



Chapter 7
User Support Management

**A GUIDE TO
COMPUTER USER SUPPORT
FOR HELP DESK AND SUPPORT SPECIALISTS
SIXTH EDITION BY FRED BEISSE**

Chapter Objectives

- The mission of a support group
- Items in a typical user support budget
- Staffing a help desk
- Support staff training programs
- Evaluations of support staff performance
- Industry certifications for support professionals
- Professional help desk and user support associations
- Ethical principles that guide the professional behavior of support workers

Reasons to Study User Support Management

- Applicants for support positions need to understand the perspectives of support managers
- Support specialists in small organizations often perform some management tasks
 - Project lead or coordinator
 - Supervisory or lead worker responsibilities
 - User support group management

Managerial Concerns: Mission, Budgets, Staffing, Training, and Performance

- Mission statement
- Support services budget
- User support staffing
- Training for user support staff
- Performance measures

Example of a User Support Mission Statement

- **Mission statement:** the guiding principles that communicate support goals and objectives to staff, users, and management
- Example: the mission of a user support group is to:
 - a) Maximize operational efficiency among users in an organization by providing timely resolution to technology use questions
 - b) Effectively manage problems to continuously improve:
 - Quality of support services to users
 - Usability of information systems
 - Effectiveness of documentation and training
 - Users' satisfaction with support services

Budgeting for User Support Services

- A budget is a financial plan a manager prepares
 - Translates mission statement goals into a strategy to meet the goals
 - Budget categories:
 - Revenue (income)
 - Expenses (costs)
 - Personnel
 - Supplies
 - Services
 - Facilities

Factors That Influence Support Budgets

- The kind of users supported
 - Internal versus external
- How services are provided
 - Face-to face, telephone, email, web-based support
- The range of services provided
 - Full service, partial service, telephone hotline
- The number of support workers
 - Impacts the number of supervisors needed
- The cost of facilities and overhead
 - Included in the support budget or the IT department budget
- The kind of expenses
 - One-time capital outlay versus ongoing operating expenses or leases

Common Sources of Support Revenue

- Revenue sources
 - Fees for services
 - Subscription fees
 - Per-seat fees
 - Service level agreement contracts
 - Support bundled into product price
 - Hardware repair income
 - Other revenue sources
 - Training
 - Materials
 - Sales of hardware, software, accessories

Common Support Expenses

- Personnel expenses
 - Staff salaries and wages
 - Other staffing costs
 - Benefits (insurance, transportation)
 - Paid leave (vacations, sick leave, family leave)
 - Payroll taxes (federal, state, local)
 - Staff recruiting costs
 - Professional education and staff development
 - Staffing overhead costs
 - Supervision, accounting, administration, human resources

Common Support Expenses

(continued)

- Facilities expenses
 - Office space
 - Furniture
 - Utilities
 - Janitorial services
 - Equipment
 - Agent workstations
 - Office equipment
 - Maintenance

Common Support Expenses

(continued)

- Facilities expenses (continued)
 - Software
 - Help desk software
 - Office and other applications
 - Supplies
 - Communications
 - Office network
 - Internet access
 - Telephone access
 - ACD equipment
 - Mobile devices

Staffing a Help Desk

- Management challenge: How many help desk staff are needed to meet the level of service demands efficiently?
 - Need sufficient staff to meet the demand for timely responses to incidents
 - Need to staff at a level which avoids idle agents and unproductive payroll expenses
- **Erlang**: a unit of traffic (such as user incidents) in a given time period
- Erlang calculations estimate the number of help desk agents required to meet peak and off-peak incident volumes

Staffing a Help Desk

(continued)

- Factors managers consider when making staffing level decisions
 - Volume of incidents
 - Types of incidents
 - Information requests versus problem-solving
 - Variation in incidents
 - Many very similar incidents versus wide variety
 - Experience level of staff
 - Relatively inexperienced versus experienced workers

