others have a 24-hour response time.

From our research, we believe organizations need to take a much more granular approach to apportioning their IT support resources. Four segmentation criteria stand out:

1. **The economic value of the function.** A function's impact on the organization's ability to generate revenue on a daily basis is why such customer-facing functions as sales, customer service, and – to a lesser extent – marketing should be near or at the top of every organization's support chart (as well as revenue-collecting activities such as accounts receivable). Of course, providing excellent IT support to the external customers of an organization is critical as well, especially as more of them interact with suppliers through technology. Several of our clients have established an enterprise "severity" matrix that defines response times with their organizations. The most severe events are those with immediate and significant impact for internal and external customers. Less severe (but still serious) problems could include the outage of a global computer system that has minimal impact on external customers. Incidents with low levels of impact on business operations (typically affecting one person) with no impact on external customers may get 24-hour response.

2. The function's reliance on technology. The more that the performance of a set of end-users relies on technology, the more critical that IT support may be to organizational success. A field sales force for a product line whose pricing and offering doesn't change frequently isn't as reliant on technology as a field sales force that must download new prices and products daily to stay current.

3. The importance of the specific task. An employee whose technology goes down while in the midst of processing a customer order is far more important to the end-user services group than an employee who is trying to make online updates to his/her 401-K plan.

4. The severity of the technology problem at hand. Even for highly demanding end-users, service needs vary based on the severity of the problem. When technology is completely non-functioning (and thus stopping productivity), it is a greater problem than when a malfunction is slowing productivity. Hence, a less technology-dependent group that is completely unproductive may be as high of a service priority as a very technology-dependent group whose productivity is only slightly impaired.

Whether they used some or all of the criteria above, end-user services groups that tiered support delivery by the service issue's business impact provided more effective support. One need only look at the retail sector to see this tiered service approach in action. In many retail organizations, different customer segments get far different treatment. Implementing a more sophisticated segmentation structure that provides IT support where and when it is needed most keeps service delivery in line with the evolving needs of the organization. Perhaps, that is why 61% of our survey respondents consider implementing tiered support to be a moderate-to-high priority initiative.

Capturing and Sharing the Collective Knowledge of End-User Services

Our discussion earlier in this report about the growing complexity of technology and the increasing disparity in end-user sophistication, demonstrates that it has become nearly impossible for any one support professional or even small group of professionals to be experts in resolving most or all

of an organization's support problems. Effective problem resolution requires capturing and sharing the collective knowledge of the service professionals (regardless of their location) as well as third parties (such as technical product specifications, vendor recommended approaches, etc.). It also requires incident tracking within a single system that's accessible by service desk personnel so that all problems with known resolutions can be handled more effectively and efficiently. Knowledge management and data mining are essential to:

- Dramatically improve the quality of service to end-users.
- Move from being reactive to proactive in providing service.
- Rapidly adapt to new technologies and service expectations.
- Improve the efficiency, and better manage the costs, of operations.

One of the largest differences between the support leaders and laggards was whether they had built online knowledge bases for support professionals to draw upon. The companies we interviewed that had them reported substantial improvements in service desk resolution. For example, Standard Parking says such knowledge bases have been a primary factor in service desk problem resolution improving from about 50% to 80%. All resolutions that another support professional can repeat are documented, entered into a format that makes it easy to store and find later in the knowledge base, and marked for entry into the base. The knowledge base has become a treasure chest of advice for fixing internal technology problems.

STMicroelectronics, a \$9 billion global semiconductor manufacturer, has seen significant value from such knowledge bases on IT support. It shifted much of its end-user support for U.S. employees to Unisys Managed Services Centre in India. This shift provided the opportunity to standardize once disparate service processes to a common best approach. For instance, to ensure that installing applications software for its end-users would be done most effectively around the globe, we documented how the procedure was done in various regions and created a single approach in the knowledge base for support professionals to access and follow in the future.

Knowledge management systems have been leveraged by large organizations for more than 20 years. These systems have helped global teams better coordinate and manage projects by creating an institutional memory of documents, electronic bulletin boards, and other information that team members could draw on. Combine that with recent advances in data mining – sophisticated software that spots important patterns among thousands or millions of pieces of data – and organizations have an unprecedented ability to study recurring problems and solve them faster.

