An Assessment of User Satisfaction with Enterprise Operating System and Hardware Technical Documentation

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1. EXECUTIVE SUMMARY

This study was conducted for Hewlett-Packard (HP) by The Silver Word and is based on the data collected from 86 online surveys, targeted to a broad range of IT professionals in the UNIX universe. The report provides an overview and analysis of survey results.

Five vendors in the UNIX world - Dell, HP, IBM, Microsoft and Sun - were compared and analyzed on various aspects of technical documentation. Online, Web and hard copy delivery were analyzed as well as the preferences for finding new information and information for problem-solving. Participants were asked to share their views on the current and future states of technical documentation.

Over 50% of those surveyed felt that documentation influences product quality and 44% felt it has extreme influence in product recommendation. Overall, the ratings for technical documentation were good. Microsoft had the best ratings, followed by HP. IBM had higher ratings among UNIX vendors, and Red Hat had the highest ratings among Linux users. Only 37% employed or evaluated a virtualization technology, but among them, HP had the best ratings, followed by Microsoft. A consistent trend throughout the survey was the preference for the vendor's technical documentation or Web search (via Google in the majority of cases) as the preferred means of finding information on new products or problem resolution. The vendors' Web sites were also evaluated on ease of navigation, content and accuracy and relevancy of information.

The ways in which technical information is accessed were analyzed for a variety of scenarios. In the majority of cases, the vendor's technical documentation Web site or Web search were the preferred ways to receive information. CDs, vendor tech support and online help were strong contenders. Hard copy was least preferred across the board. Overall, online access to information was the preferred means, especially in the areas of site preparation, installations, usage preference, performance tuning, product obsolescence, booting, upgrades and maintenance. Immediate access is considered vital for these areas.

Twenty-two percent of IT managers surveyed felt that depth of content on the vendor's web site was the number one aspect that needed improvement. Fifteen percent felt that the length of time to access information was too long, while 13% felt the breadth and depth of information was weak. The need for improved indexing, accuracy, thoroughness and content on compatibility and integration issues were frequently mentioned as weaknesses with technical documentation today. Interestingly, only eight percent felt cost was an issue. Getting the right information at the right time is of paramount importance and IT people will pay the price for information if it gets the job done immediately.

2. INTRODUCTION

2.1 Objectives of Survey

Hewlett-Packard has launched a research initiative to explore user satisfaction with technical documentation in the enterprise environment for both operating system software and hardware. One area that has seen phenomenal change is the documentation space in the enterprise environment. Today, electronic delivery and documentation available through the Web have changed the way that documentation is created, delivered and used.

The objectives of the study are to:

- Determine current perceptions of and preferences for technical documentation.
- Provide an evaluation of ratings of existing information and information sources.
- Evaluate technical documentation in the enterprise operating systems, hardware and virtualization arenas.
- Evaluate online versus hard copy delivery.
- Determine present practices in how technical documentation is used.
- Determine future information requirements of users and how best to accommodate future needs.

2.2 How the Survey Was Conducted

Given the time and financial constraints and the breadth of areas to be investigated for this study, HP decided the best course of action was to conduct online surveys. Tech Target, an IT media and marketing company, was hired by The Silver Word to conduct the surveys. Tech Target publishes integrated media that enable IT marketers to reach targeted communities of IT professionals and executives in all phases of the technology decision-making and purchase processes.

HP was interested in targeting IT professionals with specific job titles and worldwide geographic locations. The Silver Word developed an online survey that Tech Target programmed and emailed to all participants. Tech Target successfully reached 86 IT professionals with varying levels of experience and from a broad range of industry sectors.

The Silver Word and Tech Target employed “qualifying” questions at the beginning of the survey, designed to eliminate those who were not qualified on the basis of experience, company size and level of responsibility.

3. SURVEY DISTRIBUTION

The Silver Word interviewed a wide range of high-level UNIX professionals who played a crucial decision- making role in their organization's operating systems and software. Companies contacted included AT&T, Coca-Cola, General Motors, Honeywell, JPMorgan Chase, MBNA, McGraw-Hill, Mercedes-Benz and Royal Bank of Scotland. Although the majority of those interviewed are in the technology and financial sectors, a cross section of industries was achieved. The sector breakdown and compete list of companies that participated in the survey are summarized in Appendices 1 and 2, respectively. The following chart provides the breakdown of the 86 participants by job title.

Table 1

Job Title	Number	% Total	USA	UK	Rest of World
Systems Administrator	**26**	**30%**	14	2	10
Software Engineer	**9**	**10%**	1	1	7
Systems Integrator	**9**	**10%**	5	1	3
Lead Technical Analyst	**7**	**8%**	2	4	1
DB Administrator	**6**	**7%**	3	1	2
Operating Systems Manager	**6**	**7%**	3	1	2
Infrastructure Analyst	**5**	**6%**	4	0	1
Programmer	**5**	**6%**	1	0	4
Systems Support	**4**	**5%**	3	0	1
QA Consultant	**3**	**3%**	1	0	2
Systems Analyst	**3**	**3%**	2	0	1
Technical Support	**2**	**2%**	2	0	0
Hardware Engineer	**1**	**1%**	1	0	0
Total	**86**	**100%**	**42**	**10**	**34**

HP was also interested in targeting domestic as well as international IT professionals. The geographic distribution achieved was 42 from the U.S, 10 from the U.K., 25 from Australia, three from France, one from Canada and one from Germany. Figure 1 illustrates the geographic distribution.

Figure 1

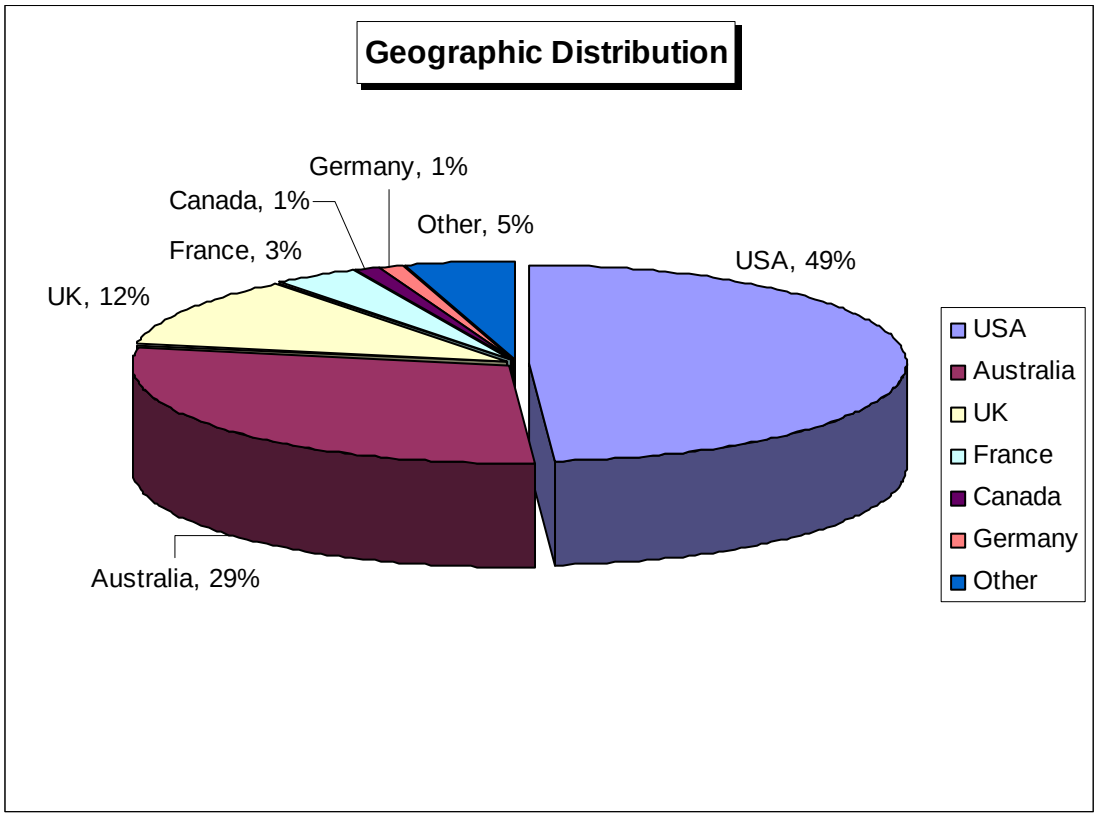


Table 2 below shows that 84% of the participants had more then five years of experience and 78% were in their job function for more than five years. Almost half, or 48% of those surveyed, worked in companies with 1,000 or more employees, while two-thirds worked in companies that had 50 or less IT employees. Details of these findings are in Appendices 3 and 4.

Table 2

Number of Years Experience					
	Number	% Total	USA	UK	Rest of World
< 1 year	0	0%	0	0	0
1-2 years	0	0%	0	0	0
3-5 years	14	16%	4	3	7
6+ years	72	84%	38	7	27
Total	86	100%	42	10	34
Number of Years in Job Function					
	Number	% Total	USA	UK	Rest of World
< 1 year	0	0%	0	0	0
1-2 years	3	3%	3	0	0
3-5 years	16	19%	3	3	10
6+ years	67	78%	36	7	24
Total	86	100%	42	10	34

Table 3 provides the breakdown of primary products or services performed by each IT professional surveyed. Thirteen percent were each in database administration, software development and networking. The key applications of IT managers were extremely varied and included accounting, asset management, banking, invoicing, data mining, forecasting, HR, inventory management, product design, leasing, sales, manufacturing, networking, order management and processing, payroll, project management, real time data systems and Web applications.

Table 3

Primary Product or Service Performed		
	Number	% Total
Database Administration	13	15%
Software Manufacture/Developer	13	15%
Network/Software	13	15%
Other	11	13%
Systems Integrator	10	12%
Mainframe, Mini, Super Computers	7	8%
Industrial/Manufacturing Controls	7	8%
Communications Systems/Equipment	4	5%
Government & Military	4	5%
Telecommunications	3	3%
Office Machines	1	1%
CAE/CAD/CAM Systems	0	0%
Total	86	100%

Other includes education, retail, media & advertising, point of sales, banking & finance, healthcare, manufacturing.

Seventy-seven percent managed five or more servers and slightly over 40 percent had 50 or more servers installed. Fifty-six percent of the servers were either Dell or HP and while 23% were IBM. Forty-one percent were PC servers with Windows, 21% were UNIX servers and 19% were PC servers with Linux. Sixty-three percent had Windows for their operating system and 12% had Linux. Refer to Tables 4-5 and Figures 2-4.

Table 4

Number of Servers or Platforms Managed					
	Number	% Total	USA	UK	Rest of World
1	0	0%	0	0	0
2	6	7%	4	1	1
3	8	9%	3	1	4
4	6	7%	1	1	4
5+	66	77%	34	7	25
Total	86	100%	42	10	34

Table 5

Number of Servers Installed					
	Number	% Total	US	UK	Rest of World
1	0	0%	0	0	0
2-5	11	13%	5	2	4
6-10	13	15%	7	1	5
11-25	16	19%	7	1	8
26-50	10	12%	5	1	4
51-100	9	10%	5	1	3
101-125	4	5%	0	3	1
126-200	5	6%	2	0	3
201+	18	21%	11	1	6
Total	86	100%	42	10	34

Figure 2

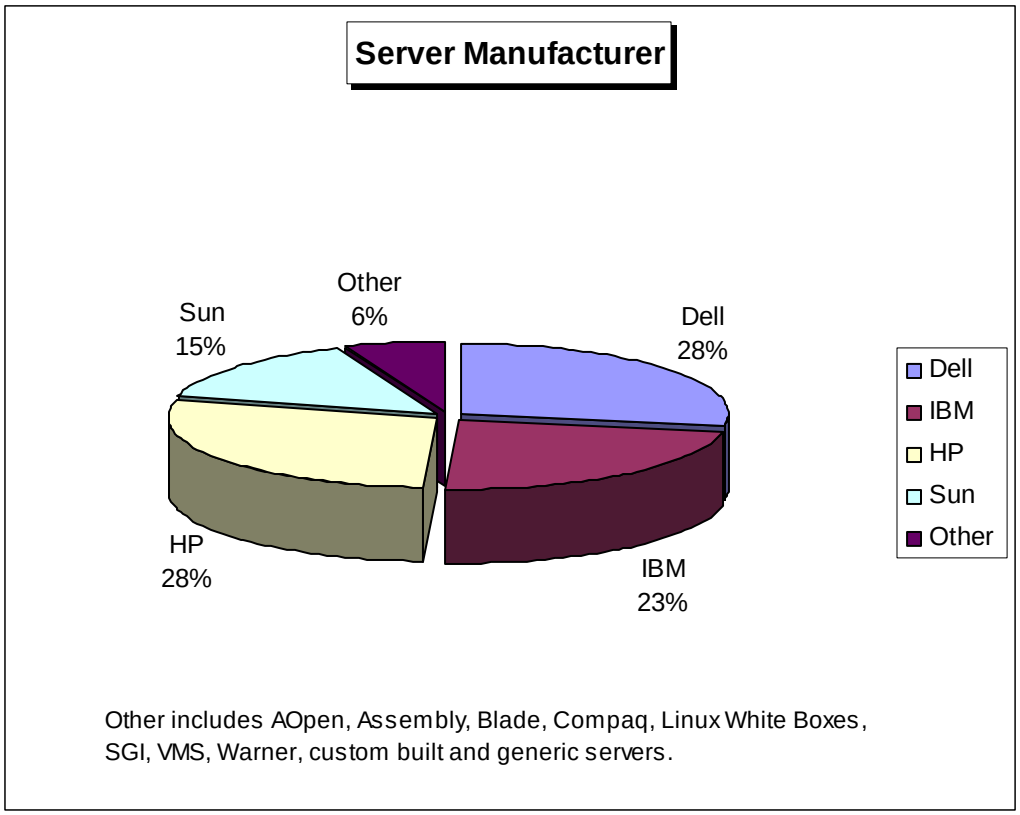


Figure 3

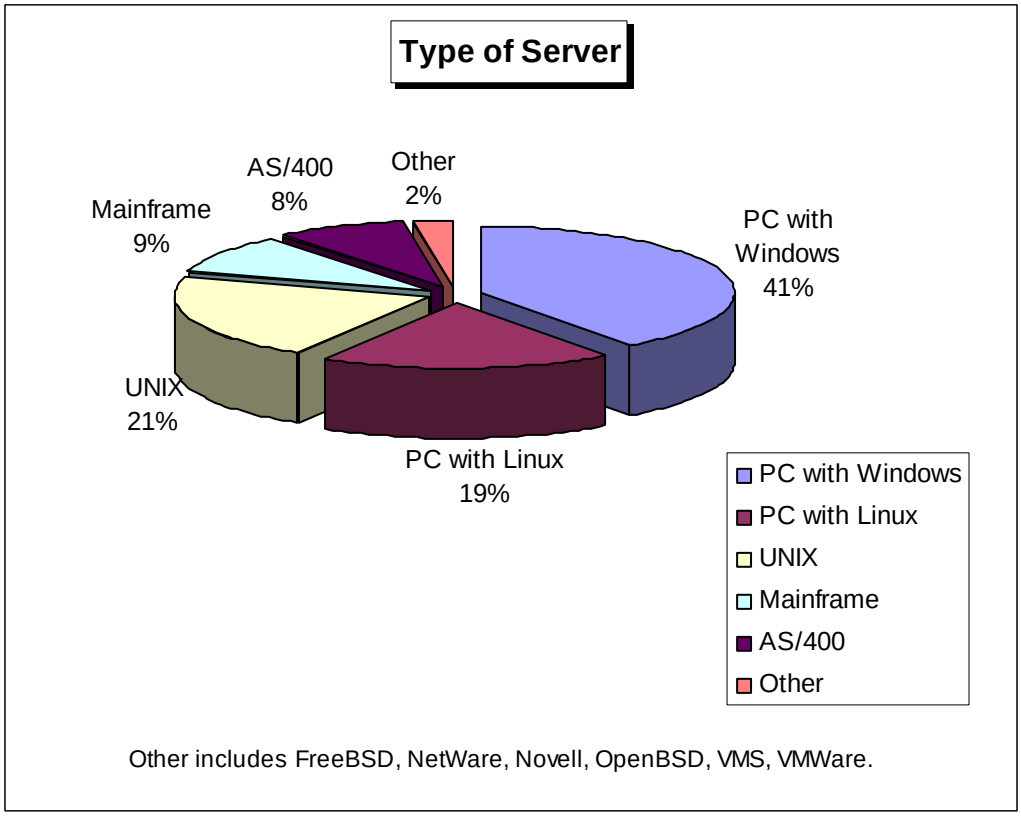
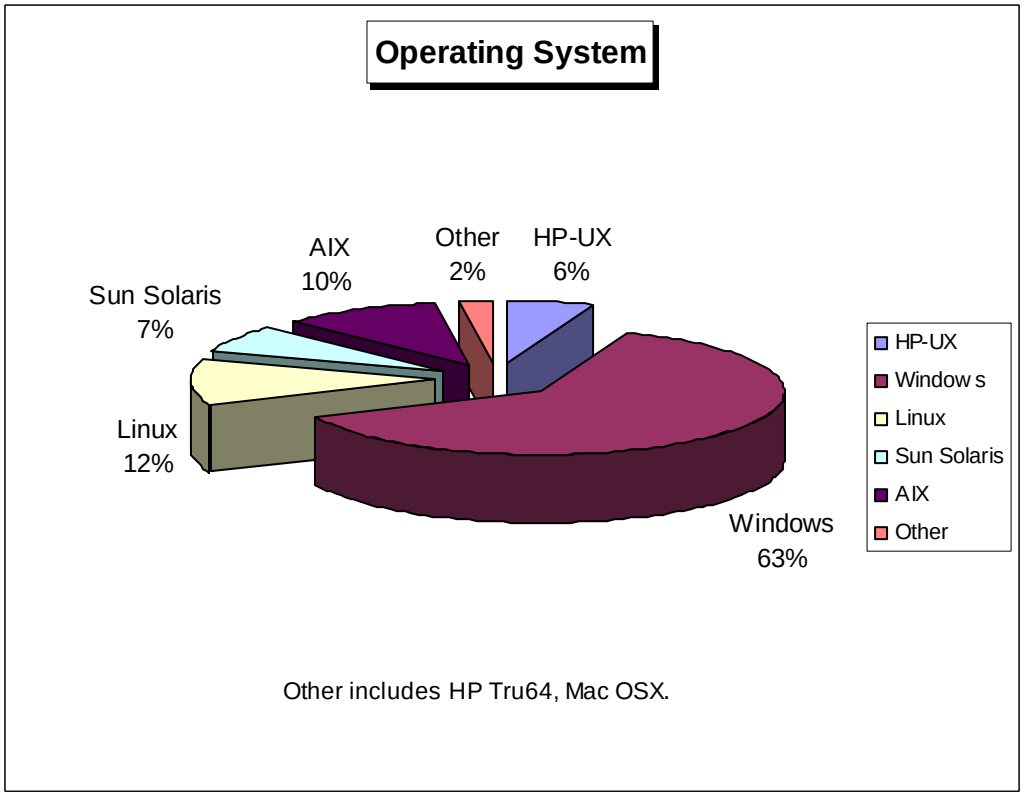


Figure 4



The number of client nodes was fairly evenly distributed. Thirty-three percent were Dell, 29% HP, followed by 20% IBM and 4% for Sun and Apple. Seventy-eight percent of client nodes had Windows, 11% were UNIX and 9% were Linux. Refer to Table 6 and Figures 5-6.