Recruiting Help Desk Agents

1. Use mission statement and budget as a basis for planning staffing needs
2. Analyze the knowledge, skills, and abilities needed
3. Write position description(s)
4. Prepare advertising/recruiting for open positions
5. Screen applications received for best match with KSAs
6. Interview applicants with the best combination of KSAs

Typical KSAs for Help Desk Agents

- Hardware, operating system, and application software proficiency
- Specific technical skills needed for the open position
- Network skills and experience
- Internet and web expertise
- Troubleshooting and problem-solving capabilities
- Communication, listening, reading, writing, and telephone skills
- Work experience as a project team member
- An understanding of information systems and business perspectives

Example KSAs for a Help Desk Position

- PC Support position
 - Experience with Intel-compatible hardware platforms
 - Skilled in use and support of a local area network (LAN) in an office environment
 - Windows operating system experience
 - Working knowledge of Microsoft Office applications
 - An ability to troubleshoot technical problems
 - An ability to communicate effectively with users, other agents, and managers
 - An ability to work as an effective member of a support team

Categories of Interview Questions

- Knowledge and skills test questions
- Traditional interview questions
 - Directed questions
 - Non-directed questions
- Behavioral questions
- Scenario questions
- Stress tolerance assessment
- Illegal questions (to avoid!)

Employment Interview Tools

- **Knowledge and skills test:** measures an applicant's knowledge and problem-solving abilities
- Interview questions about an applicant's educational and work background and experience
 - **Directed question:** determine whether or not an applicant has specific qualifications
 - **Non-directed question:** give an applicant an opportunity to talk in general terms about his or her qualifications

- **Behavioral questions:** ask an applicant

Employment Interview Tools

(continued)

- **Scenario questions:** give an applicant a specific problem representative of those that agents actually encounter
- **Stress tolerance assessment:** an interview environment designed to evaluate an applicant's performance under pressure
 - Noisy interview environment
 - Frequent interruptions
 - Multiple interviewers
 - Overly technical questions

Illegal Interview Questions

- Examples of **illegal questions** or applicant characteristics in an employment interview:
 - Age
 - Ethnicity
 - Marital status (and family background, number of children)
 - Sexual orientation
 - Religious affiliation (and political beliefs)
 - Disabilities (except to determine the need for accommodations under the Americans with Disabilities Act for ADA compliance)

User Support Staff Training

- Orientations for new support staff
 - Organizational structure, including important managers
 - Organizational culture, policies, and procedures
 - Payroll and employee benefits
 - Support group workflow, policies and procedures
 - Specific job skill training
 - Help desk tools used
 - Help desk software
 - ACD and IVR systems
 - Performance appraisal criteria and procedures
 - Professional development and career path opportunities

User Support Staff Training

(continued)

- Ongoing help desk training
 - Requires scheduled downtime for agents
 - Goal: Keep help desk staff current with changes in technology and help desk tools and trends
- Professional growth and development is a joint responsibility of the company and help desk staff members
 - Attend conferences, training sessions, and workshops
 - Read trade publications
 - Prepare for and take certification exam(s)

Performance Appraisals for Support Agents

- **Performance appraisal:** a process to evaluate support agents according to established criteria
 - Based on support mission statement
 - Based on position description
 - Related to employee's professional growth objectives
 - Based on worker's prior performance appraisal
- Common performance appraisal tools
 - Performance statistics

Measuring User Support Performance

- **Performance statistics:** objective data collected to evaluate a user support or help desk operation
- Examples:
 - Average time to respond to incidents (**wait time**)
 - Percent of abandoned incidents (**abandonment rate**)
 - Average resolution time for incidents
 - Percentage of problems that could not be resolved
 - Percentage of closed incidents that had to be reopened

Performance Statistics

- Most useful when compared across times of the day, days of the week, or months to display trends over time
- Can be computed:
 - For an entire support organization
 - For a help desk team
 - To compare employees' performance
- Often used to justify the need and budget for support services

Performance Statistics

(continued)