Many IT departments just haven't made the investments in incident tracking and knowledge management systems their services desks need to manage the increasing complexity of their work. As a result, many service desks can't track service calls/work orders as they are escalated from the service desk to specialized support teams. If they accept service orders from the web or other non-telephone channels, they don't record them in a standardized, categorized, and easily retrievable way. Many organizations also lack a standard process for recording, storing, retrieving, and analyzing service order information so that it can be used when similar incidents occur. Through our survey, we learned that 53% of large organizations maintain a centralized information repository, and only 45% input information into a user-accessible knowledge base. Fully half of the end-user services organizations surveyed do neither. They are much more likely to log service metrics (which 80% do) and monitor service quality (which 84% do).

Without a central information repository and processes for gathering and sharing that knowledge, the expertise of individual service agents and teams remains fragmented.

Specialists in supporting software applications have their own knowledge base. They can't tap easily into the expertise of the groups that support hardware, networks, or other infrastructure components. And, the service desk is forced to escalate service requests that with knowledge bases could have been resolved by the service desk itself. In other cases, technicians don't share their knowledge because they are not required or coached to do so. Logging incidents and tips into a computer system for the next person who encounters a certain problem takes time – time away from fixing technology itself. Pressured to perform, the technician will be hard-pressed to spend time on tasks that don't immediately pay off for him/her. In other cases, technicians lack tools such as centralized but remotely accessible knowledge bases to share information effectively.

All this means that the end-user services function must manage its own information much better today – especially information that supports the service desk. Two pieces are critical to doing this: a single-ticketing system and global data repository. A single-ticketing system pools all end-user requests for service into a central point, then shuttles the requests to the appropriate support group. Even by itself, such a system can boost service levels. According to Dave Wroth, director of IT at Underwriters Laboratories, the firm's single-ticketing system has given it "much better visibility into trends on applications issues and application performance."

A global data repository must include many details about end-users (who they are, what they do, what devices they have, what software and network connections they have), individual service incidents, techniques that have worked to

Exhibit 15 Knowledge Capabilities In Place for Storing and Tracking Service Information

| Knowledge Capabilities In Place | % of Large Organizations |
|---|--------------------------|
| Centralized information repository for service orders | 53% |
| Knowledge bases in place to support service professionals | 45% |
| Logging of data for service metrics calculations | 80% |
| Monitoring of service call activity/quality | 84% |

fix those incidents in the past, information access rights and security information, etc. A data repository enables the service desk to resolve problems faster and more efficiently by providing the information the service representative needs to resolve the problem in the first call or route the problem most appropriately for rapid resolution by a specialist. It also provides the basis for early detection of trends and proactive intervention for growing service problems.

End-user services groups today not only must be proficient at reacting to problems – they must get far better at anticipating and preventing problems before they occur. But building such an early detection and preemption capability can only happen when the services organization has a robust process and knowledge management system for logging and analyzing its work.

Having seen the value from ad-hoc and project specific analytics, a few leading organizations are now staffing business analysts into the end-user services organization. By getting the right analytical talent, giving them the right focus and objectives, conducting thorough analyses, and distributing the information across the end-user services organization, service desks can greatly improve performance.

When reflecting on the importance of knowledge bases to end-user support one IT executive we interviewed predicted that “Soon there will be a day when the only real value end-user services deliver to the organization is the way that we capture and manage knowledge and keep it dynamic and relevant.” While organizations will always have technology and applications-related problems that need to be addressed, this statement certainly highlights a critical – and foundational – capability for end-user services groups today. Knowledge management is becoming far more nimble, far more useable and convenient, and far more integrated with real-time service support. While it is not likely to be the only real value end-user services groups provide to their businesses, it is clear that knowledge management and analytics will only become more critical to managing the rising complexity of end-user support.

