INPUT®

MARKET RESEARCH PROJECT FOR OLIVETTI

Five Nation User & Vendor Analysis of Computer Hardware & Peripheral Warranties

Perceptions & Realities

August 1996

*Five Nation Market Analysis of
Warranty Offerings*

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Introduction

A

Scope and Objectives

This marketing research study has been commissioned by Olivetti to evaluate users' perceptions of warranty offerings across the following product types:

- High end servers
- PCs
- Portable Computers
- Printers

And in the following countries:

- Italy
- Spain
- France
- the Netherlands
- the United Kingdom

As part of the study, manufacturers' warranty material has been collated and analysed, relating to the four product categories noted above.

At a strategic level, this report also evaluates the virtue of maintaining product warranties in a marketplace increasingly dependent upon separately arranged service contracts.

In addition, mismatches between users' perceptions and manufacturers' claims have been noted. These inconsistencies have manifested themselves in the form of users' comments relating to poor service in specific countries. This information has been summarised in Section VII.

B
Methodology

IT managers of 10 blue chip companies have been interviewed in each of the five countries specified (50 telephone interviews in total). Each interview has been undertaken with personnel sufficiently experienced to evaluate the respective warranty offerings of different IT hardware vendors. For reference, the user questionnaire used in telephone interviews is incorporated in appendix 1.

The user organisations questioned operate in a mix of industry sectors including finance, manufacturing, public sector authorities and public utilities.

Vendors' warranty information has been derived from material obtained directly from vendor organisations, augmented by telephone interviews undertaken with marketing and sales staff from main hardware manufacturers.

C
Report Structure

This report is structured as follows:

Section III commences with an analysis of the IT hardware currently in use at each of the 50 organisations questioned. This aggregated data quantifies the overall number of units installed for each product category. Further splits by product type show the numbers of users holding particular manufacturers' hardware, coupled with key characteristics of users' current warranties.

Section IV offers a strategic view of users' perceptions of warranties across hardware types. This information has been influential in formulating our findings in the Executive overview.

Section V provides more detailed (tactical) information pertaining to users' perceptions of warranties, specific to each hardware type. Here the intent has been to record the timescales of users' standard warranties together with warranty period extensions - either for return to base situations or when maintenance is carried out on site.

Section VI shifts emphasis to warranty information supplied by hardware vendors. The number of warranties analysed ranges from between five to seven companies in each of the four hardware categories, with the warranties cited designed to match products with significant European market shares. IBM features in all four categories and Digital in three.

In the final section (VII), comparisons are made between manufacturers' warranty offerings and users' expectations. The problems encountered by users tend to be the result of poor (mainly slow) service provided by after sales service suppliers in third party arrangements with manufacturers.

II

Executive Overview

This INPUT report was commissioned by Olivetti to evaluate perceptions of users regarding after sales warranties across high-end servers, PCs, portable computers and printers.

What has become apparent in the course of research is that manufacturers' warranty provisions across Europe are immensely complex, not least because many companies employ sophisticated market skimming strategies, offering multiple user alternatives. For this reason, it has not been possible to match warranty information gleaned directly from manufacturers with information supplied by users. However, we have identified a number of strategic issues which we believe Olivetti should consider. These are summarised below and expounded in subsections A to D.

- Users appear prepared to pay a high premium for after sales support of mission critical systems. There is a case for Olivetti offering premium a service of two hours or less on-site response times for high-end servers (section A).

- For PCs, portable computers and printers, INPUT believes that Olivetti should consider offering large scale purchasers a 'box warranty' when the product is first purchased, without offering any on-going service warranties. This would be a key market differentiator, potentially attractive to a growing number of users who rely on separate maintenance contracts for after sales product support (section B).

- Whilst user needs did not vary significantly across the five nations analysed, within the sample, greatest after sales service problems have occurred in Spain. This may present a market opportunity for Olivetti (section D).

A

The Importance Users Attach to Warranty Provisions Varies with Product Criticality, as Perceived by Users

- On the basis of INPUT user interviews, as shown in Exhibit II-1, warranties were rated of higher importance for high-end servers than the three other products surveyed.