Table 6

Number of Client Nodes		
	Number	% Total
1-10	14	16%
11-100	22	26%
101-200	9	10%
201-500	14	16%
501-1,000	10	12%
1,001-3,000	10	12%
3,001-10,000	3	3%
10,001 - 20,000	2	2%
20,001+	2	2%
Total	86	100%

Figure 5

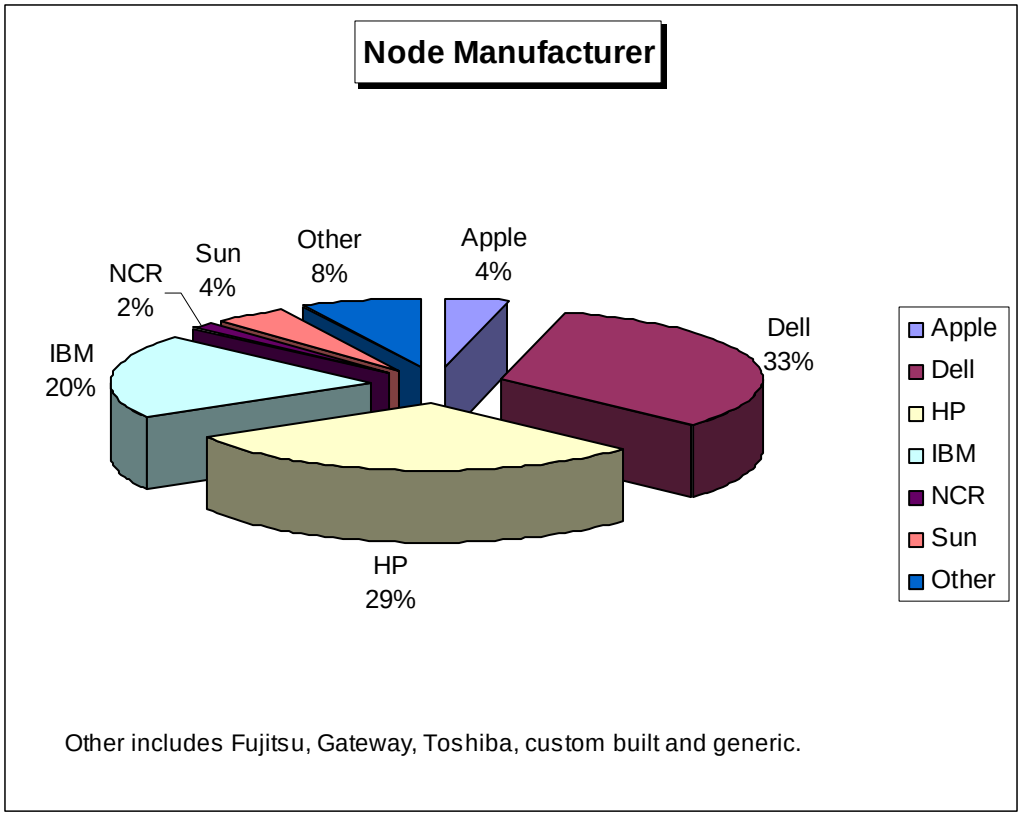
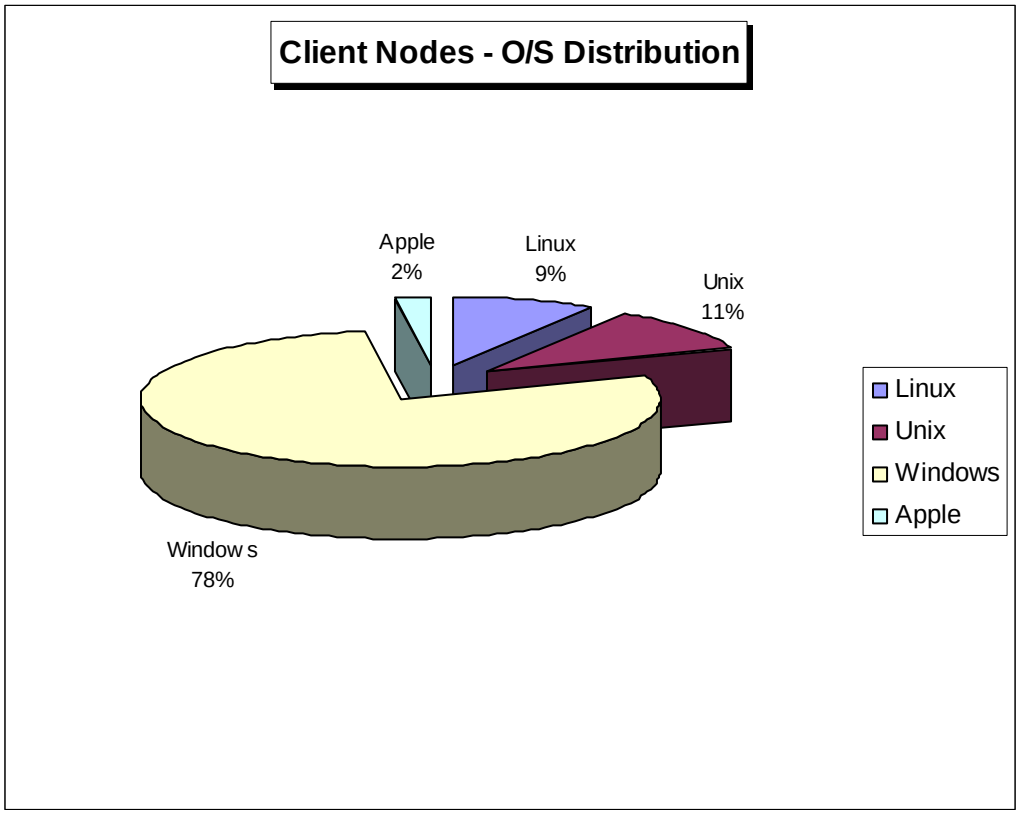


Figure 6

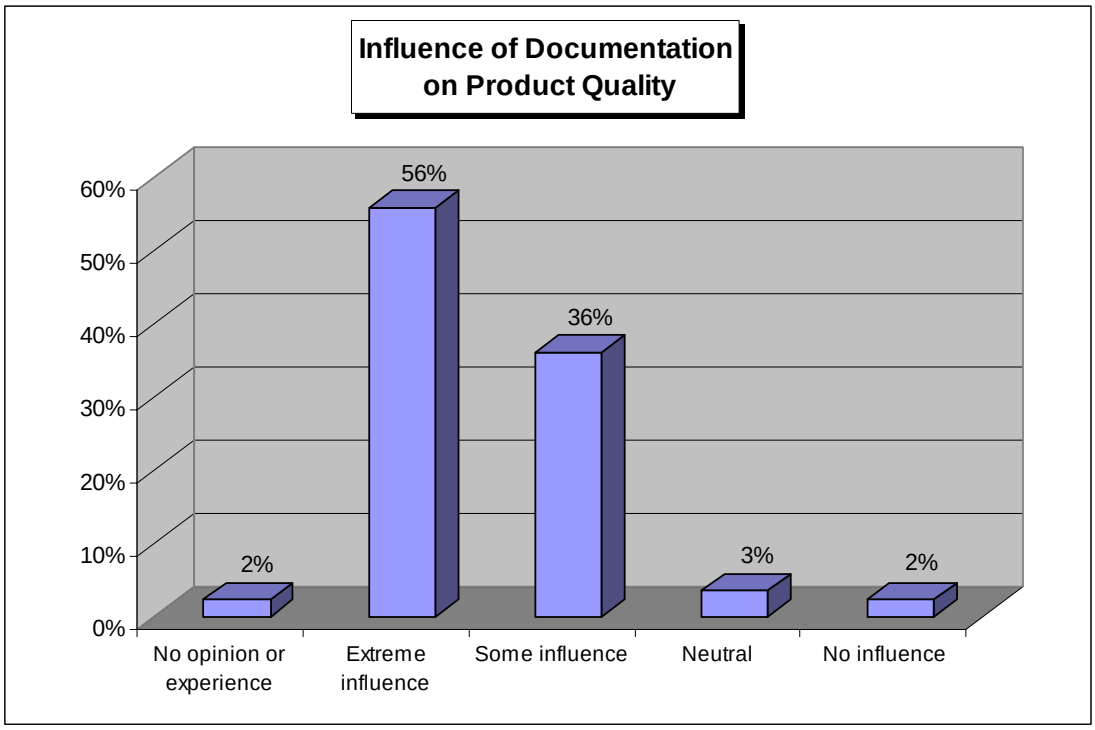


4. DOCUMENTATION PERCEPTIONS AND PREFERENCES

4.1 How Documentation Reflects Product Quality

An overwhelming majority, or 92%, thought documentation does influence product quality. Over half, or 56%, thought it was extremely influential, while 36% thought there was some influence. See Figure 7 below.

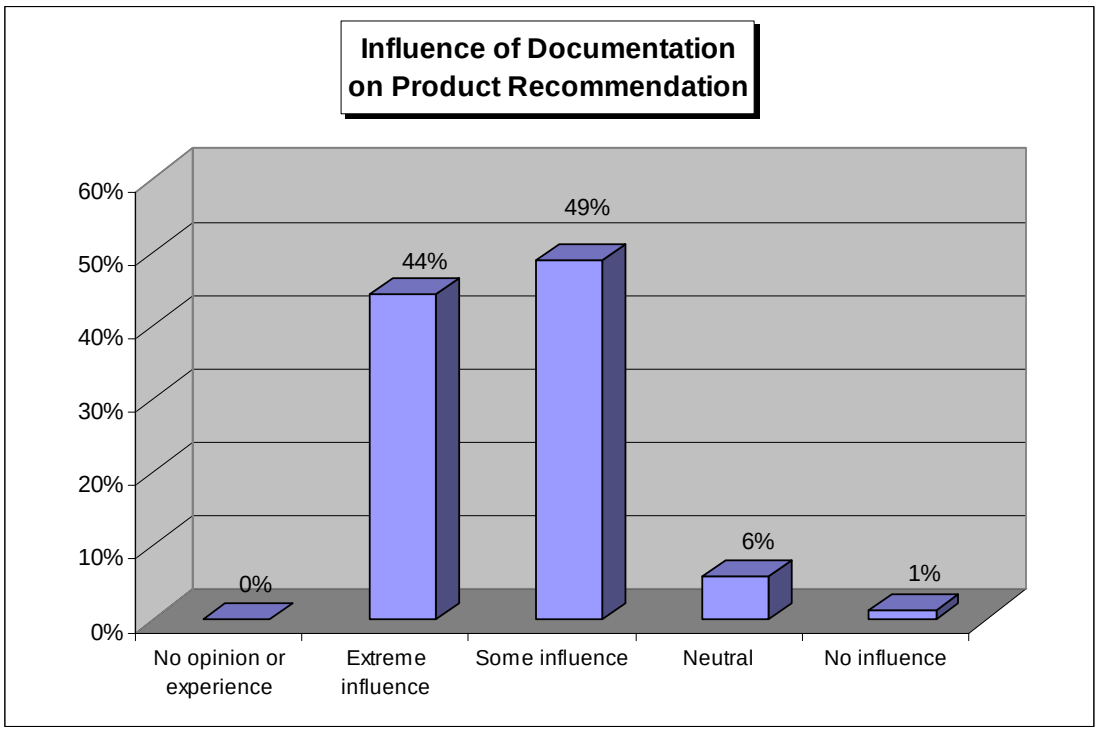
Figure 7



4.2 How Documentation Influences Product Recommendations

Similarly, 93% thought documentation influences product recommendations. Forty-four percent thought it was extremely influential, while almost half, or 49%, thought there was some influence. See Figure 8.

Figure 8



4.3 Where to Seek New Information

When seeking information on new enterprise servers or software products, 47% chose either the vendor's technical documentation Web site or Web search as their number one choices and 38% chose the vendor's Web site or Web search for second choices. Nineteen percent chose newsgroups and technical forums as third choice and 16% elected online help/manpages as fourth choice. Appendix 5 provides the complete data. The primary motivations for these choices were time efficiency (33%), thoroughness of information (19%) and ease of access (13%).

4.4 Where to Seek Information to Resolve Problems

Similarly, when seeking information to resolve problems on new enterprise servers or software products, 37% chose the vendor's technical documentation Web site or Web search and 16% chose their own company's help desk as number one choices. Twenty-two percent chose Web search as second choices. Fifteen percent chose CDs and online help/ manpages for third choice, 16% selected the vendor's tech support as fourth choice and 15% selected hard copy as fifth choice. Appendix 6 provides the complete data.

4.5 How Technical Documentation Is Received

Online delivery was the option chosen by 27% of survey respondents. Other options were CDs, online help/manpages and vendor tech support, which were each selected by 12% of those surveyed.

4.6 Reading Preferences in Technical Documentation

Twenty-six percent cited the vendor's technical documentation Web site as their first choice and 17% selected hard copy as first choices. Forty-three percent selected the vendor's Web site and Web search as second choices, and 13% chose Web search and newsgroups and technical forums for

third choice. Eighteen percent voted for CDs for fourth choice. Appendix 7 provides the complete data.

4.7 Most Critical Technical Documentation

Thirty-eight percent cited systems administration guides as the technical documentation most critical for their job. Twenty-five percent selected reference manuals as second choice. Twelve to thirteen percent each selected user guides, reference manuals, release notes and functional and technical specifications. Tasks performed that required consulting the documentation were very varied and included installations, software development, upgrades, system design, evaluation and selection of products, systems integration, configuration, troubleshooting, network monitoring, programming, performance tuning, maintenance, storage configurations, system administration, software development and crash fixes.

5. VENDOR COMPARISON

5.1 Ratings of Vendor's Technical Documentation

Figure 9 provides an overview of the vendor distribution. Slightly over a quarter of the participants have HP or Dell as their main vendor. Twenty-two percent have IBM and 13% have Microsoft. The participants rated their vendor's documentation for accuracy, completeness, readability and organization. Close to a half of the respondents ranked their vendor's documentation on all aspects as good and close to a quarter thought the documentation was excellent on all aspects. See Figure 10.

Figure 9

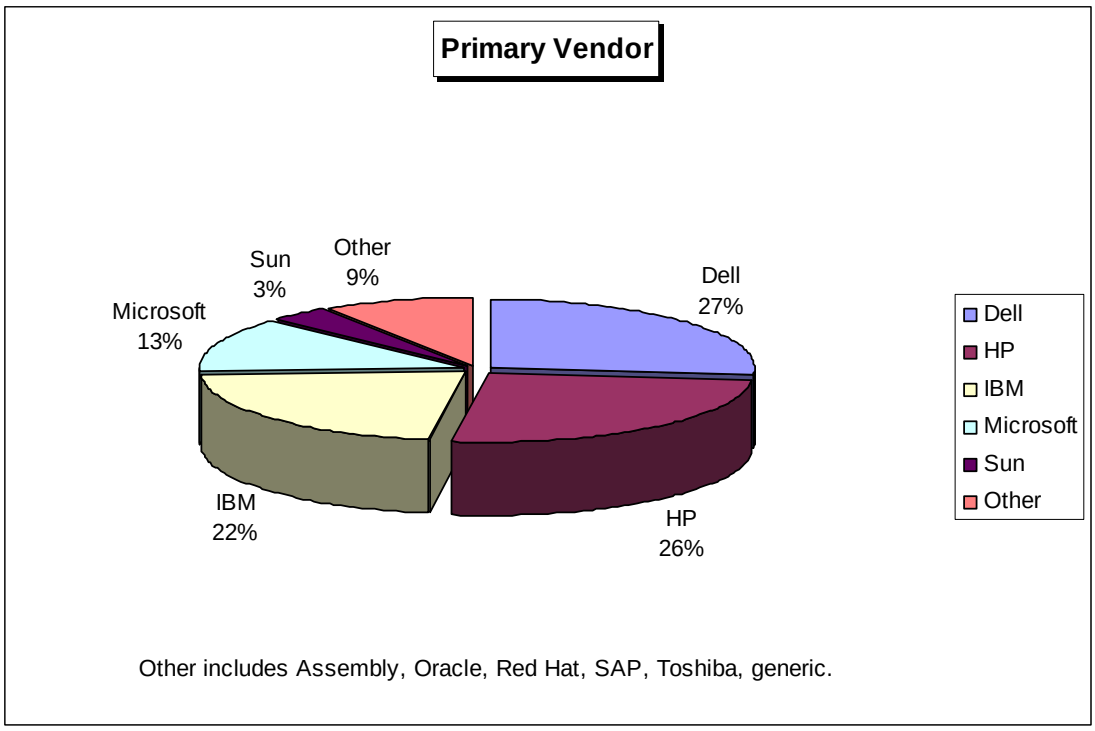
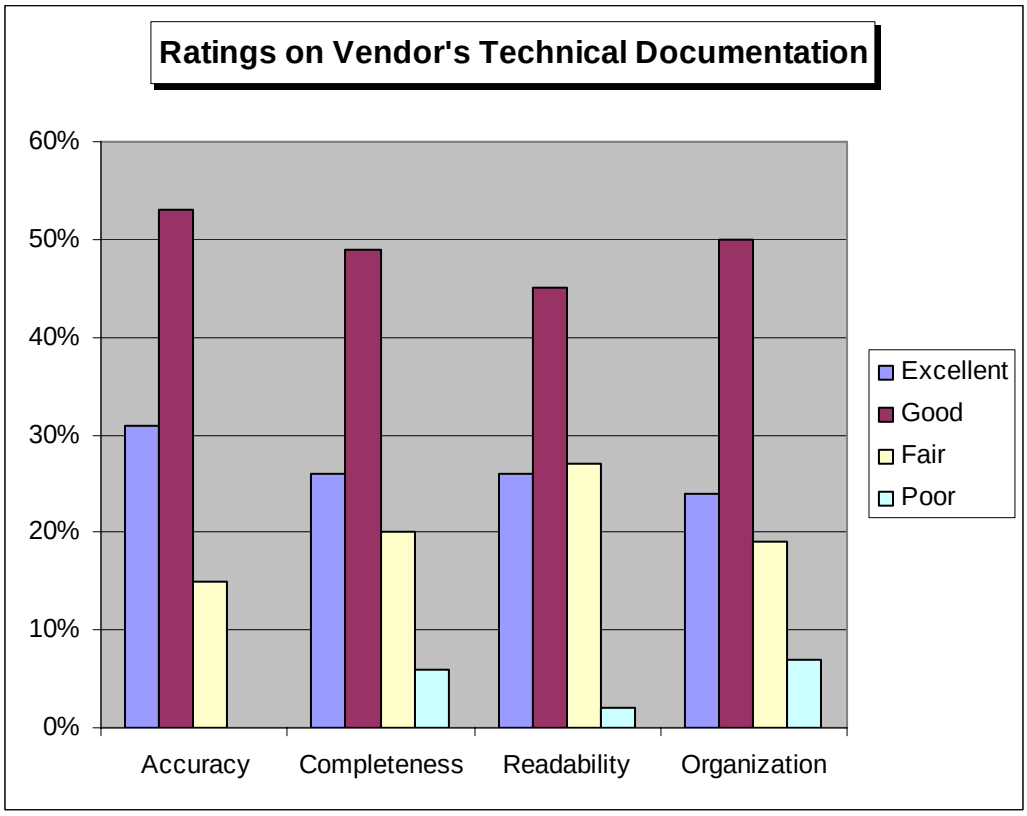


Figure 10



Figures 11 through 15 show the satisfaction ratings for each vendor's technical documentation. Slightly over half, or 51%, thought Dell's technical documentation was excellent or good and 56% ranked HP's documentation as excellent or good. Fifty-four percent ranted IBM's documentation as excellent or good and Microsoft had the best results since 57% rated their documentation as either excellent or good. Sun's fared the lowest; however, only 3% of the survey participants used Sun as a vendor.