Standardize How Support is Provided, Not Just the Technology

Standardizing the hardware and software image that end-

user support functions install on the technology they furnish to end-users is critical to reducing support problems later. It is far easier for the service desk to troubleshoot one word processing system that every employee uses than a half-dozen. Support leaders were more likely to require end-users to use standard technology than support laggards (91% to 79%). In fact, support leaders were somewhat more likely than support laggards to require end-users to use their technology only for work purposes (73% vs. 64%). The City of Chicago moved from about 100 software “images” for each piece of computer hardware it supported to just one. New applications are only introduced after significant scrutiny – through an R&D laboratory that evaluates and makes recommendations on new hardware and software. The lab tests potential new technologies for how they affect the software on existing machines. That has reduced support problems considerably.

Standardized technology, however, is not enough and is often not fully achievable – not with increasing end-user reliance on technology and increasing technology consumerization as potent forces to be reckoned with. Some employees – at least the ones most critical to corporate success – must have some flexibility to use non-standard hardware and software where it truly makes a difference in their job performance. The support leaders in end-user services realized that there needs to be a balance between standardization and flexibility. “The best thing that we can do is look for the opportunities and understand the business impact of them and then have open and honest conversations with our employee base about the decisions,” said Keith Evans, Standard Parking’s senior vice president of Strategy, Information and Technology. “It’s a tight rope that we walk right now. We try to balance to get some benefit or all of the benefit we can for the company without impacting the employee in a detrimental fashion.”

Companies like Standard Parking realize that the way to manage non-standard technologies is by instituting standard support practices: how IT professionals providing support do their work. The support leaders that we surveyed were far more likely than the support laggards to say they needed global standards for IT support policies, procedures, and staff members. Some 55% of the support leaders said they were essential versus only 29% of the support laggards.

Exhibit 16 How Support Leaders and Laggards View Standardization

| View | % of Support Leaders | % of Support Laggards |
|--|----------------------|-----------------------|
| Require end-users to use standard technology | 91% | 79% |
| Require end-users to use their technology only for work purposes | 73% | 64% |
| Global standards for IT support policies, procedures and staff are essential | 55% | 29% |

Implementing standardized practices has enabled support leaders to gain control despite the variety of technologies and applications found across their infrastructures. For instance, having visibility to assets is the first step toward being able to gain control over and standardize those assets. Having a common incident management process provides the basis for faster resolution of repeated problems, especially when there are potentially multiple parties involved in that problem resolution. This is what the whole ITIL (Information Technology Infrastructure Library) movement in the IT world is about: creating and promoting standards in the way the work of IT functions are conducted – from resolving end-user problems to many activities involved in running the data center. Standardized processes such as configuration management, incident management, service desk management, problem management, and change management all enable the services organization to better manage – and keep pace with – the wide variability and high rate of change present in today’s end-user services needs.

Underwriters Laboratories has now standardized processes for activities in end-user support that it "never realized scale of the benefits that were possible due to standardization," says Dave Wroth, director of IT. They include how to onboard new hires with technology and reclaim technology when an employee leaves, how to create and disable passwords, and other key tasks of the support function. Standardized approaches to all this has increased security and the speed with which end-users can be served.

Exploit Technologies That Automate and Speed Support Processes

The technology for IT functions to troubleshoot and prevent end-user problems has been advancing rapidly. Much of the technology is for remote diagnostics and repair. Aggressive use of such technology was one of the key factors separating the support leaders from the laggards at providing effective support. Nearly all the leaders we surveyed – 91% – already perform remote diagnostics of end-user technology. In contrast, only half the support laggards could do so.

Remote diagnostic and related technologies allow the service desk to repair or upgrade a computer, without having to dispatch a technician or even walk the end-user through the fix process over the telephone. Often times, remote diagnostics results in much faster issue resolution and happier end-users.

Nowadays, remote repair can be accomplished without the end-user’s knowledge, downloading software patches overnight while a machine lays idle (although on and connected electronically). In some customer-facing functions – consider the front desk personnel of a hotel – technology users don’t have the time to pick up a telephone and troubleshoot a technology problem. Deploying a remote agent to access that PC and fix the problem without end-user involvement solves a long-standing problem of helping end-users who aren’t in a position to help themselves.