- Importance ratings for PCs and printers were significantly lower with the rating for portable computers even lower still.

Exhibit II-1   Relative Importance of Warranty Provision, as Perceived by Users
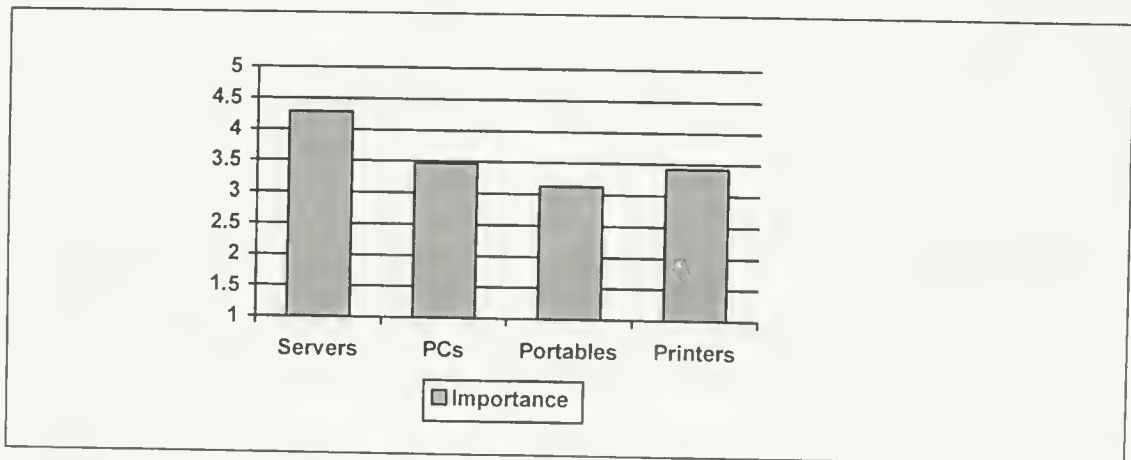
Sample size: 50 respondents   *source: INPUT*

- We believe that the high ratings shown in Exhibit II-1 somewhat overstate the importance of warranties for servers and printers *per se,* given that many users appear to have taken out independent service contracts over and above this basic cover.

- Supporting this supposition, Exhibit II-2 contrasts the percentage of users who have upgraded their warranty or service arrangements for each of the four product groupings.

Exhibit II-2 Proportion of Users Who have Upgraded Warranty/Service Provision
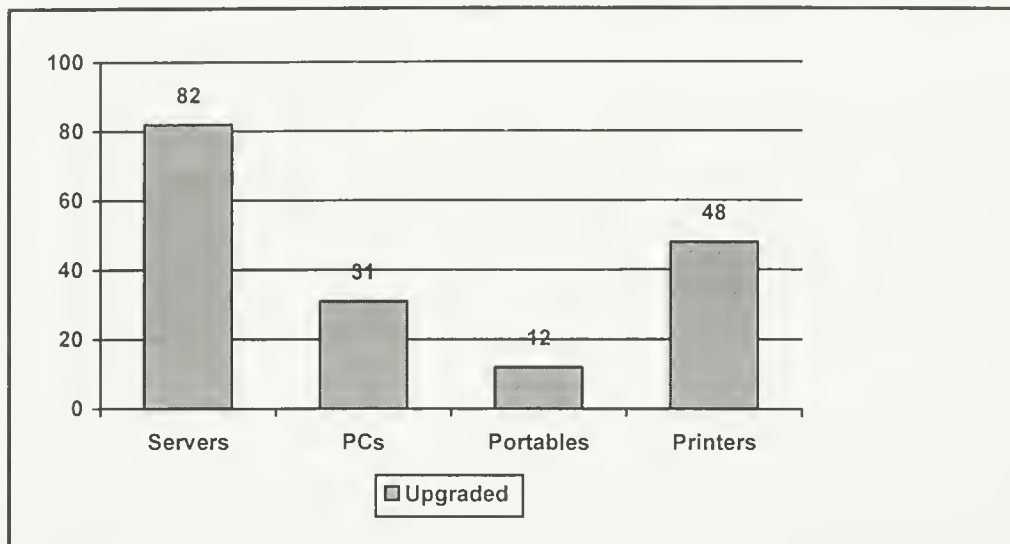
Sample size: 50 respondents   *source: INPUT*

- We conclude, therefore, that the user 'comfort factor' needs to be greatest for servers and least for portable computers. This is broadly in line with what the market currently offers, although the relatively high user upgrade figure of 48% for printers is indicative of the short standard warranty periods typically available on this product type.