Figure 11

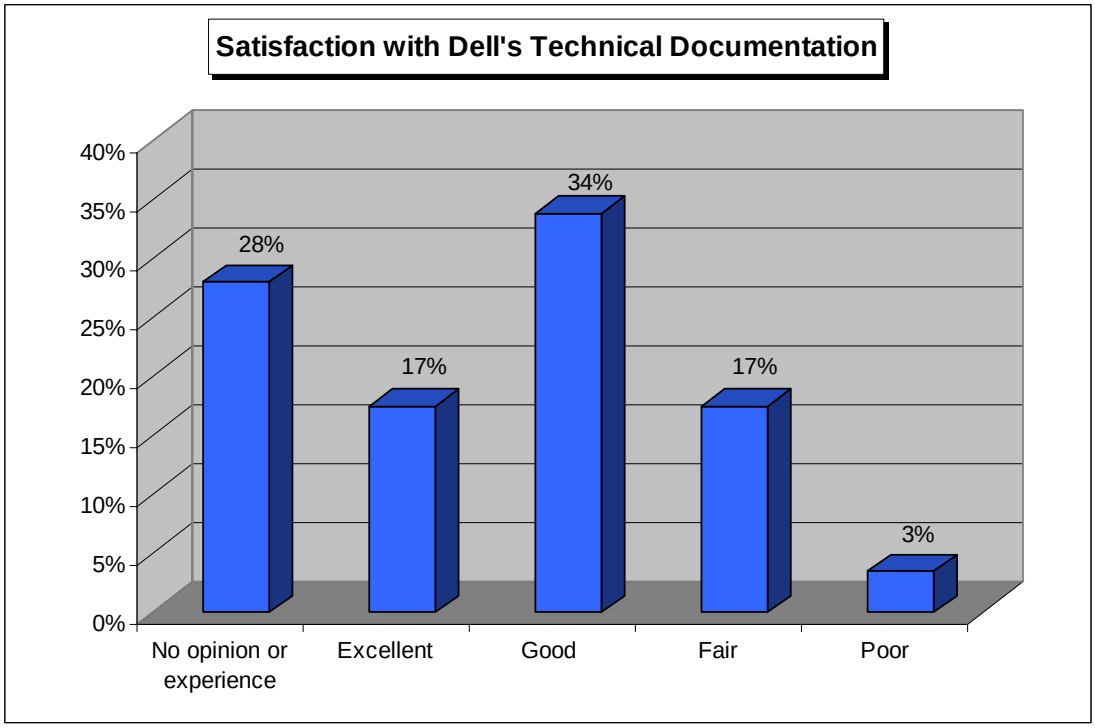


Figure 12

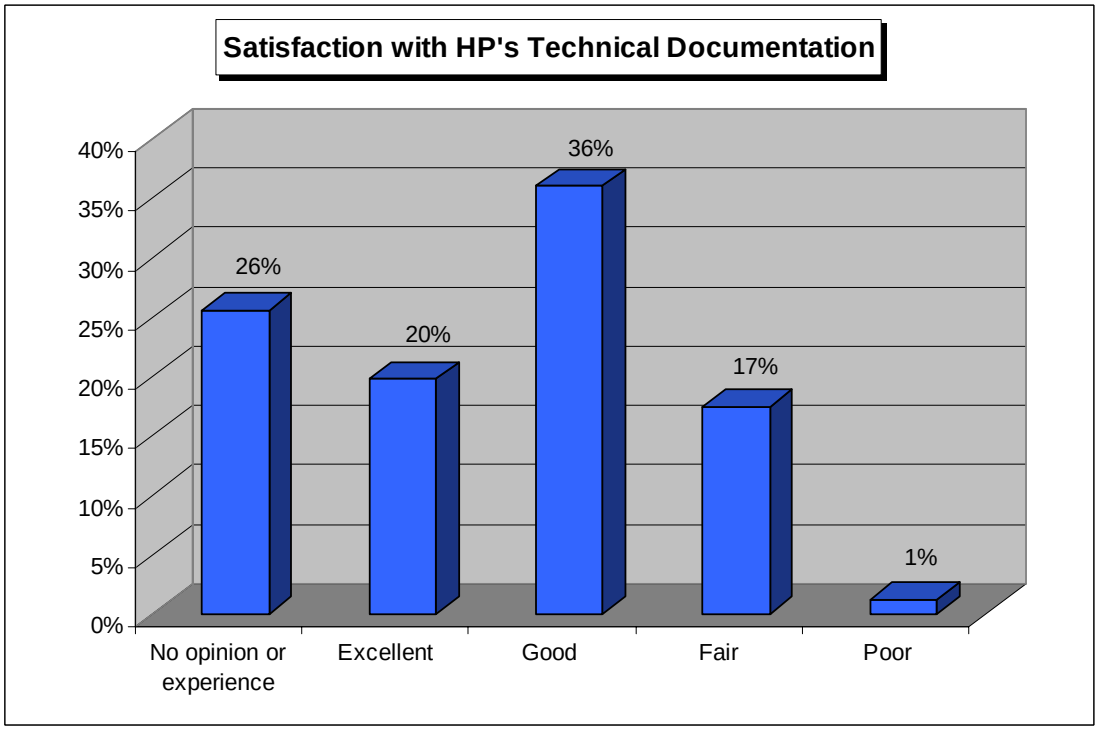


Figure 13

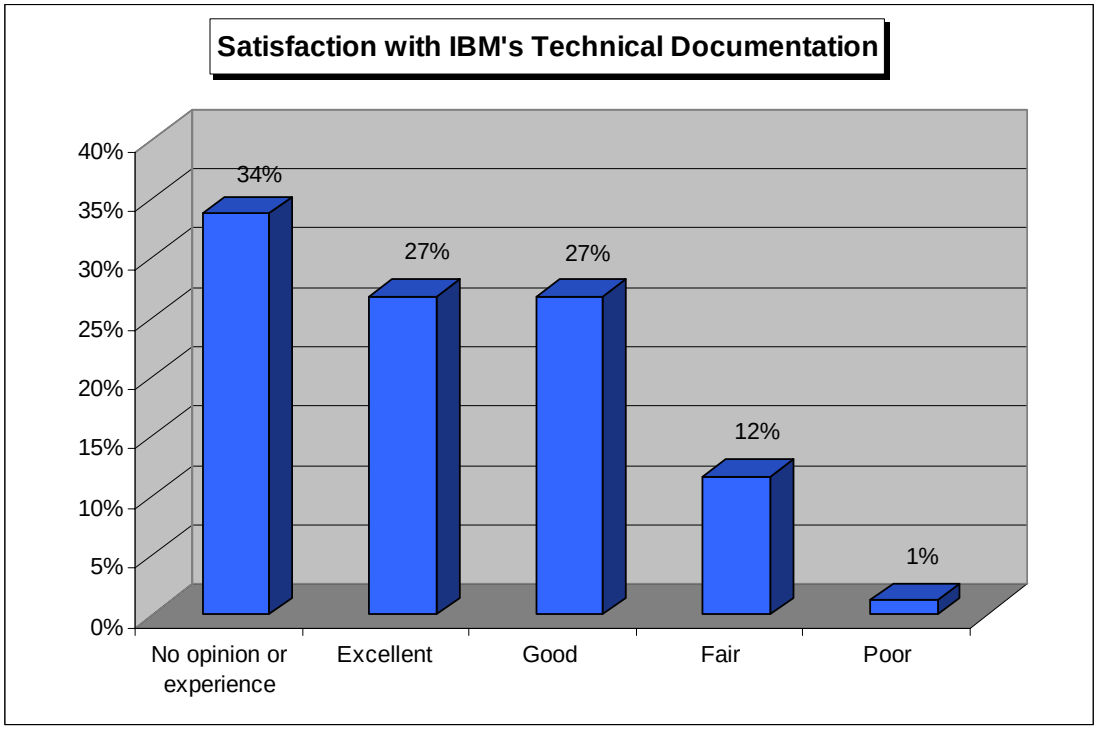


Figure 14

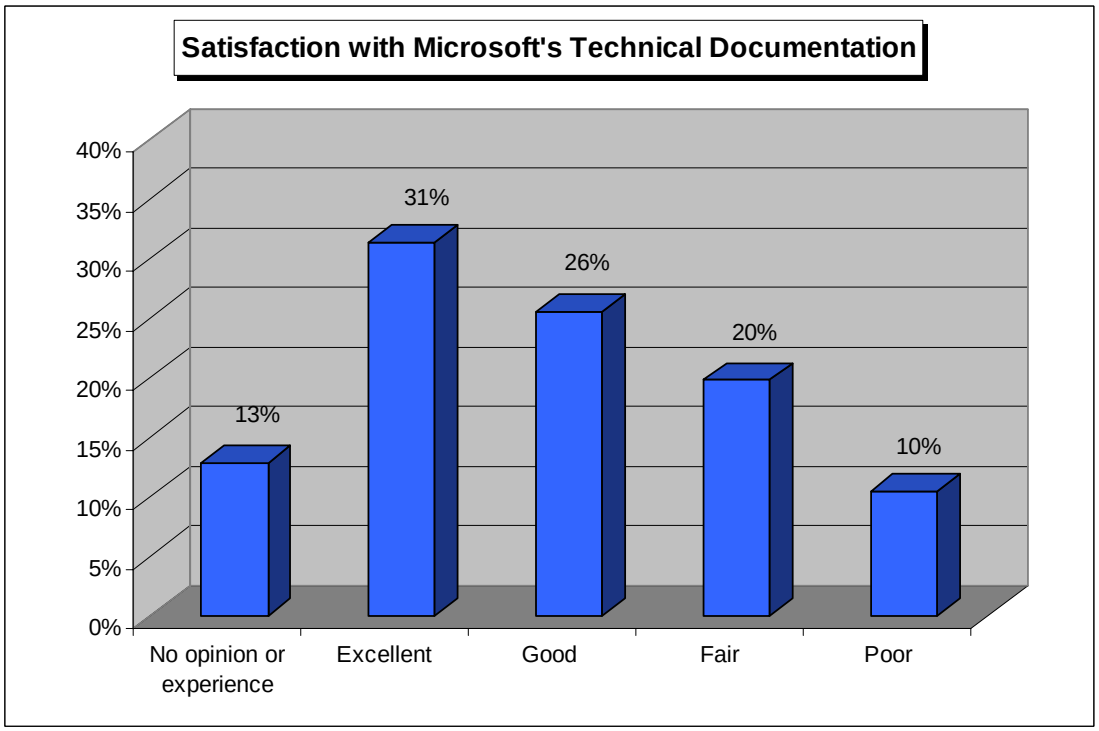
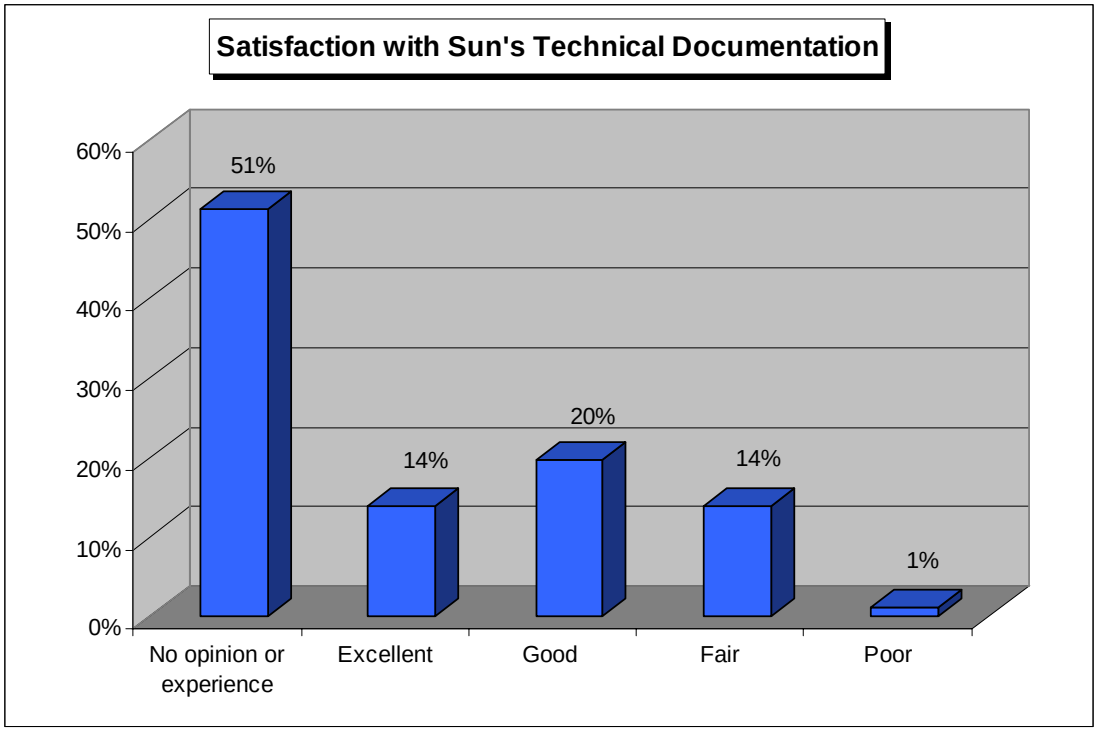


Figure 15



5.2 Satisfaction with Vendor's Technical Documentation in Specific Technical Areas

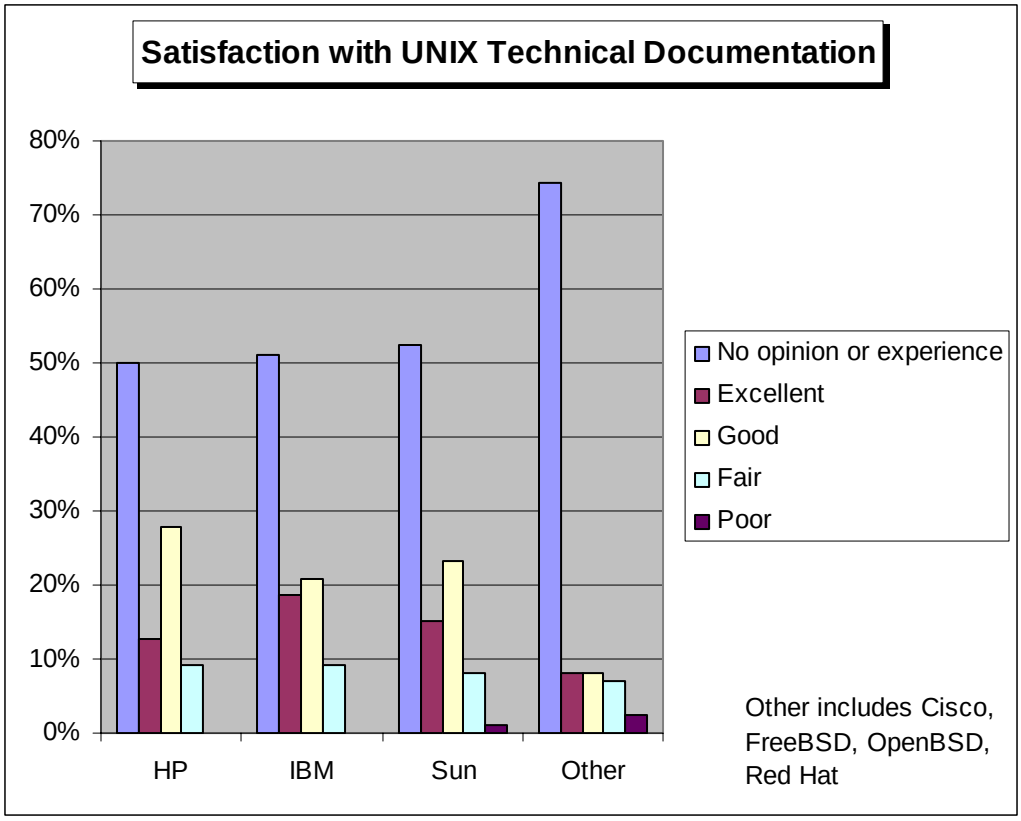
Microsoft's installation and configuration guides were rated as excellent by 29% and 26% of survey participants, respectively. Microsoft had good ratings across most categories. Thirty-two percent ranked HP's administrative guides as excellent, and close to 50% gave good ratings on HP's presale information, hardware user guides, site preparations guides, installation and configuration guides and maintenance and upgrade information. Dell had a significant number of fair ratings. IBM was rated excellent on presale information, hardware user guides and administrative and installation guides. Fifty percent of Sun's participants rated administrative guides, installation guides, configuration guides and error handling as good. Overall, Sun had the lowest ratings of the vendors. Appendices 9-13 provide the data by vendor.

6. EVALUATION OF UNIX TECHNICAL DOCUMENTATION

6.1 Satisfaction with Technical Documentation of UNIX Vendors

Nineteen percent rated IBM as excellent, 28% rated HP as good and 23% rated Sun as good. See Figure 16.

Figure 16



6.2 Where to Seek Information on UNIX Servers or Software Products

Twenty-six percent selected the vendor's technical documentation Web site as first choice for seeking new information on UNIX servers and products. The second choice was Web search (29%) and the third choice was newsgroups and technical forums (20%). See Appendix 14. Slightly over 40% cited time efficiency as the number one reason why the vendor's Web site and Web search were selected as the top two choices.

6.3 Where to Seek Information to Resolve UNIX Problems or Issues

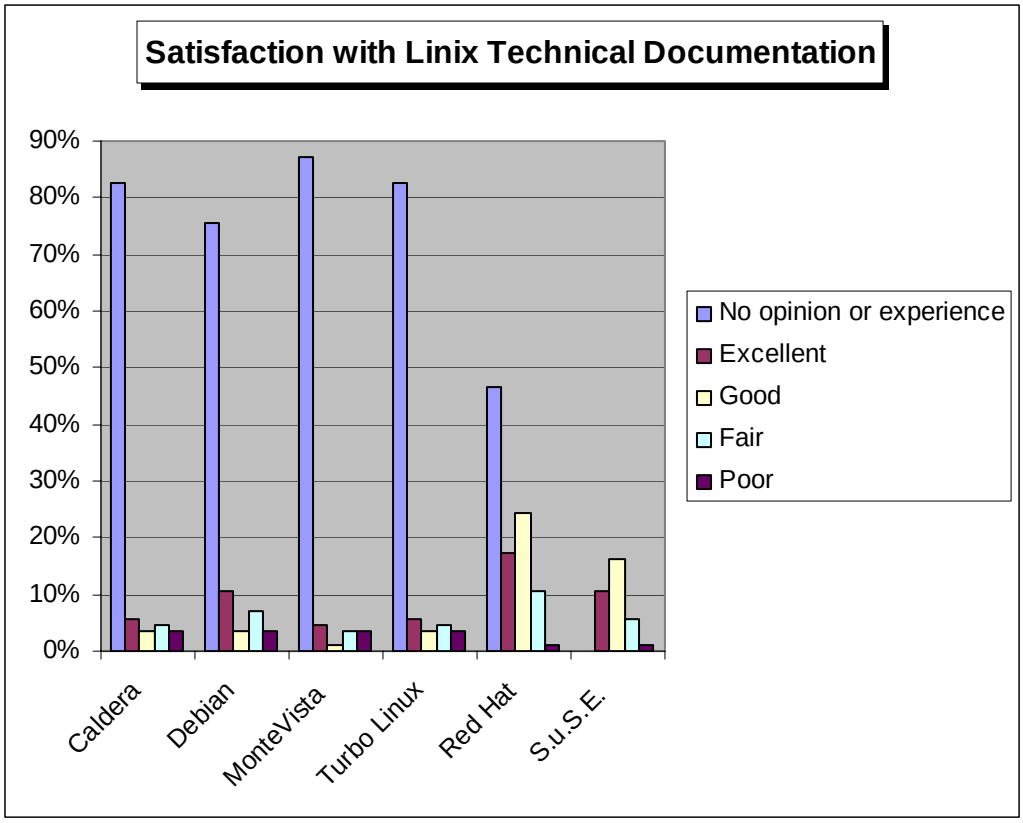
For problem-solving information, Web search was the first as well as second choice among participants. Twenty-eight percent selected Web search as first choice while 19% selected it as second choice. See Appendix 15 for the complete data.