Such technology can also flag problems before they occur (e.g., a network printer that is out of toner or paper) and thus reduce support calls. That makes life easier for both the end-user and the support staff. Intel's new V-Pro computer chip, for instance, will enable the support desk to update software applications residing on computers on a corporate network and determine if a particular application on an employee's machine is bad.

But remote diagnostic technology is not the only technology that's critical to resolving the support crisis. Virtualization of servers and applications helps to reduce the organizations dependence on hardware and hence reduce the end-user impact when hardware fails. Application virtualization, or the ability to have software applications running independently from the host operating system and from one another, can save large organizations hundreds of thousands of dollars. For support organizations it significantly corrects problems related to version management and application incompatibility.

While perhaps not quite as significant, desktop virtualization can also play a part in revolutionizing IT service especially in significant software migrations. This capability which allows the partitioning of the desktop gives the IT organization greater flexibility and speed (and greater likelihood of successful transition) when rolling out a major upgrade or new application. And another somewhat behind the scenes capability which stands to revolutionize end-user services is desktop safety net, functionality allowing end-user services to do a full back up and restore of a PC in minimal elapsed time.

Technology that teaches end-users how to operate their devices correctly is also critical – both before they begin to use their machines or a new piece of software, and when the technology breaks down. Sixty-nine percent of large organizations believe that self-service and self-help tools are necessary to meet escalating service expectations. The same number (69%) also believes that end-user training is key. But beliefs are ahead of practice in the area of self-service tools. The number of support leaders that provide online training to end-users was more than double the number of support laggards (46% to 21%).

Some leading companies are finding online self-service portals to be most effective in three areas:

- Sharing information with employees (known outages, current service performance, etc.),
- Providing online learning (answering “how-to” and other frequently asked questions on the usage of products and the technology environment) and
- Managing service requests (filing requests, checking status on requests etc).

STMicroelectronics now has a support portal that gives its end-users information on a vast array of self-help topics – from ordering a new computer to setting up a signature within Microsoft Outlook. The portal contains the latest news, frequently asked questions, updates on network outages, service policies, and more. Business unit and functional managers can review weekly service level reports through the portal. And service technicians can access support articles within protected areas of the portal, regardless of geographic location. When working in the field, technicians introduce end-users to the tool, book marking the self-help portal on end-users' “favorites.” The service desk directs callers to the site, and the company's intranet provides a front-page link. Response has been particularly strong from end-users in non-English speaking countries, where end-users are more comfortable reading English than speaking it. As self-service tools become even more crucial to raising service levels and controlling service costs, portals will become integral for end-user services groups.

The technology that's available today and in the near future for providing effective end-user services will not be cheap. However, end-user services groups that want to stay on top of their game will have to invest in them and learn how to use them. Acquiring and quickly mastering fast-evolving support technology must be a core investment and core competence of the end-user services organization.

Creating the Proper Balance Between Central and Field Support

Providing highly effective support does not mean that support resources have to be concentrated in the field, close to end-users. In fact, with today's technologies, organizations can actually improve support by shifting the work to central offices. Much of this can be accomplished through remote diagnostics, knowledge bases, self-service portals, and online training. In fact, the primary way that support leaders differed from support laggards in the way they provided support was the use of remote diagnostics: More leaders used it to take control of devices than did laggards.

When more problem resolution can be shifted from the field to a centralized support team, total support costs can be significantly reduced and service responsiveness improved. AARP calculates that every call that can be resolved by the service desk without having to dispatch a technician saves the organization a minimum of \$50. Many organizations now prefer longer service telephone calls that lead to higher first-time resolution of problems over dispatching technicians. Call times at STMicroelectronics have increased 25% to 40%; however, 40% to 50% of calls are resolved on the first call and end-users are happy to be back to work in minutes rather than waiting for desk-side support to arrive.

The organizations that provided the best support were also able to provide more in-person support than did the organizations that provided the worst support. How so? The leaders used remote diagnostics technology to shift technology problems that previously had to be fixed in the field to a central location. That appeared to allow the support leaders to shift resources from handling telephone support to conducting remote problem resolution and to the field to provide in-person support.