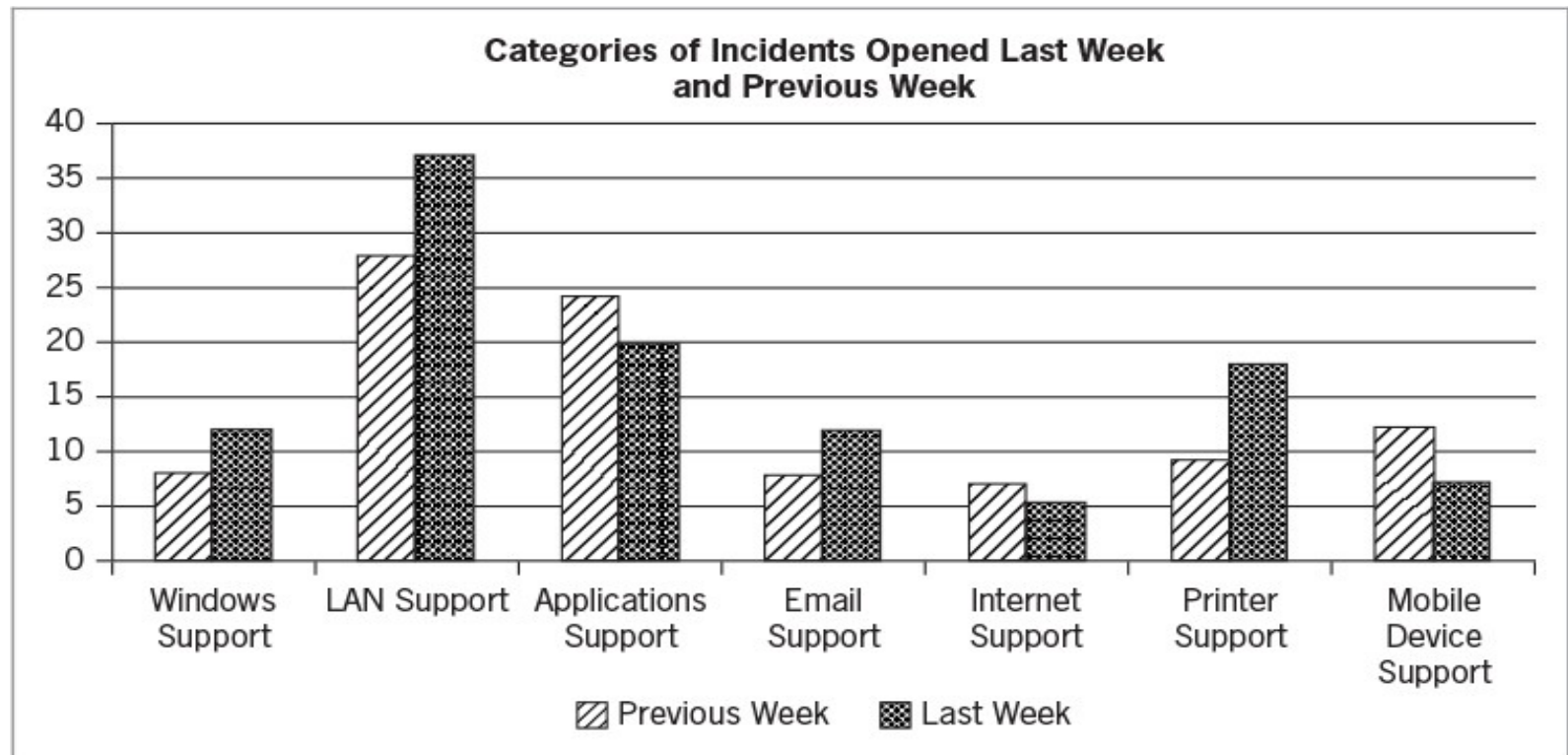


Figure 7-3 A column chart prepared with help desk software shows the distribution of categories of support incidents