- From Olivetti's perspective, we believe there is market advantage to be gained by stressing the quality of high end server support, with rapid on-site response times of less than two hours. User questioning indicates that users are prepared to pay high premiums for this service (see Exhibit IV-5).

B

Evidence of Competitors Reducing Scope of Warranties in Favour of Cost Reduction

- INPUT perceives some downward trend in competitors' warranty offerings, with companies such as Compaq, Epson and Kyocera having less comprehensive warranties than previously.

- For printers, PCs and Portable computers, we believe there is a case for Olivetti going further - i.e. by offering large scale purchasers a 'box warranty' when the product is first purchased, without offering any on-

going service warranties. This strategy would differentiate Olivetti from the competition and appeal to a sizable portion of users (approximately 50% of users surveyed) who do not need service warranties at all - because they already have a) on-site engineers, b) separate service contracts, or c) allow for built-in redundancy through the acquisition of surplus product capacity.

- A factor in support of the above approach is a general finding in this research that users have a great deal of difficulty managing their current warranties. Of a sample size of 43 respondents, 51% said they manage them internally, 37% externally (by outsourcing company or maintenance provider) and 12% made the internal/external support decision when purchasing. The outsourcing solution was most prevalent in the UK. This issue is discussed further in the following section.

- Some users noted that although they outsource their product support needs, the fact that their products often carry a warranty bundled into the purchase price allowed them to negotiate a more competitively priced service contract. Practices such as this indicate that optimising the balance for warranties in the marketing mix will always be a difficult exercise.

C

Warranties on Offer are Diverse, Fragmented and Confusing in the Eyes of Users

- The main reason for the proliferation of warranty offerings appears to be an effort on the part of vendors to employ a market skimming strategy - with lower priced products supported by the least comprehensive warranties, and higher priced products typically augmented by 3 year on-site warranty coverage.

- Correspondingly, INPUT research indicates that the variety of warranty terms is immense. Several users complained of manufacturers constantly amending warranty terms (e.g. Compaq France, HP Italy), whilst others expressed a preference for products which carry simple to understand standard warranties. IBM scored highly on this criteria, yet the market skimming strategy noted above is widely practiced by IBM.

D

No Indication of Major Regional Variances of User Needs but Quality of Support Services on the Ground Vary Considerably

- Of the users surveyed, given that IBM products exhibited the highest market penetration for high-end servers and printers (32% both for high-end servers and personal computers) it was not surprising to find that users had their greatest number of criticisms for IBM also. We believe this is no more than a stochastic relationship.

- Despite the limited sample size, there did appear to be regional pockets of dissatisfaction with services in the following locations:

Exhibit II-3 Repeated Weaknesses / Dissatisfactions with After Sales Service Provision, as Noted by Users

	High-End Servers	Personal Computers	Portable Computers	Printers
Italy				HP call out times too long
Spain	Hewlett Packard poor quality control	**IBM return to base warranty too long** Hewlett Packard poor quality control	IBM call out times too long Toshiba call out times too long Hewlett Packard poor quality control	Hewlett Packard poor quality control
France	**IBM call out times too long**		**Apple costs of extending warranties too expensive**	
Netherlands		IBM return to base warranty too long (2 months)		
UK				

sample size: 50 respondents   *source: INPUT*

N.B bold type indicates repeated complaint

- These local difficulties may present Olivetti with areas of opportunity where competitors' after sales support services appear weak.

III

Survey of Users' IT Assets and Hardware Warranties

A

Number of Products Installed at User's Sites

Of the 50 users interviewed for this research project, 60% could provide approximate numbers of their installed base, while the others were either unwilling or unable to provide details.

In total those interviewed are responsible for more than 100,000 units of Server, PC, Laptop and Printer equipment.   The split by product grouping is shown in Exhibit III-1.