But with less problem resolution to handle local support resources were freed to focus on fixing business process problems – especially those of the end-users with the greatest impact on the organization's revenue. If they have the capabilities and interest to go beyond fixing technology to fixing business problems with technology, these support people can shift to two new roles:

1. Ensuring that today's IT support levels are sufficient.
2. Reengineering the way critical end-users do their jobs by understanding their work processes and how information and technology could dramatically improve their performance.

AARP accomplished the former after moving from a "high touch" service structure to an outsourced centralized

Exhibit 17 Comparing Support Leaders and Support Laggards: How Organizations Allocate End-User Services Resources

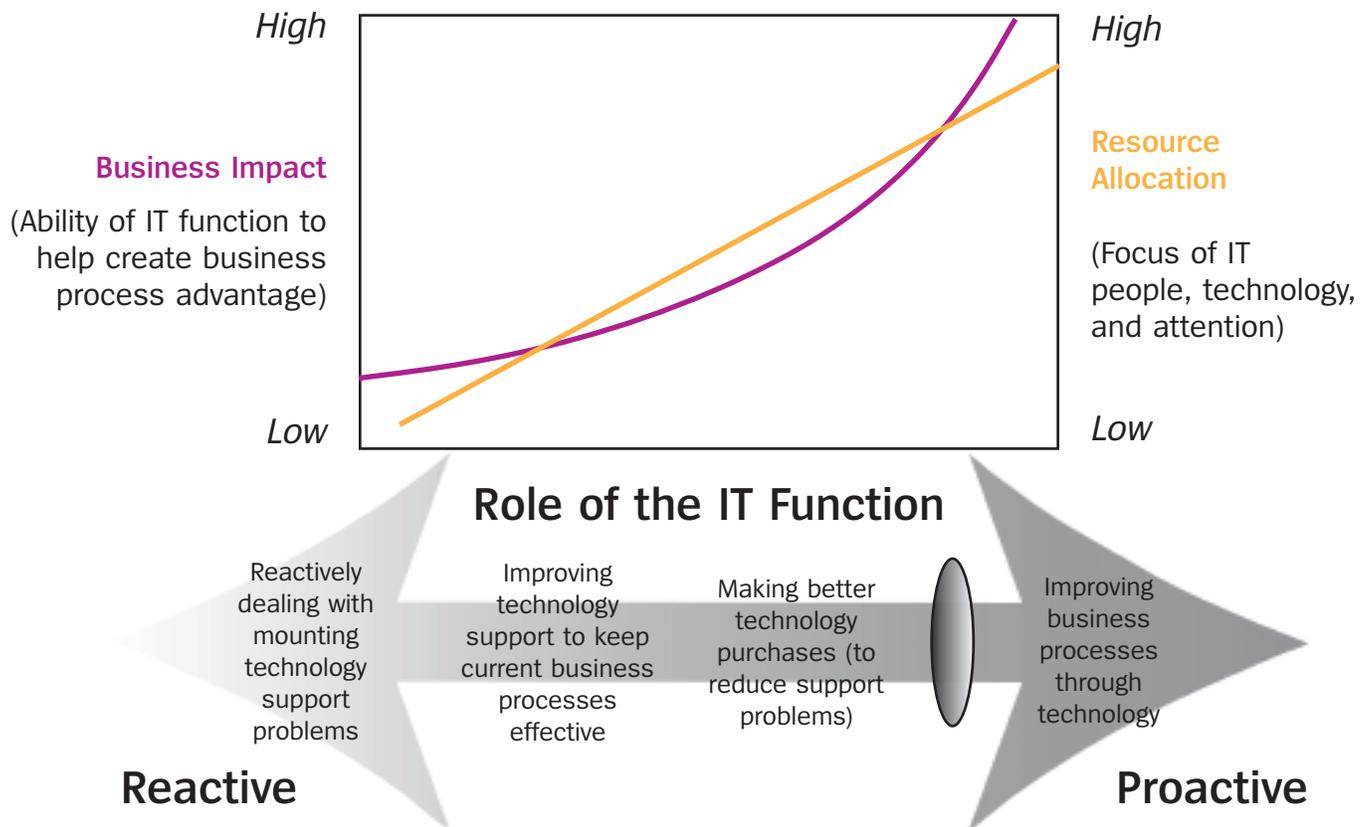
| | Overall | Support Leaders | Support Laggards |
|--|---------|-----------------|------------------|
| In-person tech support | 25% | 34% | 22% |
| Phone support without ability to remotely control a PC | 23% | 14% | 32% |
| Phone support with ability to remotely control a PC | 33% | 31% | 25% |
| Email or instant message tech support | 11% | 8% | 12% |
| End-user self service | 8% | 12% | 9% |
| Other | 1% | 1% | 1% |