Credit: Courtesy of Fred Beisse

User Satisfaction Surveys

- **User satisfaction survey:** a questionnaire to measure how satisfied users are with support services
- Contents
 - General questions about support services
 - Questions about specific support staff members' performance
- Survey methods
 - Follow-up phone call
 - Mailed questionnaire
 - Emailed questionnaire
 - Web-based survey

User Satisfaction Surveys

(continued)

- Typical survey questions
 - Availability of help when needed
 - Responsiveness of support staff
 - Ability to communicate effectively
 - Usefulness of online information resources
 - Technical knowledge of staff
 - Ability to resolve problems

Justifying Support Services

- User support in an organization's budget may be a:
 - **Cost center operation:** the support budget includes only expense items in Figure 7-2
 - **Profit center operation:** the support budget includes both revenue (income) and expenses
 - **Chargeback:** fees or other income designed to offset expenses in a support group budget

Justifying Support Services

(continued)

- How to justify user support as a cost center
 - Performance statistics
 - User satisfaction surveys
 - Sometimes difficult to justify support center expenses when no direct income is produced
- How to justify user support as a profit center
 - Income based on the level needed by support clients
 - Free support (no income)
 - Fee-for-service (pay-as-you-go income)
 - Premium support (stable contract income)
 - Somewhat easier to justify support center expenses when revenue offsets at least some expenses

User Support Certification

- **Certification:** an assessment process to measure and document employee knowledge and skills
- Individual certification
 - Formal education (certificate, diploma, degree)
 - Vendor-specific product knowledge and skills
 - Industry-standard (vendor-neutral) knowledge
- Certification of a support group
 - Evaluated against support industry best practices, which are procedures, tools, and methods that successful support groups use

Vendor-Specific Certification Examples

- Microsoft Technology Associate (MTA)
 - Technology fundamentals primarily for students
 - IT infrastructure, databases, developer skills
- Microsoft Office Specialist (MOS)
 - Office applications (Word, Excel, Access, PowerPoint)
- Microsoft Certified Solutions Associate (MCSA)
 - Windows operating system
 - Windows server

Other Vendor-Specific Certification Examples

- Cisco Certified Entry Networking Technician (CCENT)
 - Installing, operating, troubleshoot small network
- Cisco Certified Network Associate (CCNA)
 - Cisco network administration and support
- Certified Novell Administrator (CNA)
 - Basic networking and support skills
- Certified Novell Engineer (CNE)
 - Advanced networking and support skills
- Apple Certified Associate
 - Mac OS X operating system and applications

Industry-Standard Certification Examples

- Computer Technology Industry Association (CompTIA)
 - A+ covers hardware, operating systems, configuring, installing, diagnosing, maintaining PCs
 - Network+ covers network architecture and operating systems
 - Security+ covers access controls, authentication, infrastructure and operational security
 - Project+ covers IT project management skills

Other Industry-Standard Certification Examples

- ICCP's Associate Computing Professional (ASP)
 - Knowledge and skills earned in academic and vocational degree programs
- Internet and Computing Core Certification (IC³ Certification)
 - Entry-level hardware, software, Internet knowledge, and skills
- Linux Professional Institute Certification
- CIW Web Foundations Associate

User Support and Help Desk Certification Examples

- Help Desk Institute
 - Support Center Analyst (SCA)
 - For help desk agents
 - Desktop Support Technician (DST)
 - For user support workers who provide face-to-face technical support
 - Other HDI certifications
 - Customer service representatives (CSRs)
 - Help desk team leads
 - Help desk managers

User Support and Help Desk Certification Examples (continued)

- Microsoft
 - Microsoft Certified Professional (MCP)
 - Configuring and supporting:
 - Windows operating systems
 - Application software that runs on Windows

Benefits of Certification

- A recognized benchmark of minimum-level job skills and expertise
- Justification for pay increases
- Justification for promotions
- Documents efforts to keep up to date in the field
- A feeling of accomplishment and increased job satisfaction

Is Certification a Job Requirement?