7. EVALUATION OF LINUX TECHNICAL DOCUMENTATION

7.1 Satisfaction with Technical Documentation of Linux Distributors

Seventeen percent of participants rated Red Hat as excellent and 24% and 16% rated Red Hat and S.u.S.E., respectively as good.

Figure 17



7.2 Where to Seek Information on Linux Software Products

Twenty-seven percent selected Web search as first choice for information on Linux products. The second choice was the vendor's technical documentation Web site (21%) and Web search (21%) and the third was newsgroups and technical forums (22%). See Appendix 16. Forty percent cited time efficiency and 15% cited ease of access as the number one reasons why Web search was selected in the top two choices.

7.3 Where to Seek Information to Resolve Linux Problems or Issues

For problem-solving, Web search was the first as well as second choice among participants. Twenty-seven percent selected Web search as first choice and 24% selected it as second choice. Twenty-two percent selected the vendor's technical documentation Web site as a second choice as well. See Appendix 17.

8. EVALUATION OF TECHNICAL DOCUMENTATION FOR VIRTUALIZATION TECHNOLOGIES

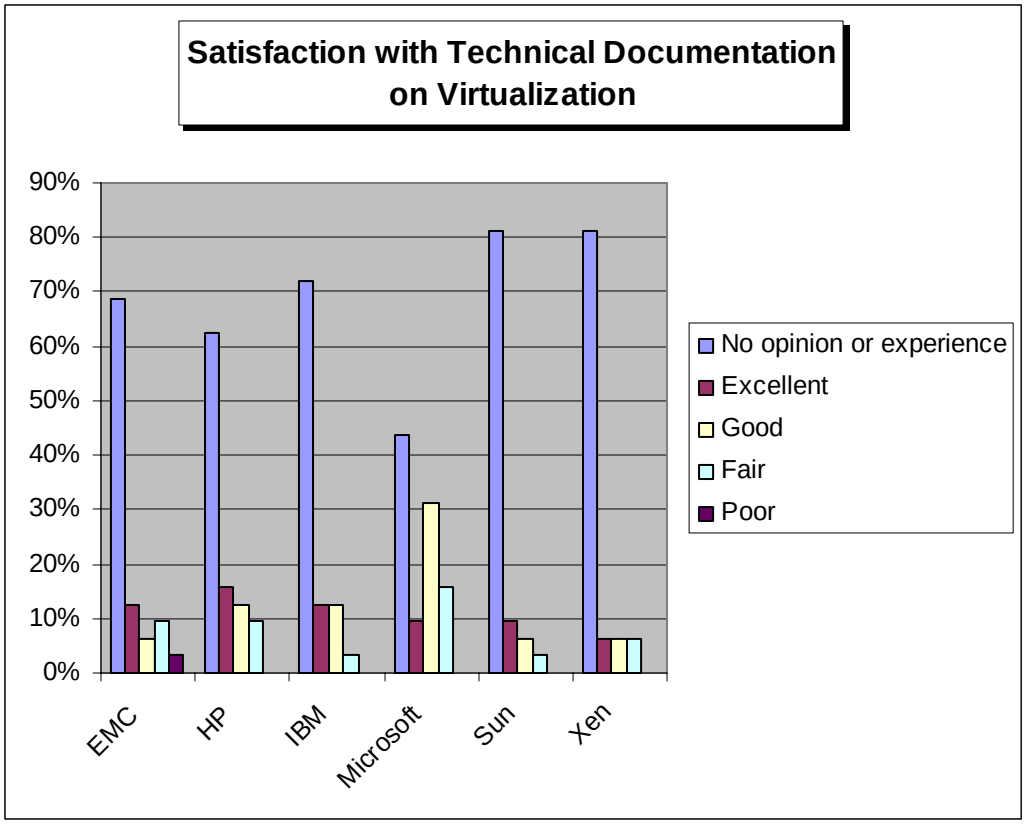
8.1 Types of Virtualization Technologies Evaluated or Deployed

Only 37% of those interviewed evaluated or deployed a virtualization technology. Of those that did, slightly over half, or 51%, worked with virtual machines, 18% deployed blade servers and 11% worked with storage virtualization tools.

8.2 Satisfaction with Technical Documentation on Virtualization Technologies

Most of those interviewed were not familiar with the technical documentation from their vendors in the virtualization space. However, 15% rated HP's documentation as excellent and 31% rated Microsoft as good.

Figure 18



8.3 Where to Seek Information on Virtualization Technologies

Forty percent selected Web search for information on virtualization technologies and 25% selected the vendor's technical documentation Web site as first choices. The vendor's Web site and Web search were also the top two options for second choice. Twenty-six percent selected newsgroup and technical forum for third choice. As with other technologies, the number one reason online information access was selected was time efficiency. Appendix 18 provides the complete data.

8.4 Where to Seek Information to Resolve Virtualization Technology Problems

For problem-solving, Web search was the first as well as second choice among participants. Thirty percent selected Web search as first choice and 28% selected it as second choice. Twenty-three percent selected the vendor's technical documentation Web site as a second choice as well. Thirty-three percent selected newsgroups and technical forums for third choice. See Appendix 19.

9. PHASES OF THE PRODUCT LIFE CYCLE

9.1 Information Preferences for Phases of the Product Life Cycle

Technical information may be needed in a range of situations from start up to troubleshooting. There were originally 18 different scenarios analyzed in the survey. Out of these, six scenarios were selected to provide the most meaningful overview of information preferences. In the majority of cases, the vendor's Web site was the preferred means to receive information.

For the most up-to-date information on the latest technology, it was no surprise that the Web was the most popular choice for accessing information on purchase decisions. Sixty-six percent of those interviewed chose the vendor's technical documentation Web site or Web for purchase information. Similarly, for initial installation and configuration, 35% chose the vendor's Web site as the preferred medium, followed by 19% for CDs.

Information on upgrades is continually changing, and, once again, the vendor's Web site was the popular choice among 40% of participants. Immediate access is also crucial for the obsolescence stage, and similarly, 29% chose the vendor's Web site, followed by 16% for tech support.

Performance tuning and maintenance also require the most up-to-the-minute information. For these areas, accessing information on the vendor's Web site was the number one choice. Thirty-four percent preferred the vendor's Web site for accessing information. See Appendix 20 for complete statistics.

9.2 Troubleshooting

For troubleshooting, 26% preferred accessing information on the vendor's Web site, followed by 17% for newsgroups and technical forums. When asked if error recognition and recovery information should be included, an overwhelming majority of 81% preferred to see it. Fifty-eight percent preferred receiving this information in a separate section, followed by 38% who choose to see it throughout an entire document.

10. ONLINE AND WEB DELIVERY

10.1 Availability of Internet Access

Almost all respondents (98%) have Internet access in the location where their systems are located. Twenty-six percent access information from their vendor's Web site 1-4 times per month and 22% access information one to four times per week. Thirty-eight percent said it takes between 11 and 30 minutes to get what they need, and 29% claim it takes between five and 10 minutes. Only a small minority, or 5%, gets what they need in one to four minutes. See Figures 19-20.

Figure 19

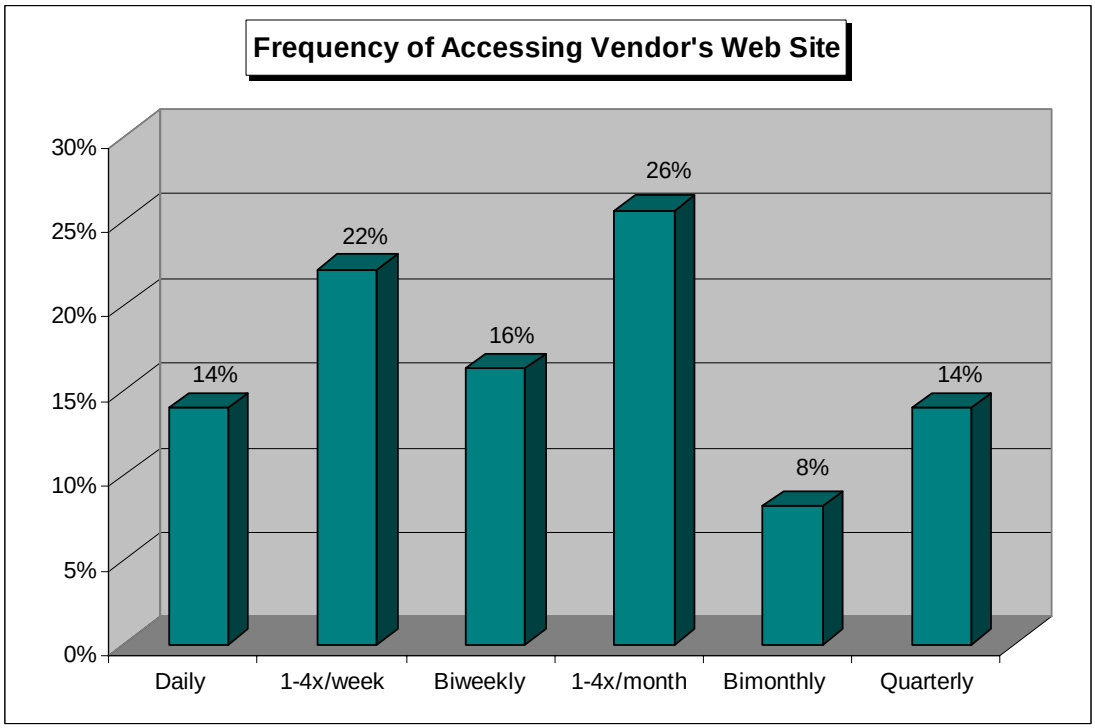
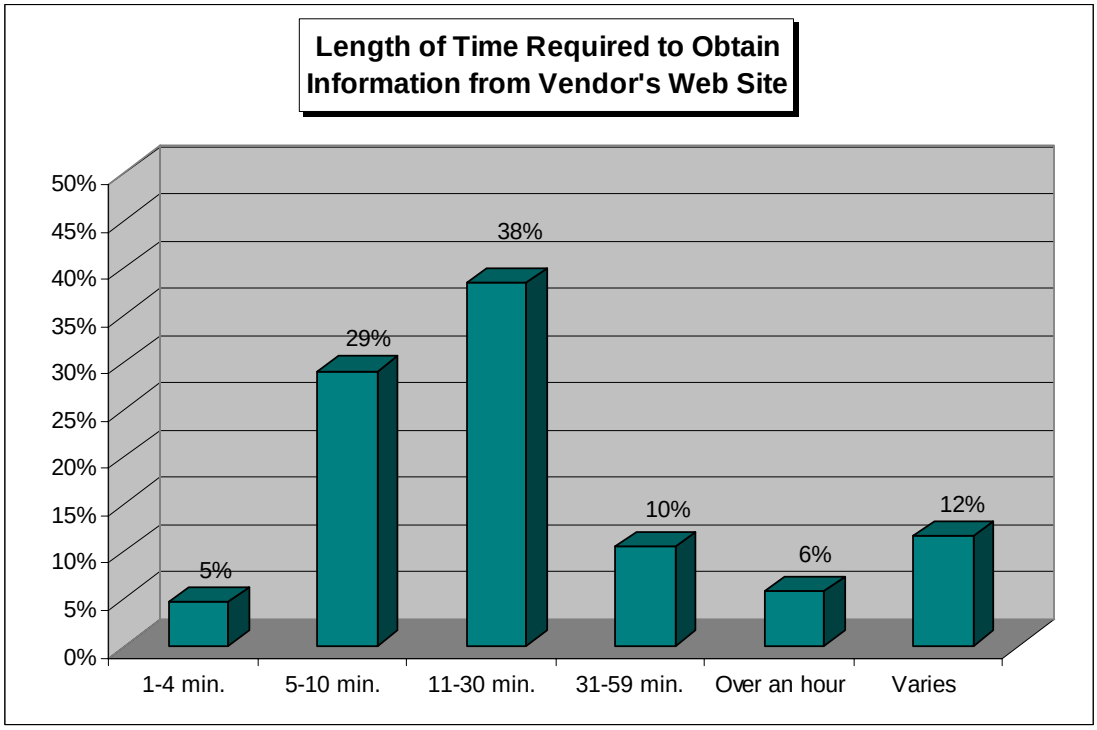


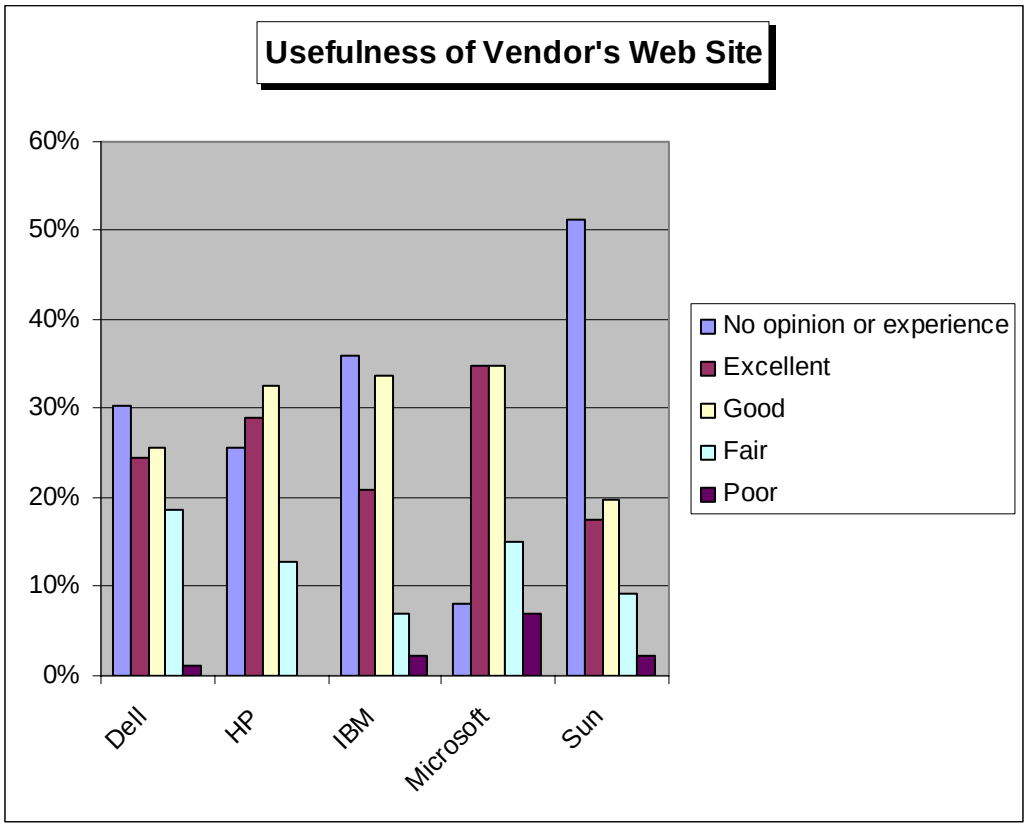
Figure 20



10.2 Usefulness of Vendor's Technical Documentation Web Site

When asked to rate the usefulness of their vendor's Web site, 35% of the participants selected Microsoft as excellent and 35% selected Microsoft as good. Twenty-nine percent rated HP's Web site as excellent and 33% rated HP as good. Dell and Sun had the lowest ratings. See Figure 21 below.

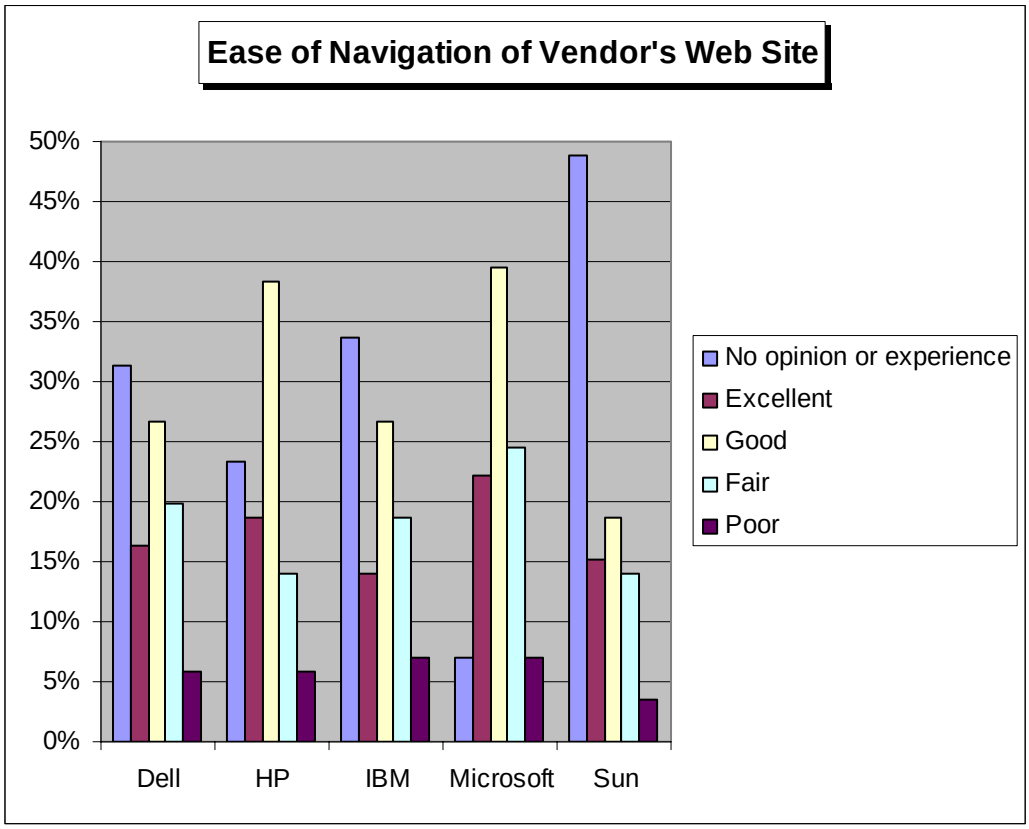
Figure 21



10.3 Ease of Navigation

Microsoft and HP had the highest ratings on ease of navigation. Nineteen percent and 16% rated Microsoft and HP, respectively as excellent. One-third of those surveyed rated HP and Microsoft as good. See Figure 22 below.

Figure 22



10.4 Level and Depth of Content

For level of content, 37% of those surveyed rated Microsoft as excellent and 23% rated HP as excellent. Forty-two percent and 29% rated HP and Dell, respectively, as good. Slightly over 60% were satisfied with the depth of content of Dell, HP and IBM. Twenty-four percent felt that there was too little content on Dell's Web site. See Figures 23-24.