support model. It left a small support staff in the field that has helped managers and workers get comfortable with remote support. They are the eyes and ears of the support organization for qualitatively assessing service satisfaction. The City of Minneapolis has been accomplishing the second role after shifting many of its IT employees away from fixing broken technologies to roles in which they could help City employees improve the way they did their jobs. All sorts of innovations in the way the City conducts its business are beginning to happen. For example, the IT function recently implemented video technology around the City so that the City's police force could watch the video in their cars before they arrived on the scene and know in advance what happened. "We're in their businesses now," says Karl Kaiser, chief information officer for the City of Minneapolis, "not in

the back room fixing computers. They now come to us to help them out. It took us a while to gain that credibility but we have gained it in the majority of the areas that we service."

STMicroelectronics' IT executives told us that the focus of their discussions with end-users has shifted from "I can't get my work done" to "How can I be more efficient and effective?" That's a major shift for an IT organization. But it's a shift that nearly all of them are anxious to make: become business process troubleshooters, not just technical troubleshooters. They can only do so if they can get their technical support operations in order. By becoming much more efficient and effective on the left side of the chart, the IT function can shift resources to the right side, increasing their impact on the organization by orders of magnitude.

Exhibit 18
Shifting Focus and Resource to Achieve the Most Organizational Impact



To be sure, it will always be important for the support group to have “feet on the street.” The support leaders that we polled, in fact, were able to provide more field resources. But we suspect, like the City of Minneapolis example, that those support people are playing higher-level, more business process support roles rather than technology support.

And centralizing support doesn’t necessarily mean it must be done through one location serving the entire world. For large global companies, regional centers that might serve an entire continent or two are becoming more of the norm. More than twice as many of the support leaders had regional centers than did support laggards: 36% versus 14%. In fact, only 18% of the leaders provided support through one central office, while 57% of the laggards did so. We believe that regional support centers are important because they increase the chances that foreign languages and culture of support personnel will be more like the end-users whom they serve. In addition, having technicians at regional offices rather than one global office cuts down the time it takes to resolve thorny technical problems in the field.

Escaping the SLA Trap and Shifting Measures to End-User Effectiveness

The last difference between the organizations providing

superior and inferior end-user support was in how they measured their effectiveness. The organizations that were best at support were much more likely to tie their measures to business unit and end-user performance goals than were the laggards. In fact, the support leaders were far more likely than the laggards to measure numerous aspects of the performance of the support organization. Some 73% of the leaders collected data on the service quality of dispatched technicians whether or not they were employees or from another organization. Only 57% of the laggards did so.

The support leaders were far less likely to rely on service level agreements to guide their support operations (although they had them in place). They realized that end-user service expectations are a fast-moving target and that relying on the IT measures that make up most SLAs was a losing game. More important than SLAs is measuring the impact of the support function on the performance of the organization’s employees – not the IT support function. Some 82% of the support leaders that we studied tied their metrics to business unit goals versus only 36% of the support laggards. End-user services groups must perpetually monitor performance and track end-users’ shifting service expectations. But they must also measure from the customer’s perspective, not just the support group’s perspective.