Exhibit III-1 Number of Products Installed at Users Interviewed
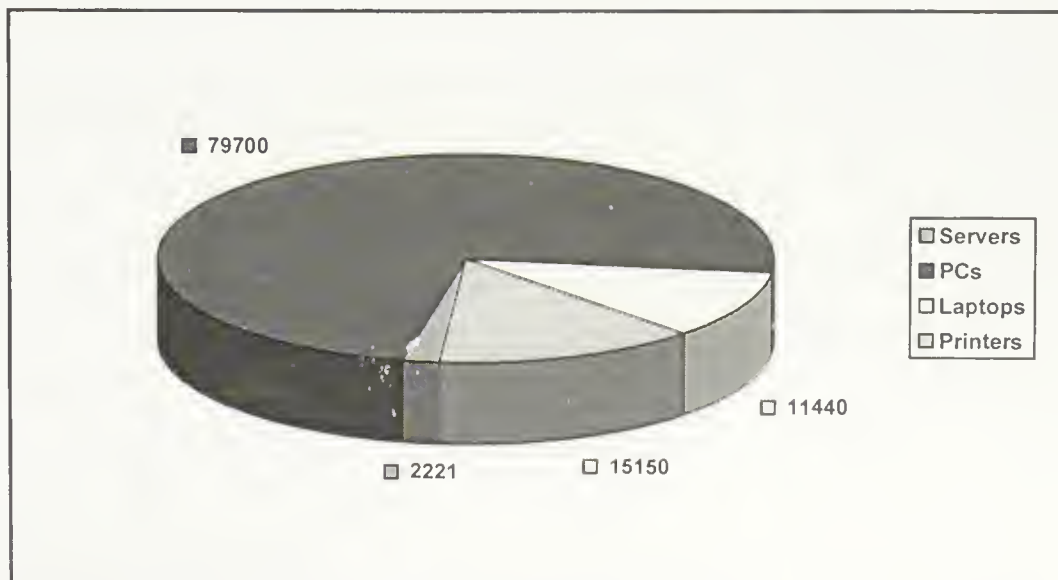
Totals from the 30 users who could provide details   *source: INPUT*

As may be seen from Exhibit III-1, those interviewed are responsible for a large number of computer hardware products and, INPUT believes, represent a sizeable share of the customer base in each of the countries researched.

Users were asked to specify the main manufacturer used in their company for the following products:

- High-end servers
- PCs
- Laptop Computers
- Printers

In some cases, interviewees identified a single manufacturer and in others several.

B

High End Servers

Users were not given guidance on what constitutes a *'High-end Server'* and were free to choose their own definition of product fitting this category.

In total, the 50 correspondents quoted 15 different manufacturers. The major suppliers are illustrated in Exhibit III-2.