Figure 23

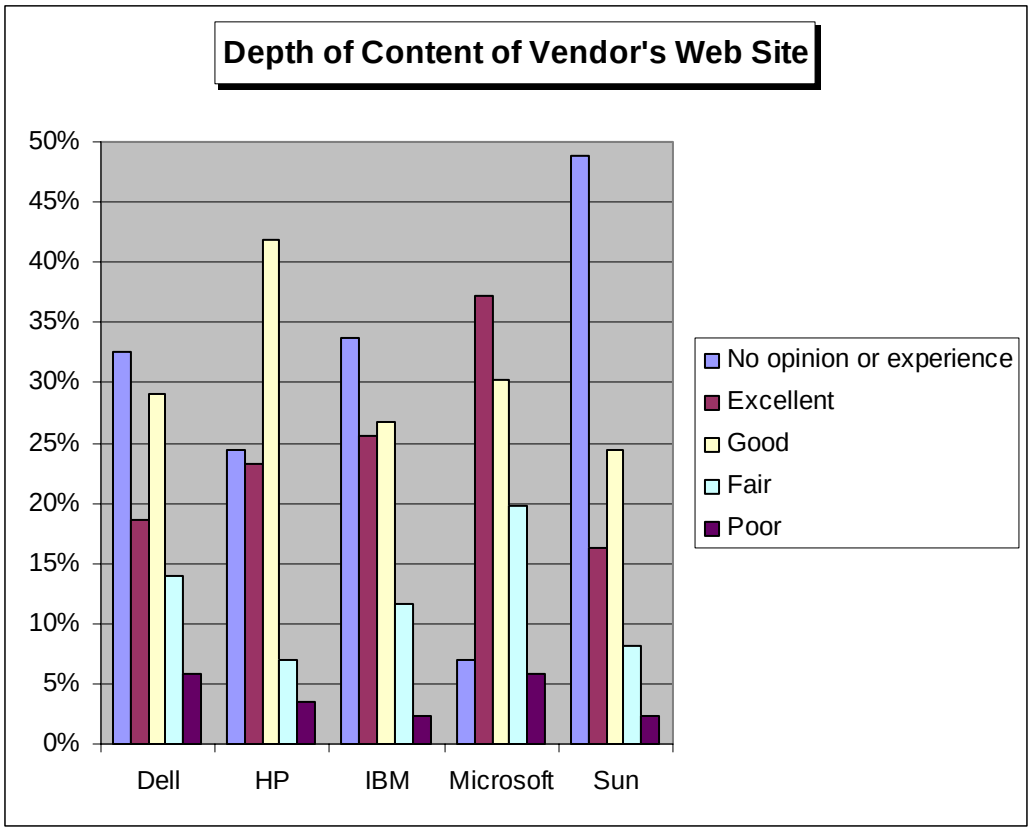
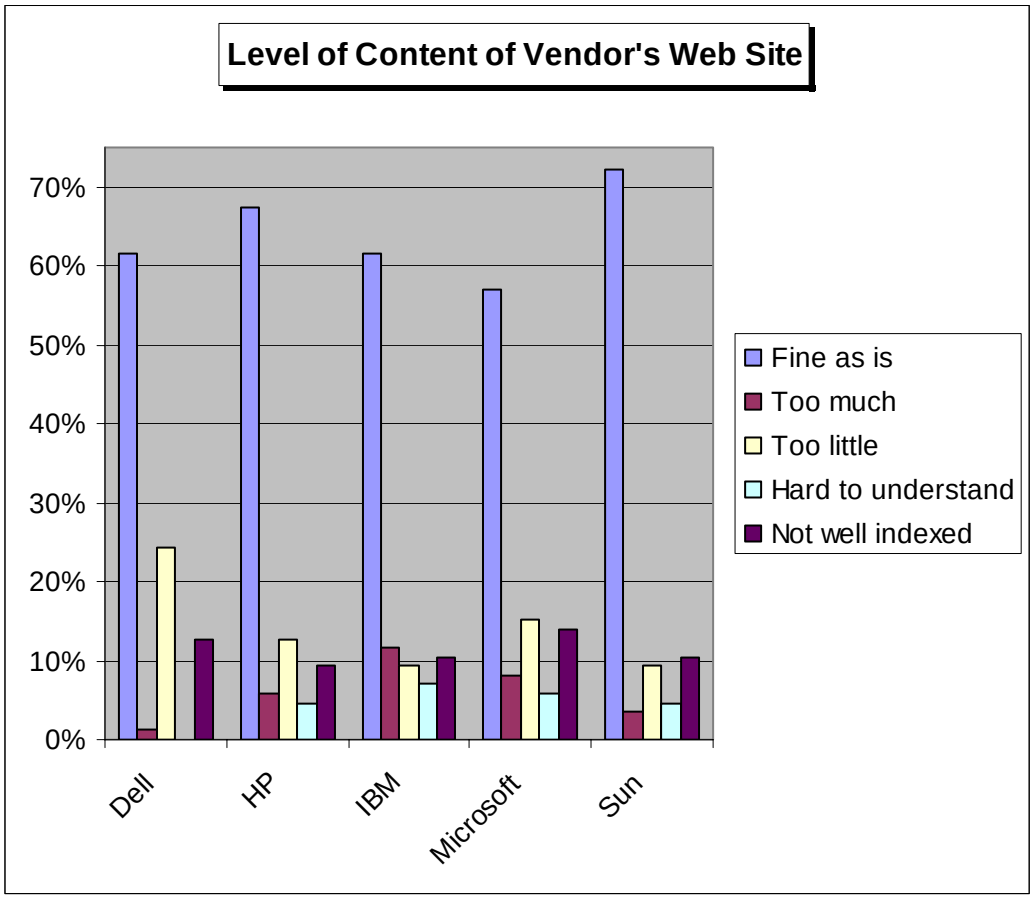


Figure 24



10.5 Accuracy and Relevancy of Information

With the exception of Sun, the vendors faired well on accuracy of information. Close to 30% rated HP as well as Microsoft as excellent, and 35% each rated Dell, HP, IBM and Microsoft as good. Thirty-one percent rated Microsoft as excellent on how well the Web site is kept up-to-date, followed by a 24% excellent rating for HP. Again, with the exception of Sun, the vendors faired well, as close to one third of all vendors were rated as good in their ability to keep information current. See Figures 25-26.

Figure 25

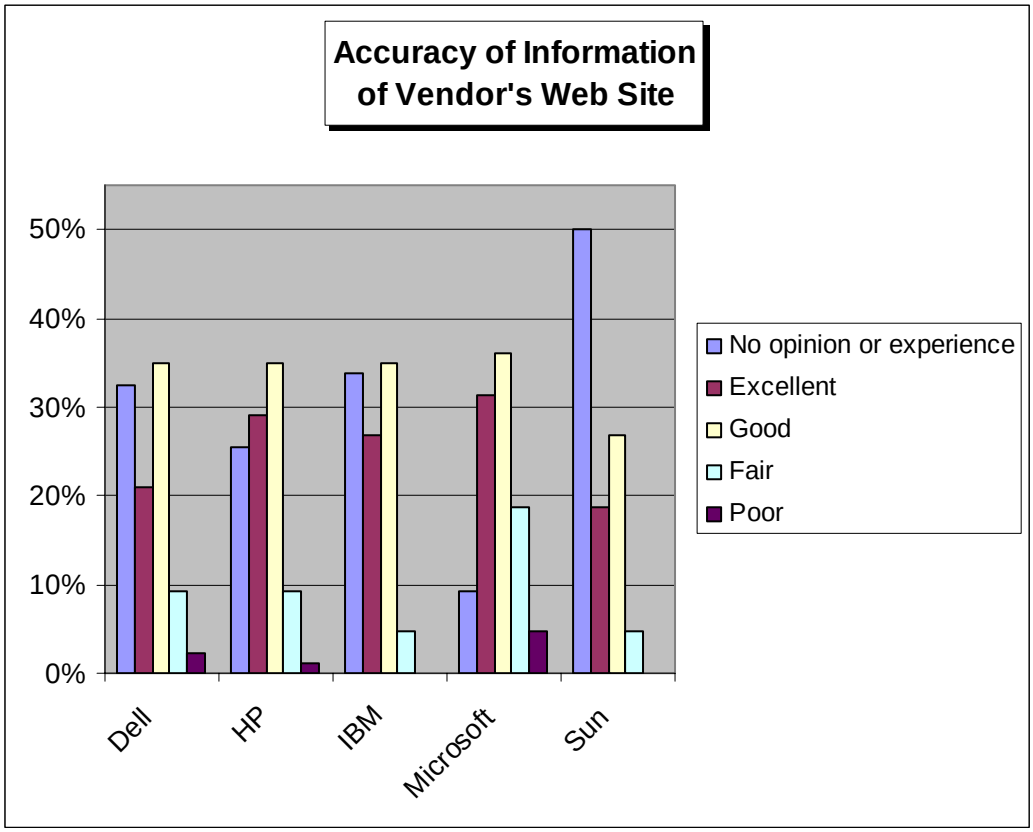
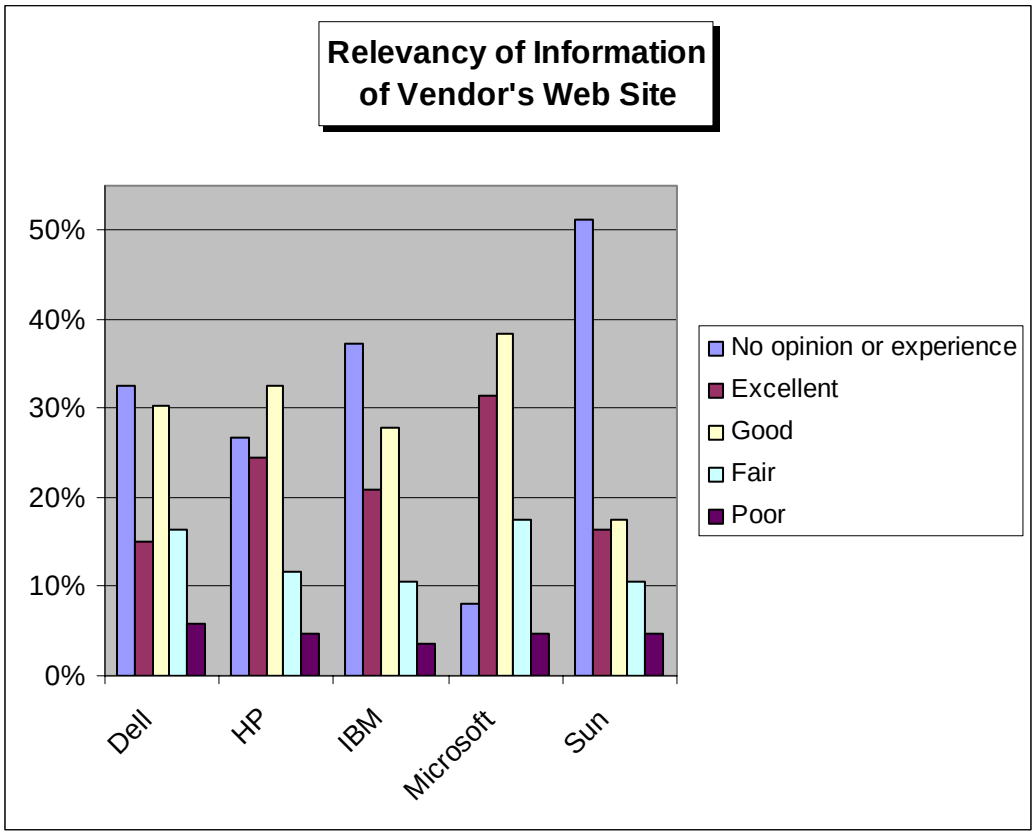


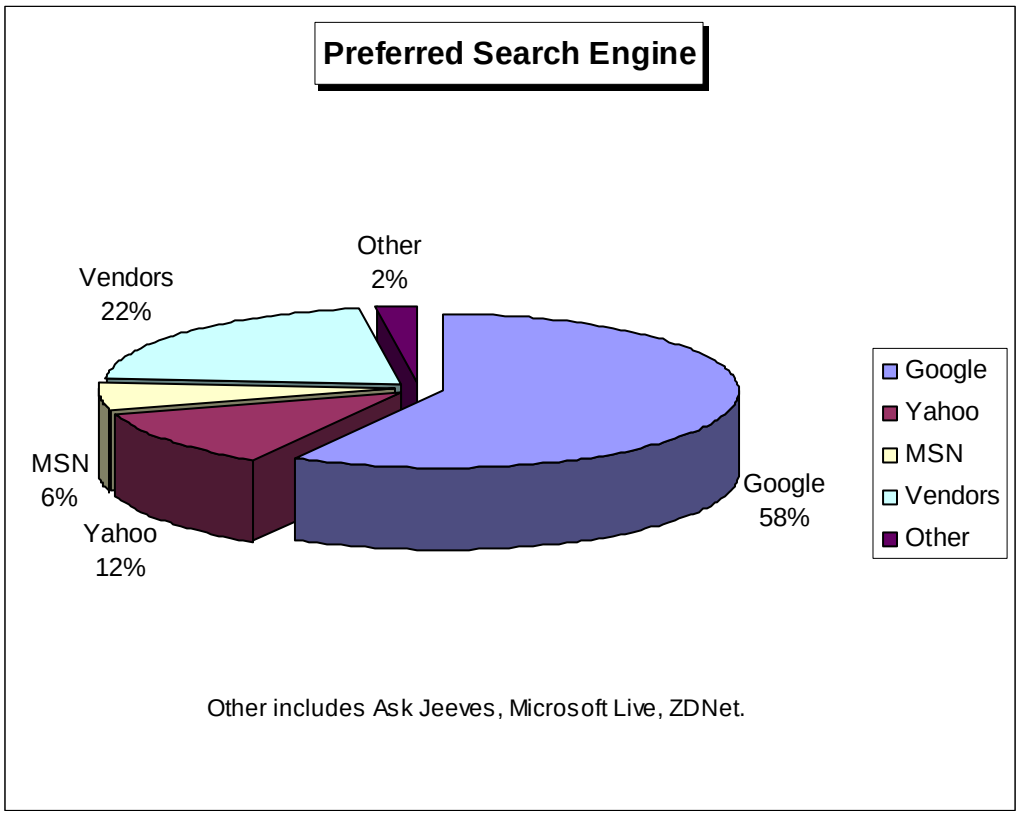
Figure 26



10.6 Preferred Search Engine

Google was, by far, the favored search engine with 58% of participants. Surprisingly, only 22% selected the vendor's Web site and only 12% selected Yahoo. See Figure 27 below.

Figure 27



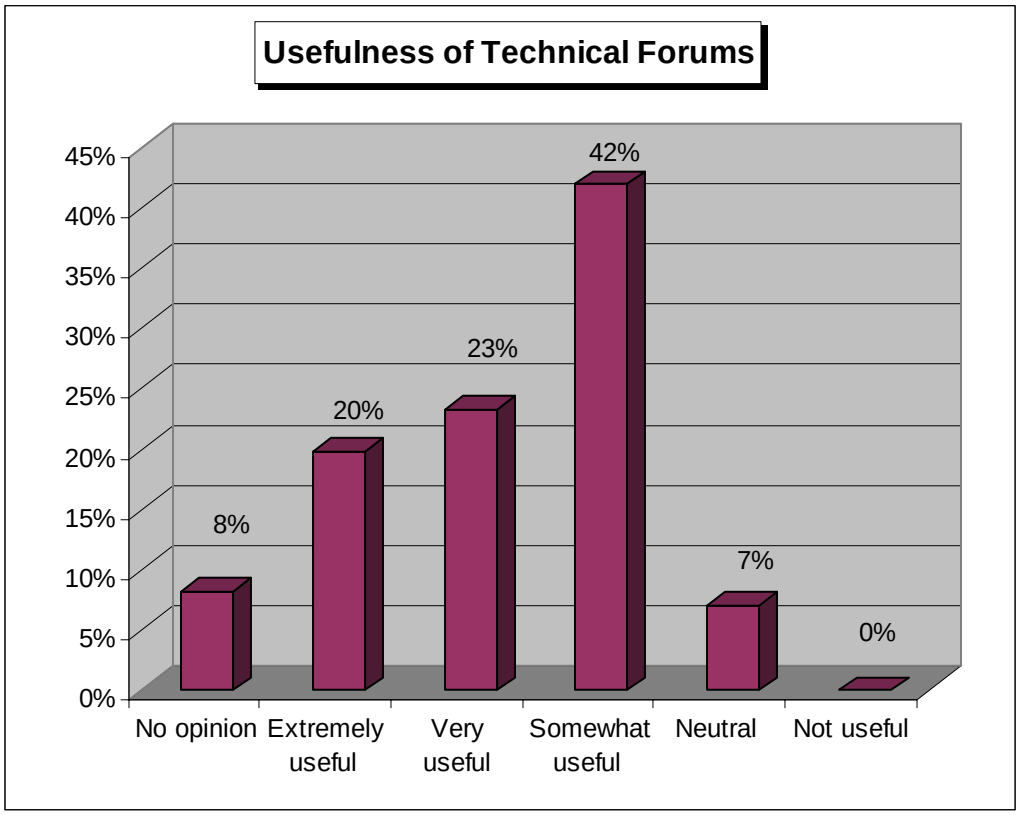
10.7 Preferred Online Resource

Twenty-eight percent selected their vendor's technical documentation Web site and 27% selected Google as their number one online resources. Twenty-three percent selected online help as a second choice, and 17% selected the vendor's knowledge database for third choice. See Appendix 21 for the complete data.

10.8 Technical Forums

Almost two-thirds, or 65%, use technical forums and 28% use technical forums occasionally. Forty-two percent felt technical forums are somewhat useful, 23% felt they were very useful and only 20% felt they were extremely useful. See Figure 28 below.

Figure 28



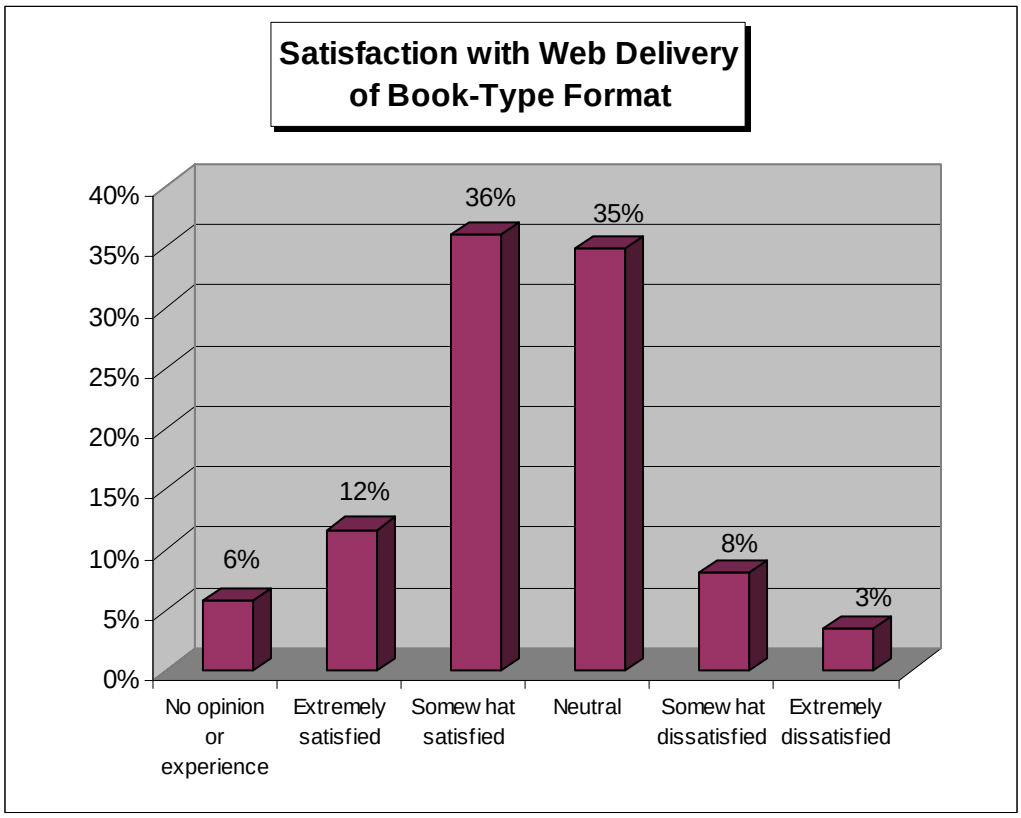
10.9 PDF Versus HTML

PDF was slightly preferred over HTML as the favored format for online delivery of technical documentation. Fifty-seven percent preferred PDF versus 43% for HTML.