Exhibit 19 Support Metrics Tied to Business Unit Goals or End-User Performance

| Support Leaders are Much More Likely Than Support Laggards to Tie Support Measures to Business Unit and End-User Performance Goals | | |
|--|-------------------|-------------------|
| | Support Leaders | Support Laggards |
| Are your support operation’s performance measures tied to business unit goals and/or end-user performance? (yes or no) | 82% Yes 18% No | 36% Yes 64% No |
| Over the next two years, will your support operation increase its use of performance measures tied to business unit goals and/or end-user performance? (yes or no) | 82% Yes 18% No | 64% Yes 36% No |

Most organizations capture statistics on the effectiveness and efficiency of the service desk (call wait times, call duration, frequency of resolution of a particular problem on the first call, etc.). In fact, 84% of the large organizations we studied monitor service calls. But each measure reflects only a portion of the end-user's overall service experience. How many organizations can assess John Smith's experience and satisfaction across all of his interaction with the service organization? How long did he wait to speak to the service desk? How long was the call? If the call was escalated to another department, what was that department's responsiveness? How was the service of the technician who was eventually dispatched? What was the wait time for that technician? Was John Smith satisfied with the service provided? Did it meet his expectations? And, what was the productivity impact on John Smith?

End-user support must increasingly be measured by customer experience metrics, not just "the technology was working" metrics. Consider the example of a business unit with a printer problem which required a technician to be dispatched to make a repair. The technician replaced a part on the printer but erased all the settings and did not test the printer to see if it worked after completing the repair. The technician saw the issue as resolved, yet on his departure no one could print because the printer needed reprogramming. The technician's SLA was met, but the end-users were unhappy.

To improve the end-user experience, end-user services groups must go far beyond measuring only a narrow part of the service experience. Metrics and processes must assess satisfaction in its entirety across all of the customer's service interactions. And, these systems must be able to track when certain sets of end-users are growing increasingly dissatisfied with the service being delivered and may require greater or different support. Leading support organizations are progressing from measuring IT service performance to measuring end-user satisfaction to ultimately measuring success based on minimizing the performance impact of service issues across the organization.

Putting It All Together

The end-user community is increasingly diverse, dispersed, technology-dependent, and more difficult to service. There are more people to satisfy, devices to support, and sophisticated technology problems to resolve. And, there is much more riding on how well those end-users are supported because the organization's performance increasingly depends on technology. End-user services is a critical and complex challenge that IT organizations must address in order to successfully shift IT's focus from solving technology problems to innovating business and government processes through technology.

Our comparison of support leaders and laggards identified six practices which enable IT organizations to effectively provide technology support today and in the future. Some are foundational capabilities while others enable more advanced practices in structuring service, resource allocation, and measurement. An organization currently struggling to gain control of end-user services might prioritize these practices in a phased approach.

- **Phase 1: Laying the groundwork for maximizing efficiency and effectiveness.**

A first priority is to build those capabilities which enable end-user services groups to gain control of the technology environment and service processes, keep pace with the rate of change in technology and end-user dependency, and improve overall efficiency and service effectiveness. It includes implementing standardized support processes, building and fully utilizing knowledge bases, and exploiting those technologies which speed and automate support. The outcome is improved technology support to keep current business processes effective.

- **Phase 2: Becoming more refined in how service is provided based on areas of greatest organizational impact.**

Not all demands for service are created equal. Once an organization has the technology, processes, and knowledge management in place to effectively provide