Exhibit III-2 Major High-end Server Suppliers to Users Questioned
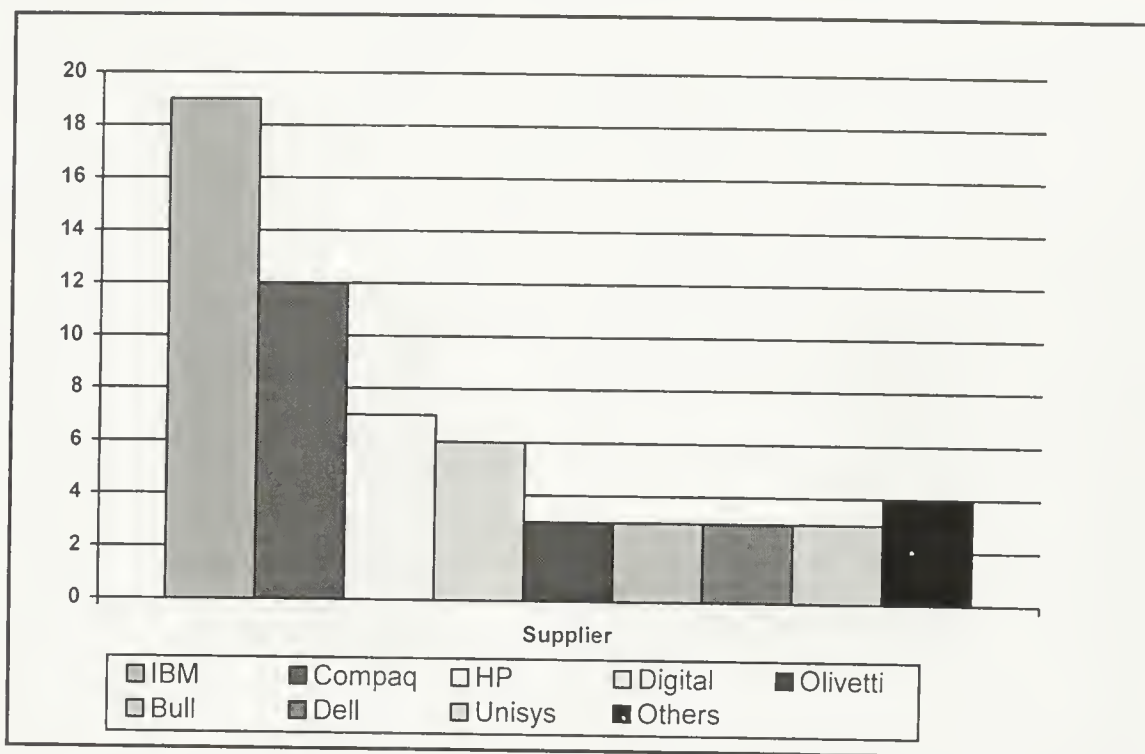
source: INPUT

As may be seen in Exhibit III-2, IBM and Compaq are identified as major server suppliers to more than 50% of those interviewed. '*Others*', shown but not identified, include Siemens Nixdorf and AST.

C

Personal Computers

A slightly larger number of manufacturers were identified in this category (14); however, IBM and Compaq were again the two major suppliers specified.

The major suppliers are illustrated in Exhibit III-3. '*Others*' includes Olivetti, AST, Fujitsu, Siemens Nixdorf and Unisys, identified by 3 or fewer interviewees.

Exhibit III-3 Major Personal Computer Suppliers to Users Questioned
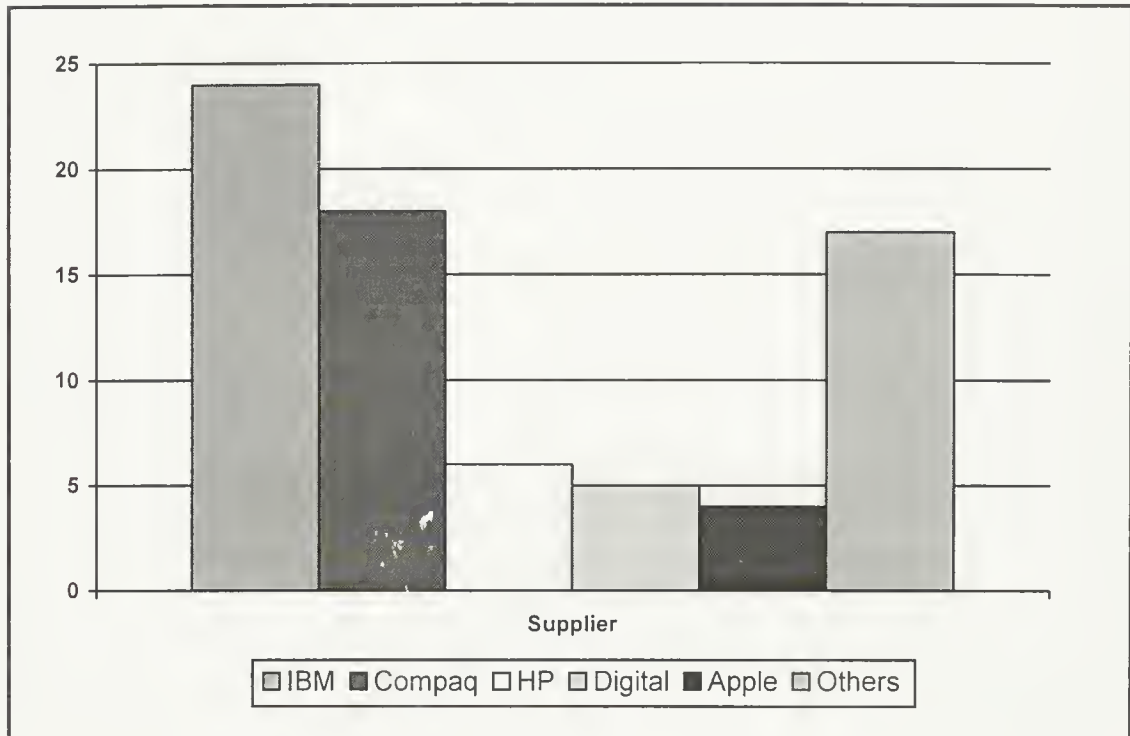
source: INPUT