10.10 Web Delivery of Book-Type Format

Slightly over 70% felt somewhat or neutral towards the Web delivery of book-type format and organization. Only 12% felt extremely satisfied with this format. See Figure 29 below.

Figure 29

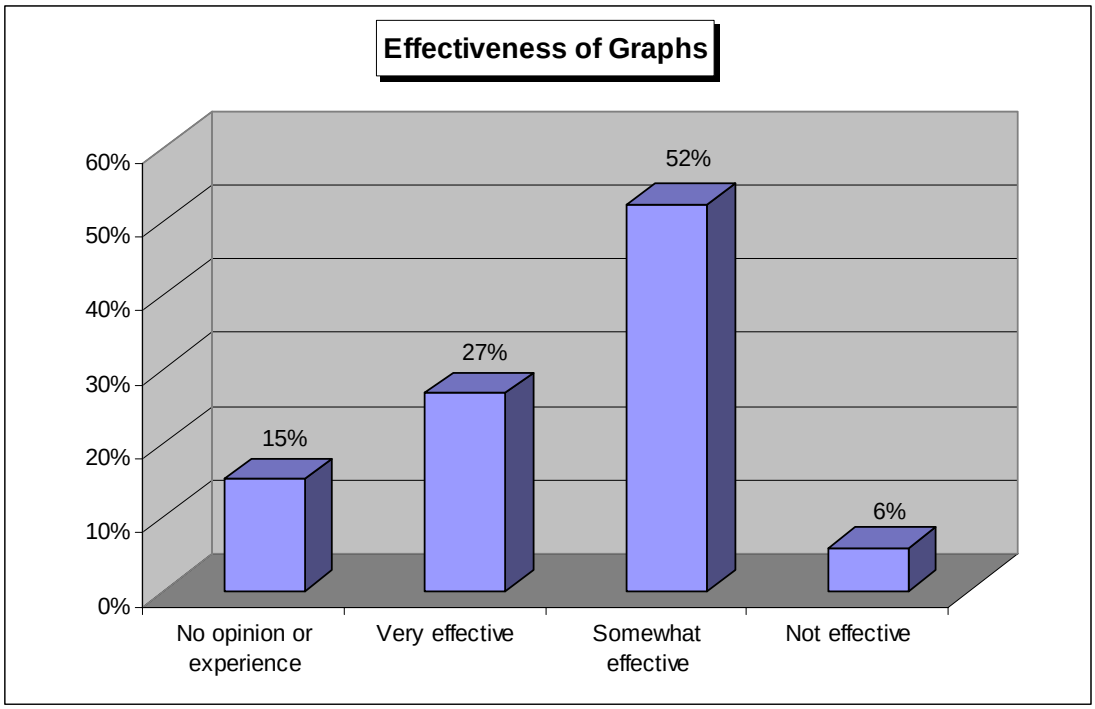


11. GRAPHICS AND GRAPHICAL USER INTERFACE

11.1 Importance of Graphics and GUIs

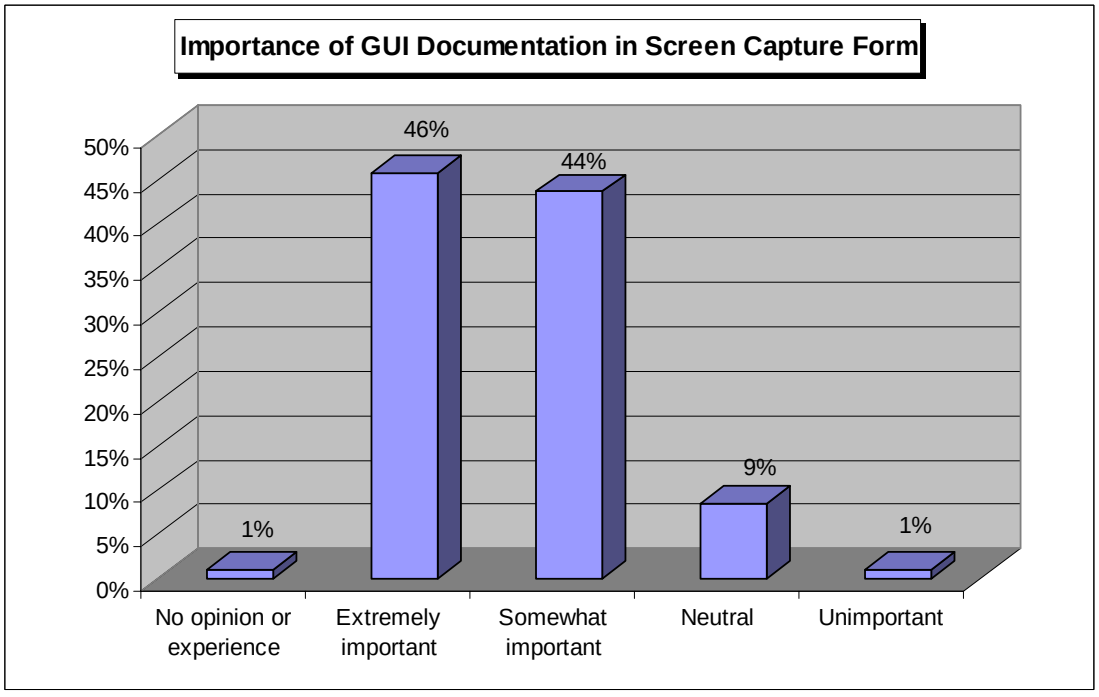
Slightly over a quarter, or 27% felt that graphs are effectively used in their vendor's technical documentation. Over half or 52% felt they were only somewhat effective. See Figure 30 below.

Figure 30



Forty-six percent felt GUI documentation in the form of screen captures in manuals was extremely important and 44% felt it was somewhat important. See Figure 31 below.

Figure 31

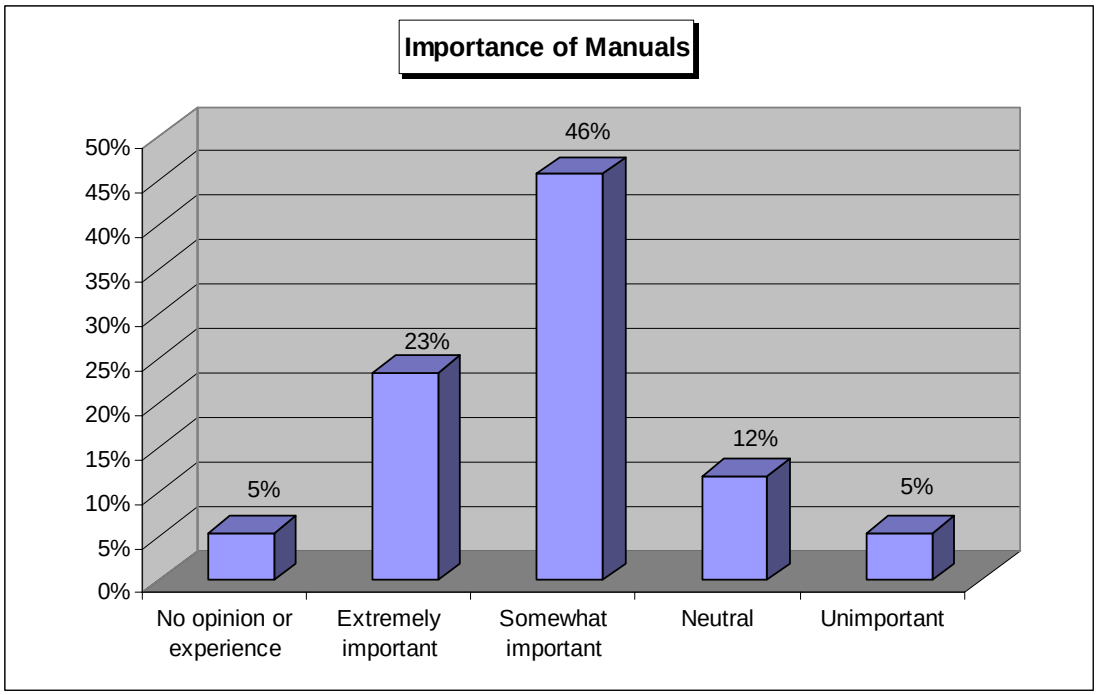


When asked if online help is available for the GUI, 48% expect the GUI to be documented in a manual. When asked why they felt this way, most felt that useful information should be easy to understand. "If a system is unavailable or I am at a remote site without remote access, the ability to see what the other end is seeing is invaluable in problem determination and resolution," said one IT manager. Another explained, "Screen shots are essential when explaining the use of a GUI-based software product. Online help is better than a manual, but if a manual is used, it should include screen shots." Other reasons included:

- Ability to reinforce and go through information without having to run through a program live.
- Improved completeness, clarity and greater depth of information.
- Ability to visually see if you are on the right track.
- Ability to use Help and the application at the same time.
- Simultaneous reading and experimenting.
- Easy reference.

Of those that use a GUI, 46% felt that manuals were important while 23% felt they were somewhat important. See Figure 32 below.

Figure 32



11.2 Online Help versus Manuals

The type of situation that would prompt the use of manuals included:

- The need for faster retrieval of required and relevant information.
- Learning a new technology and its application.
- Troubleshooting technical issues.
- If the information can't be found elsewhere.
- Limited Internet access.
- When the GUI does not make sense or is not working properly.
- When system doesn't perform as advertised.
- Where there is an error and the error information cannot be accessed.
- GUI is too cramped or unreadable.

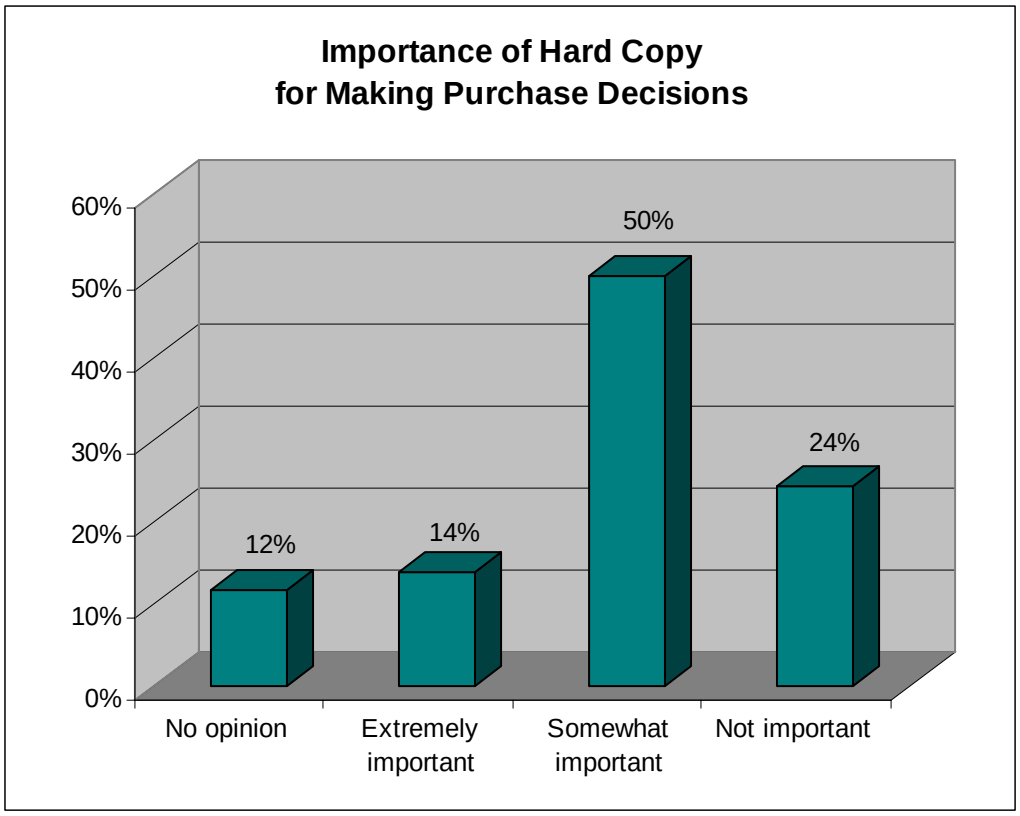
Overall, online help was preferred over manuals because it is faster, immediate, more readable and accurate. Other reasons were better graphics, quicker searches, high level headings with drill down ability as well as the ability to print "like a book page and not a screen dump," "Online help should be context-sensitive and focused on how to do specific tasks. Manuals are better when they are teaching a new subject," stated one IT professional. Overall, "It is a damn good start in finding/fixing the problem," explained another.

12. HARD COPY DOCUMENTATION

12.1 Importance of Hard Copy Documentation

Although 85% of those surveyed receive hard copy documentation from their vendors, close to three-fourths, or 74%, felt that the availability of hard copy was either somewhat important or not important for making purchase decisions. See Figure 33 below. Moreover, only 14% felt it was extremely important. In most cases, the hard copy is free, as only 20% pay for it. And for those who pay, 28% only pay for a portion of it. If payment were mandatory, only 26% would be willing to pay for it. However, only 60% of those surveyed claim their vendor makes hard copy available after their product is purchased.

Figure 33



12.2 Hard Copy Documentation Topics and Those in Use

The subject areas that vendors offer in their hard copy documentation are varied, but the most popular areas are installations, configurations, and systems administration. The hard copy topics that are most often referenced are user documentation (17%), system administration (15%), technical specifications (15%) and release notes (12%). See Tables 7-8.

Table 7

Hard Copy Documentation Topics		
	Number	% Total
Installations	71	12%
Configuration	62	11%
Systems Administration	59	10%
Maintenance	57	10%
Operating System	48	8%
System Diagnostics/Monitoring	44	8%
Upgrading	39	7%
Networking/Communication	39	7%
Application Solutions	34	6%
Systems Integration	34	6%
Development	27	5%
Internet/Security Solutions	27	5%
Fault/Resource Management	25	4%
Training	5	1%
Total	**571**	**100%**

Table 8

Hard Copy Documentation Used		
	Number	% Total
User Documentation	57	17%
System Admin Documentation	52	15%
Technical Specifications	50	15%
Release Notes	41	12%
Reference Guides	38	11%
Functional Specifications	31	9%
Final Packaging Material	19	6%
Libraries	19	6%
QA Plans, Test Plans and Test Lists	16	5%
Product Marketing Requirements	13	4%
Other	4	1%
Total	**340**	**100%**

12.3 Management of Hard Copy Documentation

The survey found that for 47% of participants, vendors do have one data store for documentation. For the 53% that did not have this as an option, 54% said they would prefer it. For three-fourths of those surveyed, hard copy documentation is shared and is managed by a variety of people within the company who include tech support, database administration, systems administration, helpdesk, QA, PC support, networking, logistics or development.

12.4 Online and CD/DVD-Based Books

When asked how often does one print online or print CD/DVD-based books, close to half, or 49%, print out parts of the information they need. Thirty-eight percent do not print online or print CD/DVD-based books and are more comfortable reading and researching online. Only 13% like printed material and, when available, prefer to purchase printed books.

13. DOCUMENTATION UPDATES

It is no surprise that accessing information on the Web is the most preferred options to obtain updated information, since only 47% said their vendor notifies them when information is updated. Of those that are notified, 61% are notified by email and 23% by mail. Ninety-two percent prefer to receive information by email.

Sixty percent said that their preferred method to receive documentation updates is by accessing an updated manual on the vendor's Web site. Fifteen percent said they would prefer receiving an entire updated documentation set and another 15% prefer only specific "change" pages. Only 9% were interested in an entire documentation set with separately packaged updates. Slightly over half, or 56%, only wish to receive major releases, while 27% prefer minor releases. The remaining 17% said they would prefer receiving notification of updates on a variety of time intervals: biweekly, monthly, bimonthly or quarterly.

14. PREFERENCES IN RECEIVING INFORMATION

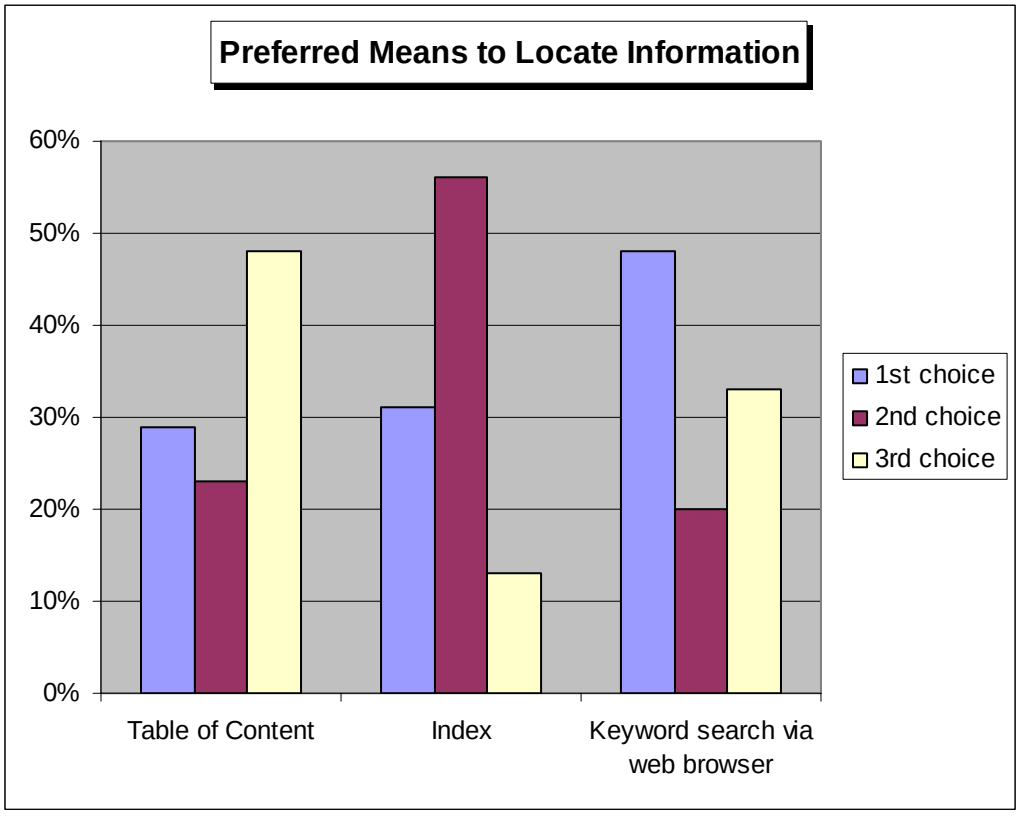
Technical information may be needed in a range of situations from start up to troubleshooting. There are 20 different scenarios analyzed in this section. In the majority of cases, the vendor's technical documentation Web site and Web search were the preferred ways to receive information. CDs and vendor tech support were strong contenders while online help/manpages were the third favored alternatives. For error handling and booting, Web search was also a strong contender. CDs also did well in the areas of site preparation and installation. Hard copy was least preferred across the board as were company tech support, sales reps and consultants. Overall, online access to information is the preferred means, especially in the areas of site preparation, installations, upgrades, applications, usage preference, performance tuning, product obsolescence, booting, upgrades and maintenance. It is obvious that immediate access is, once again, considered vital. See Appendix 22 for the complete statistics.