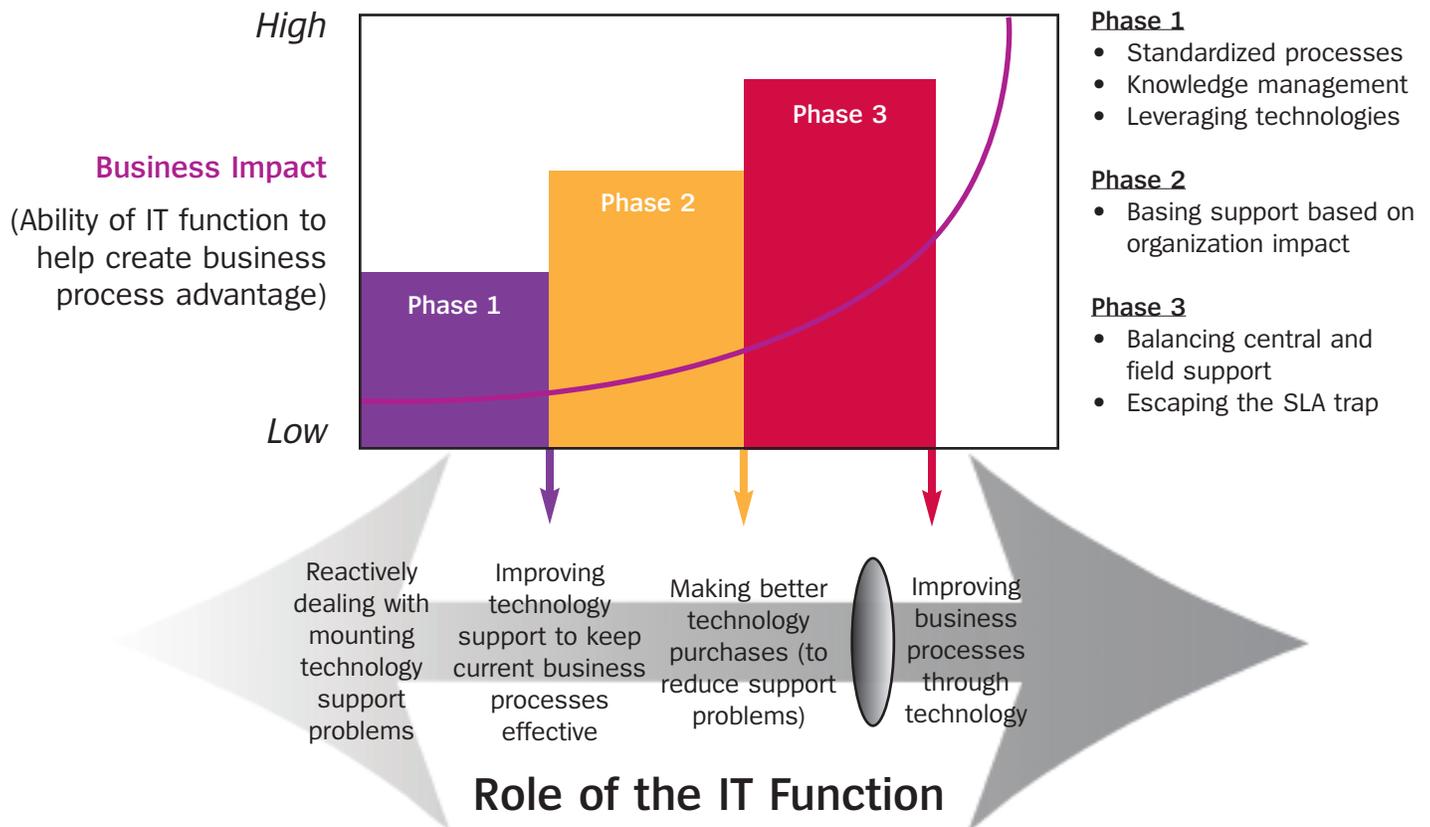
end-user support to the population at large, it can become more selective about how service is apportioned across the organization. Implementing a tiered support structure significantly improves overall effectiveness by giving more or higher priority support to those areas of greatest organizational impact: functions and individual end-users with greater economic value and greater technology dependency, highly important tasks and more severe problems.

- **Phase 3: Fully aligning measures and resources to areas most important to organization performance.**

Once high priority end-users and functions are identified and agreed upon across the organization this segmentation becomes a lens for the IT organization to better align

resources as well as create end-user performance-based service measures. With improved processes, technologies and knowledge, support organizations will increasingly push more issue resolution to self-help, service desk, and remote repair. Field service resources are then free to help improve and redesign business processes through technology. Those functions and individuals with greatest economic impact not only warrant the highest (and perhaps most local) support but also the greatest attention from IT for innovation through technology. If resources are aligned based on economic impact than it follows that service and IT effectiveness should also be measured based on economic impact and business performance goals – a far cry from the SLAs of today.

Exhibit 20 A Phased Approach to Rebooting IT Support



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