- Some position descriptions and job ads list specific certification requirements
- For other positions, certification is optional
 - Provides documentation of knowledge and skills to supplement formal education and experience
 - However, job requirements in user support vary
 - Few agreed-on industry-wide standards that cover all support positions

Popular Certifications for User Support Workers

- Which certifications make sense for an entry-level user support worker?
 - CompTIA's A+
 - CompTIA's Network+ (or comparable Cisco)
 - Microsoft's MOS
 - More specialized help desk certifications
 - HDI's DST or SCA
 - CompTIA's Project+

Steps in Certification Process

1. Acquire knowledge and skills covered by the certification exam
2. Evaluate your skills by taking a pretest assessment exam (optional)
3. Take a certification exam
 - May include preparatory course to cover steps 1 and 2
4. Retake parts of the certification exam not passed on first attempt

Certification Exam Preparation

- College and vocational/technical courses target popular certification exams
- **Crash courses:** intensive exam preparatory classes
 - Expensive
 - Time consuming
 - Sometimes called boot camps
- **E-learning tutorials:** use computer-based (CBT) or web-based (WBT) training methods
- **Self-study courses:** self-paced tutorials in book format
 - Lowest cost
 - Little help available

Certification Exam Formats

- Traditional fixed-length sequence of questions and problems
- **Computer adaptive test:** a method used in some certification exams
 - Asks selected questions from a test database
 - Questions are graded in order of difficulty to quickly estimate a test taker's proficiency
 - Next question asked depends on answer (correct or incorrect) and level or difficulty of previous question
 - CAT Advantages:
 - Asks fewer questions than a traditional test
 - Takes less time
 - Reduces testing stress
 - Reduces boredom from questions that are too easy or repetitious

Sample Certification Questions

1. What is a simple way a support specialist can accommodate an employee with special visual needs?
 - a. Increase the resolution so the screen image is larger
 - b. Purchase a larger LCD monitor for the user
 - c. Turn on the Accessibility screen magnifier for the user
 - d. Encourage the user to purchase special glasses for computer use

2. What can a support specialist do to provide users with easy access to frequently used websites?
 - a. Create a desktop icon for each website frequently accessed
 - b. Show users how to use the favorites feature in their web browser
 - c. Create a folder that contains a shortcut to each website
 - d. Pin all frequently used websites to the Windows taskbar

Sample Certification Questions

(continued)

3. How can a support specialist help users delete obsolete temporary files on their PCs?
 - a. Use Window's Task Scheduler to automatically run Disk Cleanup periodically
 - b. Write a document on how to search for and delete temporary files
 - c. Inform users that disk drives today are large enough that temporary files are not a problem
 - d. Re-install Windows periodically to erase unneeded files

4. Which tool in Windows can a support specialist use to prevent malware programs from being installed on a user's PC?
 - a. Turn on the Window's firewall feature
 - b. Set User Account Control to scan downloaded programs for viruses
 - c. Define a strong password for the Administrator account
 - d. Set User Account Control to notify a user whenever a modification to Windows is attempted

Sample Certification Questions

(continued)

5. How can a support specialist permit files to be shared easily on a network by several users?
- a. Save the files on a USB flash drive that can be shared among users
 - b. Show users how to send files as email attachments
 - c. Turn on access to public folders in Windows
 - d. Use a utility program that will sync files among all users

Answers: 1 - c; 2 - b; 3 - a; 4 - d; 5 - c

User Support as a Profession

- 2010 employment: 950,000 million workers in the United States employed as computer and network support specialists (+22% growth during next decade)

Type of Position	Employment in 2010	Projected Employment in 2020	Net Increase in Employment	Percent Increase in Employment
Computer Support Specialists (BLS code 15-1150)	607,100	717,100	+110,000	+18%
Network and Computer System Administrators (BLS code 15-1142)	347,200	443,800	+96,600	+28%
Total	954,300	1,160,900	+206,600	+22%

Employment Trends

- 2000s decade: some reduction in support employment
 - 2001-2003 and 2007-2009 recessions in the United States
 - Overseas outsourcing of lower level support positions
- 2010s decade: forecasted increases in support employment
 - Computer Support Specialists: average rate of growth
 - Network and Computer System Administrators: above average rate of growth