15. INFORMATION REQUIREMENTS

15.1 Preferred Means to Locate Information

Almost half, or 48%, of participants preferred to locate information by keyword search via Web browser. Fifty-six percent selected index as the second choice to locate information and 48% choose Table of Contents. See Figure 34 below.

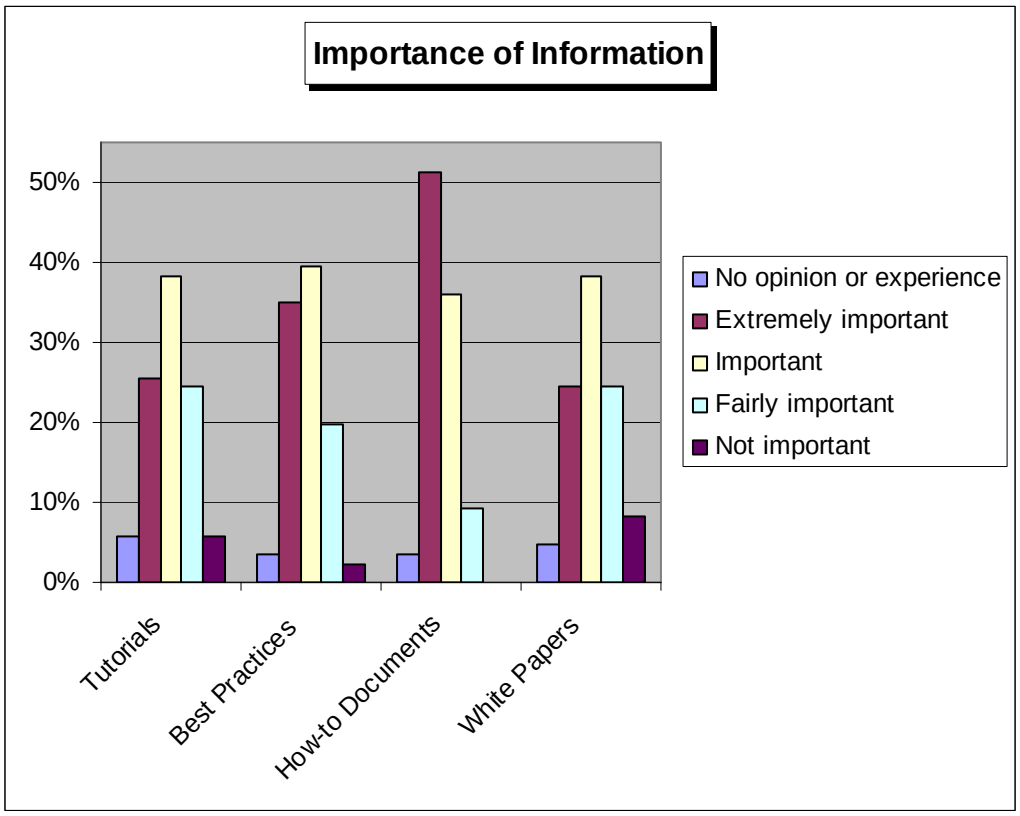
Figure 34



15.2 Importance of Various Documentation Types

Over half, or 51%, selected How-to documents as extremely important, 40% selected Best Practices documents as important and 24% selected white papers as fairly important. See Figure 35 below.

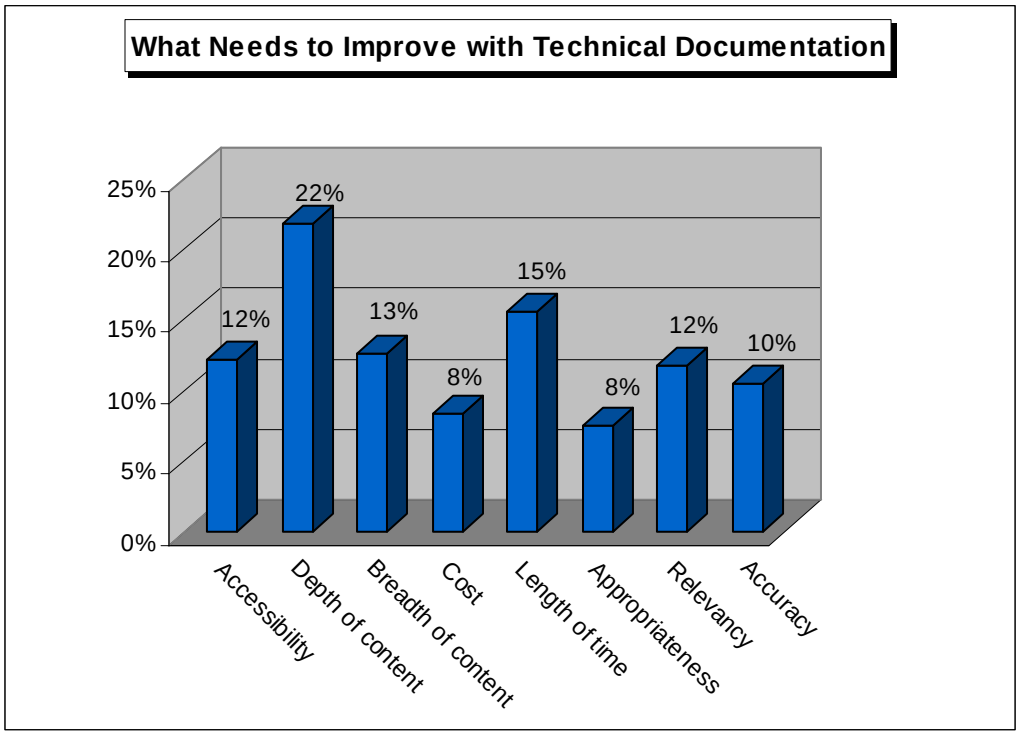
Figure 35



15.3 What Needs to Improve with Technical Documentation Today

Based on the significance of technical documentation and their frequent experience in tapping into technical resources, 22% of IT managers surveyed felt that depth of content was the number one aspect that needed to improve with technical documentation. Fifteen percent felt length of time to access information had to shorten and 13% felt the breadth of information needed to be better. Twelve percent felt the information had to be more up to date as well as accessible and 10% felt accuracy needed work. Interestingly, only eight percent felt cost was an issue.

Figure 36



15.4 Information Requirements Not Presently Met

Most of those interviewed thought that their current information needs were met and that they could obtain any type of information they required. However, the need for improved indexing and better access were consistently mentioned. "I need better how-to documentation and knowledge based search tools as well as wireless access," said one IT manager. "Most sites need to reorganize the help topics and provide a single point of access and repository for ALL information relating to specific product," explained another participant. Many felt vendors were slow to admit problems and one stated that "the lack of information is one of our largest networking problems." Other types of information that is presently lacking included:

- Detailed compatibility information.
- Detailed updates and upgrades.
- Hard copy documentation of known errors. Sometimes this is only available online which is impossible to get if the system is down.
- Details on the inner workings of systems.
- Up-to-date alert methods and channels of information.
- Explanation of business benefits.
- Integration of product sets with one another and with other vendor products.
- Recommended steps.

15.5 Technical Documentation Under-Utilized

The survey also identified technical documentation that is under-utilized. Sales materials, "anything that comes with a plug and play device, monitor manuals and driver discs" and anything on a "CD because it is such a pain" were given as documentation that is never used. Many felt that the problems with hard copy is that although hard copy easier to read, it gets out of date quickly plus if an application is customized, it has little use. Others sited the installation and safety manuals in 20 languages, hardware pictures, posters and packaging information as resources of little value.

15.6 Qualities of an Extremely Well Documented Product

The survey asked for input on what makes for an extremely well documented product. The following resonated throughout the survey: the need for good indexing with cross referencing, increased breadth and depth of problems and solutions, ease of accessing important information, “Quick Start” guide for the experienced, an easy-to-use "Intuitive" index, scenario driven guides, more illustrations, graphics, logical layouts and screenshots. Also noted was the need for clear examples, more core functionality and the need to move extended functionality into appendices. Also, “thorough, well-organized, easy-to-follow documents with tutorials, recommended steps and links to knowledgeable vendor tech support.”

Other comments are below.

“Good information is needed about how the product may be employed to help the IT professionals use it to satisfy the requirements of their respective businesses.”

“Glossary of TLA concepts need to be properly linked together so you can create a mental model of what the software does.”

“Complete and accurate information is needed about the products features, along with information that will help us to evaluate the product and to compare its features with similar products and models, both from other companies and the same company.”

“Thorough information to help us to plan for integrating the product into our existing environment as well as extensive troubleshooting information.”

“It would be nice if you can understand the product by reading the documents - not having to fight your way through the documents!”

“Documentation should be used to configure and understand as well as provide the most common pitfalls or problems that will be encountered and how to handle them.”

“Having both a basic and a detailed contents section at the front of the documentation and how-to's in the documents as well as images and examples are always of great benefit.”

“Installation and configuration documents are well defined with layouts providing the chronology of events.”

“It would be great if the document was written after the product has been developed and not before or during development. It would also be great if the product has gone through the QA process – that is, someone has actually read the documentation and tried examples or documented configuration options.”

15.7 Information Requirements in the Future

This is the age of "Google" and in the majority of cases, the Web was selected as the most popular means of accessing technical information. The Web is quick, easily accessible and up-to-date. Future requirements included Web-based information, seamless wireless access and PDA-based mobile information delivery. One participant said, "More flexible and faster access to information is mandatory. The demands for instant gratification in today's world are getting way out of hand." "Making all the information available by any and all means," said another. The need for increased dissemination of information, quicker release times of information and standardization of information formats were also mentioned as future business needs. Other requirements are noted below:

- Compatibility with different versions and different hardware platforms and hardware drivers.
- Better organization and search engine algorithms for troubleshooting.
- Improved knowledge base search tools.
- Database integration and sharing.
- Insightful articles and white papers showing how new technology may be employed or better used.
- Comprehensive and accurate technical information on various products and models.
- Comparative studies and charts to help IT professionals select the most appropriate combination of technology to meet business needs.
- More real time interactive solutions.
- More on line downloads from vendor sites.
- More in-depth technical documents from all vendors.
- Mini CD disks of information.

16. CLOSING COMMENTS

Comments that stood out are provided below. Forty-eight IT professionals, or 56% of those surveyed said they were willing to participate in a follow-up discussion. It was obvious from the remarks given that this is an important and passionate topic among IT professionals today.

"Vendors often design and write with little business experience other than their own environment. IBM is especially bad at providing information in a mixed environment, although it is available through them if enough searching is done. Given very few shops are wed to a specific software or hardware vendor, better cooperation between vendors to provide documentation and in adhering to standards uniformly, would be a refreshing change."

"I cannot stress enough the need for comprehensive and accurate technical information for products. We often need to research issues where we are not able to find the necessary technical information and this information is also not known by the vendor's technical support folks."

"The biggest problem with online documentation is layout and navigation. For example, large pictures that force the page to shift to keep the entire picture on the screen but stop you from reading the text above that explains the picture. Also, if printing a particular page (using the page number on the screen), you get a completely different page because the document is including pages that don't have page numbers on them."

"This was a very good survey. For my money HP still does the best job of all the vendors out there."

"I prefer the Web tools because they have good search capabilities (from Google) not because they are easier to use."

"I like Web rollovers that give keywords that help guide the troubleshooting process."

"I realize it is difficult to cover all bases when creating documentation, but the use of links in online content is always handy and does not clutter the initial information but allows a way of linking more detailed information."

"Technical documentation and drivers readily available on the Web site are always useful and give users good experiences when requiring manuals."

"I would like to see more documents that can be viewed in mobile devices that are rich in content like video."

"I would like to live in a world where I had no use for hard copy documentation because online information is totally satisfactory."

"For HP Openview, we need better documentation on the integration and architecture of the many HPOV modules. We also need starter cost-benefit spreadsheets and briefer tech courses for support staff."

"Until we need the information, it has no value to us. However, when the information helps us solve a problem or resolve an issue, it is invaluable."

APPENDICES

Appendix 1

Industry Sector		
	Number	% Total
Technology	17	20%
Financial	13	15%
Consumer Goods	10	12%
Consulting Services	9	10%
Government	8	9%
Telecommunications	8	9%
Industrials	5	6%
Materials	4	5%
Energy	3	3%
Healthcare	3	3%
Utilities	3	3%
Non-profit	3	3%
Total	86	100%

Appendix 2

Companies Represented		
USA	**UK**	**WORLD**
American Amateur Baseball Congress	Accord Sales & Lettings	Australian Proteome Analysis Facility
AT&T	Alcan Packaging	Australian Scholarships Group
BeneCare Dental Plans	Kavanagh	Australian Submarine Corp.
Columbia Sportswear Company	MATTCHED IT	BEELINE Technologies
Cox Health Systems	Pharmarketeer	CHC Conseil
Cumulus Media	Response UK	Coca-Cola Amatil
Essex Corporation	Royal Bank of Scotland Group	Computer Sciences Corp.
General Motors	University of Abertay Dundee	Dairy Farmers
Green Meadow Company	Warner Computer Services	EBT
Heritage	Yell	FNF Canada Company
Highland Corporation		Honeywell Ltd
iEntry		LexiQuest
JPMorgan Chase		Mentum Group Australia
Mace Marketing Group		Milura
MBNA		MLC
McGraw-Hill		NetSystems Australia
Mercedes-Benz		NHW Victoria
MRD Grafix		Optus
National Restaurant Assoc. Educational Foundation		PowerHealth Solutions
Navel Oceanographic Office		Sensient Technologies
Nebraska Information Technology Commission		SOBIS Software
North Dakota Credit Union		South Australian Dental Service
Northeast Distributors		Sportal Australia
Novell		ThinkSoft Sotware
Nuance Communications		Toyota Motor Corp. Australia
Nuvell Financial Services		Victoria Univeristy
PMV Technologies		Westpac Banking Corp.
Rooms To Go		Westral
Ross Imaging Inc		Zinifex Australia
Security Finance Associates		
Security Industry Automation Corp.		
SunGard Data Systems		
SVL Analytical, Inc.		
Texas Gas Association		
Union Bank & Trust		
WebCom247 LLC		

Appendix 3

Number of Employees in Company					
	Number	% Total	USA	UK	Rest of World
1-10	3	3%	1	0	2
11-50	10	12%	4	1	5
51-100	7	8%	2	3	2
101-250	15	17%	9	3	3
251-500	1	1%	0	0	1
501-1,000	9	10%	5	1	3
1,001-5,000	25	29%	14	0	11
5,001+	16	19%	7	2	7
Total	86	100%	42	10	34

Appendix 4

Number of Employees in IT department					
	Number	% Total	USA	UK	Rest of World
1-10	31	36%	16	3	12
11-50	26	30%	11	6	9
51-100	4	5%	3	0	1
101-250	8	9%	3	0	5
251-500	9	10%	3	0	6
501-1,000	3	3%	2	0	1
1,001-5,000	5	6%	4	1	0
Total	86	100%	42	10	34

Appendix 5

Preferred Means to Access Technical Documentation on New Products										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	12	8%	8	7%	4	4%	6	5%	13	10%
Vendor technical documentation web site	37	26%	19	16%	11	10%	5	4%	6	4%
Web search	30	21%	26	22%	11	10%	2	2%	4	3%
Researching/posting questions in newsgroups/technical forums	11	8%	9	8%	21	19%	9	8%	7	5%
Documentation CDs provided with server or software product	7	5%	10	9%	9	8%	11	10%	8	6%
Hard copy manual	6	4%	6	5%	9	8%	8	7%	11	8%
Online help/manpages	9	6%	7	6%	6	6%	18	16%	8	6%
Your Company's tech support	9	6%	6	5%	5	5%	6	5%	14	10%
Vendor tech support	6	4%	12	10%	15	14%	8	7%	11	8%
Sales Representative	6	4%	5	4%	6	6%	12	11%	15	11%
Consultant	5	3%	3	3%	7	6%	11	10%	12	9%
Reseller/VAR	3	2%	5	4%	4	4%	11	10%	12	9%
Google	2	1%	1	1%	1	1%	5	4%	15	11%
Total	143	100%	117	100%	109	100%	112	100%	136	100%

Appendix 6

Preferred Means to Access Technical Documentation for Help										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	19	16%	7	6%	6	5%	1	1%	11	12%
Vendor technical documentation web site	26	22%	19	15%	19	16%	5	5%	4	4%
Web search	18	15%	27	22%	12	10%	5	5%	5	5%
Researching/posting questions in newsgroups/technical forums	11	9%	14	11%	10	9%	13	14%	6	6%
Documentation CDs provided with server or software product	7	6%	10	8%	17	15%	10	11%	12	13%
Hard copy manual	6	5%	6	5%	7	6%	12	13%	14	15%
Online help/manpages	12	10%	8	6%	17	15%	10	11%	2	2%
Your Company's tech support	9	8%	11	9%	5	4%	8	8%	5	5%
Vendor tech support	7	6%	15	12%	8	7%	15	16%	9	9%
Sales Representative	2	2%	1	1%	5	4%	5	5%	10	11%
Consultant	1	1%	4	3%	7	6%	7	7%	7	7%
Reseller/VAR	2	2%	3	2%	4	3%	4	4%	10	11%
Total	120	100%	125	100%	117	100%	95	100%	95	100%

Appendix 7

Preferred Means to Read Technical Documentation										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	13	13%	5	4%	10	9%	1	1%	7	7%
Vendor technical documentation web site	26	26%	30	26%	10	9%	4	5%	5	5%
Web search	10	10%	20	17%	15	13%	11	13%	4	4%
Researching/posting questions in newsgroups/technical forums	6	6%	8	7%	15	13%	9	11%	8	8%
Documentation CDs provided with server or software product	10	10%	13	11%	13	11%	15	18%	8	8%
Hard copy manual	17	17%	11	9%	9	8%	11	13%	9	9%
Online help/manpages	11	11%	10	9%	16	14%	5	6%	12	12%
Your Company's tech support	5	5%	4	3%	5	4%	4	5%	6	6%
Vendor tech support	2	2%	8	7%	8	7%	13	15%	12	12%
Sales Representative	0	0%	2	2%	6	5%	3	4%	10	10%
Consultant	0	0%	3	3%	5	4%	6	7%	8	8%
Reseller/VAR	0	0%	3	3%	3	3%	2	2%	9	9%
Total	100	100%	117	100%	115	100%	84	100%	98	100%

Appendix 8

Most Critical Technical Documentation										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
Type of Documentation	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
User Guides	21	17%	14	13%	13	12%	9	12%	12	15%
System Administration	38	31%	14	13%	7	7%	4	5%	7	9%
Reference Manuals	22	18%	28	25%	13	12%	10	14%	4	5%
Final Packaging Material	2	2%	1	1%	5	5%	5	7%	2	2%
Release Notes	5	4%	13	12%	14	13%	12	16%	4	5%
Functional Specifications	4	3%	14	13%	13	12%	9	12%	9	11%
Technical Specifications	13	11%	18	16%	14	13%	8	11%	13	16%
Marketing Information	2	2%	2	2%	5	5%	3	4%	10	12%
QA Plans, Test Plans, Test Lists	7	6%	4	4%	7	7%	5	7%	3	4%
Software Libraries	7	6%	2	2%	11	10%	8	11%	12	15%
Developer Kits	2	2%	0	0%	3	3%	1	1%	6	7%
Total	123	100%	110	100%	105	100%	74	100%	82	100%

Appendix 9

Dell Ratings on Specific Documentation										
	No opinion or experience		Excellent		Good		Fair		Poor	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Presale Information	9	15%	13	22%	19	32%	14	23%	5	8%
Hardware User Guide	6	10%	13	22%	25	42%	12	20%	4	7%
Administrative Guide	8	13%	9	15%	26	43%	14	23%	3	5%
Site Preparation Guide	12	20%	9	15%	21	35%	12	20%	6	10%
Installation Guide	5	8%	15	25%	24	40%	14	23%	2	3%
Configuration Guide	7	12%	14	23%	19	32%	18	30%	2	3%
Release Notes	9	15%	7	12%	23	38%	16	27%	5	8%
Performance Tuning Info	13	22%	7	12%	19	32%	15	25%	6	10%
Maintenance Information	7	12%	7	12%	26	43%	18	30%	2	3%
Upgrade Information	9	15%	11	18%	19	32%	19	32%	2	3%
Obsolescence Information	13	22%	6	10%	16	27%	20	33%	5	8%
Error Handling Information	11	18%	7	12%	15	25%	22	37%	5	8%
Tutorials	13	22%	7	12%	21	35%	15	25%	4	7%
Best Practices Documents	16	27%	6	10%	18	30%	16	27%	4	7%
How-to Documents	10	17%	7	12%	22	37%	17	28%	4	7%
White Papers	19	32%	5	8%	19	32%	14	23%	3	5%

Appendix 10

HP Ratings on Specific Documentation										
	No opinion or experience		Excellent		Good		Fair		Poor	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Presale Information	8	13%	13	21%	30	48%	10	16%	2	3%
Hardware User Guide	3	5%	19	30%	30	48%	10	16%	1	2%
Administrative Guide	3	5%	20	32%	28	44%	12	19%	0	0%
Site Preparation Guide	7	11%	11	17%	33	52%	12	19%	0	0%
Installation Guide	1	2%	13	21%	37	59%	10	16%	2	3%
Configuration Guide	3	5%	15	24%	32	51%	9	14%	4	6%
Release Notes	3	5%	14	22%	26	41%	17	27%	3	5%
Performance Tuning Info	7	11%	12	19%	26	41%	16	25%	2	3%
Maintenance Information	4	6%	17	27%	30	48%	12	19%	0	0%
Upgrade Information	6	10%	15	24%	30	48%	12	19%	0	0%
Obsolescence Information	8	13%	8	13%	24	38%	19	30%	4	6%
Error Handling Information	4	6%	8	13%	29	46%	17	27%	5	8%
Tutorials	12	19%	14	22%	24	38%	12	19%	1	2%
Best Practices Documents	8	13%	13	21%	26	41%	15	24%	1	2%
How-to Documents	6	10%	14	22%	28	44%	13	21%	2	3%
White Papers	9	14%	15	24%	28	44%	10	16%	1	2%

Appendix 11

IBM Ratings on Specific Documentation										
	No opinion or experience		Excellent		Good		Fair		Poor	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Presale Information	8	17%	17	35%	15	31%	7	15%	1	2%
Hardware User Guide	2	4%	17	35%	24	50%	5	10%	0	0%
Administrative Guide	1	2%	19	40%	22	46%	5	10%	1	2%
Site Preparation Guide	7	15%	12	25%	20	42%	9	19%	0	0%
Installation Guide	4	8%	16	33%	21	44%	6	13%	1	2%
Configuration Guide	4	8%	11	23%	24	50%	7	15%	2	4%
Release Notes	4	8%	13	27%	24	50%	6	13%	1	2%
Performance Tuning Info	5	10%	12	25%	21	44%	10	21%	0	0%
Maintenance Information	4	8%	15	31%	22	46%	7	15%	0	0%
Upgrade Information	6	13%	13	27%	18	38%	9	19%	2	4%
Obsolescence Information	8	17%	9	19%	17	35%	9	19%	5	10%
Error Handling Information	3	6%	9	19%	27	56%	6	13%	3	6%
Tutorials	5	10%	10	21%	25	52%	7	15%	1	2%
Best Practices Documents	5	10%	14	29%	21	44%	7	15%	1	2%
How-to Documents	4	8%	12	25%	22	46%	10	21%	0	0%
White Papers	5	10%	14	29%	19	40%	9	19%	1	2%

Appendix 12

Microsoft Ratings on Specific Documentation										
	No opinion or experience		Excellent		Good		Fair		Poor	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Presale Information	14	20%	15	22%	21	30%	13	19%	6	9%
Hardware User Guide	19	28%	10	14%	25	36%	11	16%	4	6%
Administrative Guide	4	6%	16	23%	33	48%	14	20%	2	3%
Site Preparation Guide	11	16%	13	19%	29	42%	13	19%	3	4%
Installation Guide	6	9%	20	29%	33	48%	8	12%	2	3%
Configuration Guide	6	9%	18	26%	25	36%	17	25%	3	4%
Release Notes	2	3%	13	19%	25	36%	24	35%	5	7%
Performance Tuning Info	10	14%	10	14%	18	26%	20	29%	11	16%
Maintenance Information	9	13%	10	14%	25	36%	20	29%	5	7%
Upgrade Information	4	6%	15	22%	28	41%	17	25%	5	7%
Obsolescence Information	17	25%	9	13%	13	19%	18	26%	12	17%
Error Handling Information	5	7%	11	16%	18	26%	21	30%	14	20%
Tutorials	7	10%	16	23%	32	46%	10	14%	4	6%
Best Practices Documents	11	16%	13	19%	24	35%	17	25%	4	6%
How-to Documents	5	7%	18	26%	31	45%	12	17%	3	4%
White Papers	13	19%	11	16%	26	38%	16	23%	3	4%

Appendix 13

Sun Ratings on Specific Documentation

	No opinion or experience		Excellent		Good		Fair		Poor	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Presale Information	10	28%	6	17%	13	36%	3	8%	4	11%
Hardware User Guide	7	19%	8	22%	16	44%	5	14%	0	0%
Administrative Guide	4	11%	9	25%	18	50%	4	11%	1	3%
Site Preparation Guide	8	22%	7	19%	14	39%	6	17%	1	3%
Installation Guide	6	17%	5	14%	21	58%	3	8%	1	3%
Configuration Guide	6	17%	7	19%	17	47%	4	11%	2	6%
Release Notes	8	22%	9	25%	11	31%	8	22%	0	0%
Performance Tuning Info	6	17%	10	28%	14	39%	4	11%	2	6%
Maintenance Information	7	19%	5	14%	16	44%	7	19%	1	3%
Upgrade Information	8	22%	7	19%	13	36%	7	19%	1	3%
Obsolescence Information	9	25%	7	19%	13	36%	4	11%	3	8%
Error Handling Information	6	17%	5	14%	19	53%	6	17%	0	0%
Tutorials	9	25%	9	25%	11	31%	7	19%	0	0%
Best Practices Documents	9	25%	8	22%	13	36%	5	14%	1	3%
How-to Documents	9	25%	8	22%	14	39%	5	14%	0	0%
White Papers	9	25%	8	22%	13	36%	6	17%	0	0%

Appendix 14

Preferred Means to Access Technical Documentation on UNIX Products										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	13	10%	5	5%	4	4%	3	4%	8	9%
Vendor technical documentation web site	35	26%	21	20%	8	9%	4	5%	5	5%
Web search	28	21%	30	29%	11	12%	4	5%	2	2%
Researching/posting questions in newsgroups/technical forums	10	8%	8	8%	19	20%	13	16%	7	8%
Documentation CDs provided with server or software product	7	5%	8	8%	9	10%	11	13%	8	9%
Hard copy manual	4	3%	6	6%	10	11%	6	7%	9	10%
Online help/manpages	7	5%	10	10%	9	10%	11	13%	6	6%
Your Company's tech support	5	4%	3	3%	1	1%	7	8%	10	11%
Vendor tech support	14	11%	4	4%	10	11%	10	12%	9	10%
Sales Representative	3	2%	5	5%	7	7%	3	4%	13	14%
Consultant	3	2%	2	2%	2	2%	7	8%	8	9%
Reseller/VAR	4	3%	2	2%	4	4%	4	5%	8	9%
Total	133	100%	104	100%	94	100%	83	100%	93	100%

Appendix 15

Preferred Means to Access Technical Documentation for Help with UNIX Products										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	16	15%	7	7%	7	7%	3	4%	6	6%
Vendor technical documentation web site	14	13%	20	20%	17	18%	3	4%	10	10%
Web search	31	28%	19	19%	10	11%	4	5%	6	6%
Researching/posting questions in newsgroups/technical forums	10	9%	17	17%	11	12%	13	16%	3	3%
Documentation CDs provided with server or software product	3	3%	6	6%	11	12%	13	16%	8	8%
Hard copy manual	5	5%	7	7%	11	12%	9	11%	15	15%
Online help/manpages	11	10%	9	9%	9	9%	8	10%	10	10%
Your Company's tech support	5	5%	7	7%	4	4%	4	5%	8	8%
Vendor tech support	8	7%	4	4%	5	5%	11	14%	12	12%
Sales Representative	2	2%	2	2%	3	3%	4	5%	9	9%
Consultant	2	2%	2	2%	4	4%	4	5%	6	6%
Reseller/VAR	2	2%	2	2%	3	3%	3	4%	8	8%
Total	109	100%	102	100%	95	100%	79	100%	101	100%

Appendix 16

Preferred Means to Access Technical Documentation on Linux										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	17	13%	3	3%	7	7%	2	3%	6	8%
Vendor technical documentation web site	25	19%	20	21%	12	11%	4	5%	1	1%
Web search	35	27%	20	21%	9	8%	6	8%	5	7%
Researching/posting questions in newsgroups/technical forums	11	8%	12	13%	23	22%	7	9%	5	7%
Documentation CDs provided with server or software product	4	3%	8	9%	13	12%	16	21%	5	7%
Hard copy manual	4	3%	5	5%	10	9%	5	7%	13	17%
Online help/manpages	8	6%	11	12%	9	8%	8	11%	3	4%
Your Company's tech support	7	5%	5	5%	4	4%	3	4%	10	13%
Vendor tech support	11	8%	5	5%	4	4%	13	17%	8	11%
Sales Representative	3	2%	2	2%	8	8%	2	3%	7	9%
Consultant	3	2%	2	2%	4	4%	6	8%	9	12%
Reseller/VAR	3	2%	1	1%	3	3%	4	5%	4	5%
Total	131	100%	94	100%	106	100%	76	100%	76	100%

Appendix 17

Preferred Means to Access Technical Documentation for Help with Linux										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	13	10%	4	5%	5	6%	3	4%	7	8%
Vendor technical documentation web site	16	12%	19	22%	16	20%	5	7%	5	6%
Web search	37	27%	20	24%	8	10%	2	3%	2	2%
Researching/posting questions in newsgroups/technical forums	14	10%	13	15%	14	18%	8	12%	4	5%
Documentation CDs provided with server or software product	7	5%	5	6%	8	10%	10	15%	9	10%
Hard copy manual	7	5%	5	6%	5	6%	5	7%	8	9%
Online help/manpages	10	7%	9	11%	14	18%	6	9%	8	9%
Your Company's tech support	9	7%	2	2%	1	1%	5	7%	10	12%
Vendor tech support	10	7%	4	5%	2	3%	13	19%	7	8%
Sales Representative	4	3%	1	1%	3	4%	3	4%	8	9%
Consultant	4	3%	2	2%	1	1%	5	7%	10	12%
Reseller/VAR	4	3%	1	1%	2	3%	2	3%	8	9%
Total	135	100%	85	100%	79	100%	67	100%	86	100%

Appendix 18

Preferred Means to Access Technical Documentation on Virtualization Technologies										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	3	8%	2	5%	1	4%	3	12%	1	3%
Vendor technical documentation web site	10	25%	8	20%	4	15%	3	12%	1	3%
Web search	16	40%	10	25%	2	7%	0	0%	1	3%
Researching/posting questions in newsgroups/technical forums	7	18%	6	15%	7	26%	0	0%	0	0%
Documentation CDs provided with server or software product	0	0%	5	13%	4	15%	5	20%	1	3%
Hard copy manual	0	0%	3	8%	2	7%	3	12%	4	14%
Online help/manpages	1	3%	4	10%	6	22%	3	12%	1	3%
Your Company's tech support	1	3%	1	3%	0	0%	0	0%	1	3%
Vendor tech support	2	5%	1	3%	0	0%	5	20%	9	31%
Sales Representative	0	0%	0	0%	1	4%	1	4%	2	7%
Consultant	0	0%	0	0%	0	0%	1	4%	6	21%
Reseller/VAR	0	0%	0	0%	0	0%	1	4%	2	7%
Total	40	100%	40	100%	27	100%	25	100%	29	100%

Appendix 19

Preferred Means to Access Technical Documentation for Help with Virtualization Technologies										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	3	7%	2	5%	0	0%	2	7%	2	6%
Vendor technical documentation web site	11	25%	10	23%	5	19%	0	0%	2	6%
Web search	13	30%	12	28%	2	7%	1	4%	1	3%
Researching/posting questions in newsgroups/technical forums	4	9%	7	16%	9	33%	2	7%	0	0%
Documentation CDs provided with server or software product	3	7%	4	9%	3	11%	6	22%	1	3%
Hard copy manual	2	5%	3	7%	1	4%	2	7%	6	19%
Online help/manpages	3	7%	2	5%	6	22%	6	22%	0	0%
Your Company's tech support	1	2%	1	2%	0	0%	0	0%	1	3%
Vendor tech support	4	9%	2	5%	0	0%	5	19%	7	23%
Sales Representative	0	0%	0	0%	1	4%	1	4%	4	13%
Consultant	0	0%	0	0%	0	0%	1	4%	4	13%
Reseller/VAR	0	0%	0	0%	0	0%	1	4%	3	10%
Total	44	100%	43	100%	27	100%	27	100%	31	100%

Appendix 20

Preferences for Accessing Technical Documentation by Scenario

	Prior to Purchase Decision		Initial Installation & Configuration		Usage Preference, Maintenance		Upgrades of Hardware, O/S, Software		Obsolescence		Troubleshooting	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's knowledge database or help desk	9	10%	5	6%	11	13%	5	6%	10	12%	8	9%
Vendor technical documentation web site	22	26%	30	35%	29	34%	34	40%	25	29%	22	26%
Web search	34	40%	2	2%	6	7%	11	13%	11	13%	9	10%
Researching/posting questions in newsgroups/technical forums	8	9%	5	6%	6	7%	4	5%	9	10%	15	17%
Documentation CDs provided with server or software product	0	0%	16	19%	4	5%	7	8%	3	3%	2	2%
Hard copy manual	0	0%	12	14%	7	8%	1	1%	0	0%	3	3%
Online help/manpages	0	0%	2	2%	7	8%	2	2%	3	3%	7	8%
Your Company's tech support	2	2%	5	6%	6	7%	5	6%	2	2%	5	6%
Vendor tech support	0	0%	5	6%	8	9%	12	14%	14	16%	12	14%
Sales Representative	6	7%	0	0%	0	0%	3	3%	4	5%	1	1%
Consultant	1	1%	1	1%	0	0%	1	1%	1	1%	0	0%
Reseller/VAR	2	2%	2	2%	1	1%	0	0%	0	0%	0	0%
Other	2	2%	1	1%	1	1%	1	1%	4	5%	2	2%
Total	**86**	**100%**	**86**	**100%**	**86**	**100%**	**86**	**100%**	**86**	**100%**	**86**	**100%**

Appendix 21

Online Preferences for Technical Documentation										
	1st choice		2nd Choice		3rd Choice		4th Choice		5th Choice	
	Number	% Total	Number	% Total	Number	% Total	Number	% Total	Number	% Total
Your Company's web site	12	11%	4	4%	3	3%	1	1%	8	11%
Technical documentation web site	31	28%	11	10%	12	11%	9	13%	5	7%
Online help	10	9%	25	23%	13	12%	5	7%	5	7%
Manpages	4	4%	8	7%	8	7%	6	8%	5	7%
Vendor online library	7	6%	12	11%	13	12%	8	11%	8	11%
Google	30	27%	13	12%	7	6%	13	18%	6	8%
Researching/posting questions in newsgroups	5	5%	12	11%	16	15%	10	14%	3	4%
Technical forums	4	4%	13	12%	17	16%	9	13%	17	23%
Vendor knowledge databases	7	6%	10	9%	18	17%	10	14%	12	16%
Other	1	1%	0	0%	2	2%	0	0%	6	8%
Total	111	100%	108	100%	109	100%	71	100%	75	100%

Appendix 22

Preferences for Receiving Technical Documentation by Task

	Co. Knowledge Database/Help Desk	Vendor Tech Doc Web Site	Web Search	Researching Questions in Newsgroups	Documentation CDs	Hard Copy	Online Help/Manpages	Co. Tech Support	Vendor Tech Support	Sales Rep	Consultant
Compatibility of third party solutions	7%	22%	18%	8%	9%	7%	8%	4%	13%	4%	2%
Site Preparation	3%	23%	12%	4%	14%	13%	11%	4%	11%	2%	2%
Initial Installation	4%	25%	11%	4%	17%	12%	9%	4%	10%	1%	2%
Chassis	3%	23%	12%	5%	17%	10%	9%	7%	12%	2%	1%
Rack	3%	23%	10%	5%	14%	11%	10%	6%	14%	2%	1%
Operating System Upgrades	3%	27%	13%	5%	12%	9%	7%	5%	13%	3%	2%
Applications	4%	25%	13%	7%	13%	10%	8%	5%	11%	3%	2%
Usage Preference	5%	23%	14%	7%	14%	7%	9%	6%	12%	2%	2%
Performance tuning	4%	22%	16%	7%	13%	12%	9%	2%	12%	1%	1%
Updating Firmware	3%	25%	11%	5%	13%	9%	10%	6%	15%	2%	1%
Updating Operating Systems	4%	24%	14%	4%	12%	9%	10%	6%	12%	3%	1%
Updating Applications	5%	23%	14%	7%	13%	7%	9%	5%	13%	3%	1%
Product Obsolesence from Vendor	4%	27%	13%	5%	10%	4%	8%	6%	13%	7%	2%
Errors	5%	22%	19%	5%	11%	7%	10%	5%	11%	2%	2%
Non-Core Dump Errors	6%	23%	16%	5%	13%	7%	10%	4%	10%	3%	2%
Core Dump Errors	6%	24%	14%	7%	12%	8%	8%	5%	13%	1%	1%
Booting	6%	25%	15%	4%	13%	11%	10%	4%	11%	1%	1%
Upgrade	4%	26%	12%	7%	13%	8%	10%	5%	11%	3%	2%
Configuration	5%	24%	12%	7%	14%	10%	11%	4%	9%	2%	3%
Maintenance	6%	25%	12%	6%	13%	11%	10%	4%	10%	1%	1%