Professional Associations for Support Workers

- **Professional association:** a formal organization that represents the interests of a group of professionals and provides services to its membership
 - Publishes journals, magazines, and books
 - Encourages professional growth of members through seminars and conferences
 - Offers training and certification programs
 - Facilitates membership contacts via email, websites, chat rooms, blogs, newsgroups, and local chapters
 - Encourages members to adhere to a code of ethical conduct

Examples of User Support and Help Desk Professional Associations

Association	URL
Help Desk Institute (HDI)	www.thinkhdi.com
Association of Support Professionals (ASP)	www.asponline.com
Network and Systems Professionals Association (NaSPA)	www.naspa.com
Association of Information Technology Professionals (AITP)	www.aitp.org
Women in Technology (WIT)	www.womenintechnology.org

Example Principles of Ethical Conduct for IT Professionals

1. Adhere to federal, state, and local laws, including those that govern information technology, workplace and public health and safety, and the environment.
2. Keep abreast of developments and trends in technology and participate in professional growth and development activities in your area of specialization.
3. Advocate for a better understanding of technology among end users and the public.
4. Act with integrity and honesty in dealing with the public, end users, coworkers, management, and competitors.
5. Avoid conflicts of interest, abuse of power and use of position for personal gain; exhibit fairness in relationships with others.
6. Avoid workplace discrimination based on gender, ethnicity, sexual orientation, marital status, age, religion, or disability.

Example Principles of Ethical Conduct for IT Professionals (continued)

7. Respect the intellectual property and copyrights of end users, coworkers, vendors, and competitors, and give credit for others' work.
8. Protect the privacy and reputations of end users.
9. Perform job-related responsibilities in accordance with company policies and industry best practices.
10. Adhere to acceptable technology use policies and do not make unauthorized or personal use of property or resources.
11. Report violations of ethical principles of conduct.
12. Report all security vulnerabilities and work to eliminate harmful uses of technology.

Ethical Issues in User Support

- A **code of ethical conduct** is a set of principles to guide a support worker's professional behavior
 - Professional behavior may be
 - Ethical
 - Unethical (and unprofessional)
 - Illegal

Example of ethical issues

- Unwilling to share information with coworkers
- Modifies weights on RFP
- Accesses information in human resources database
- Manipulates training result
- Makes training results public information
- Reports “Windows” certification

Example of ethical issues

(continued)

- Embellishes trouble ticket entry
- Disregard for nondisclosure agreement
- Reorganizes user's desktop icons
- Offers free software for positive recommendation
- Offers to purchase website information

Chapter Summary

- User support and help desk management positions:
 - Supervisors and managers
 - Lead workers
 - Project coordinators
- A mission statement defines guiding principles and goals of a support group
 - Serves as a benchmark for evaluating performance
- Managers develop a budget plan for support services that includes:
 - Revenues from fees
 - Expenses for staff and facilities

Chapter Summary (continued)

- Managers use a mission statement and budget to:
 - Analyze the KSAs required
 - Prepare position descriptions
 - Write job ads
 - Prepare various types of interview questions
 - Knowledge and skills test
 - Directed and nondirected interview questions
 - Behavioral and scenario questions
 - Stress assessment situations
 - Avoid illegal questions
 - Interview applicants and select staff

Chapter Summary (continued)

- Training for support agents includes:
 - New employee orientation
 - Ongoing professional development
- Evaluation of help desk and agent performance based on:
 - Help desk mission statement
 - Performance statistics
 - User satisfaction surveys

Chapter Summary (continued)

- Certification for support professionals includes:
 - College degrees
 - Vendor-specific certification
 - Industry-standard certification
- Associations of support professionals provide services to address the needs of support workers
- Codes of ethical behavior and standards of conduct guide members of professional associations
 - Help professionals distinguish between ethical, unethical and illegal behavior
- Other management issues include appropriate salary levels and retention of support employees