D
Portable Computers

Although 13 manufacturers were identified in this category only 5 were specified by more than one interviewee.

The major suppliers are illustrated in Exhibit III-4. Unsurprisingly, Toshiba was the leading name, being mentioned 15 of the 47 times a manufacturer was specified.

Exhibit III-4 Major Portable Computer Suppliers to Users Questioned
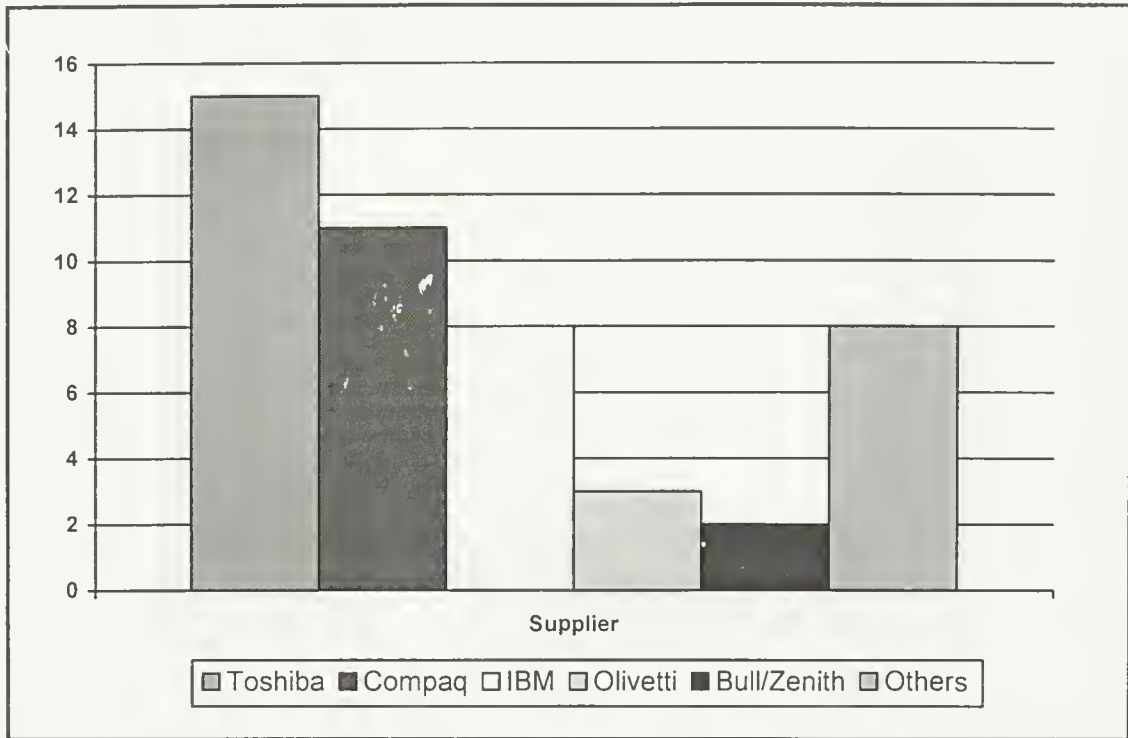
source: INPUT

E

Printers

This product grouping elicited the greatest number of responses with 24 manufacturers identified among the 76 names mentioned. However, only a handful, led by Hewlett-Packard (HP), were identified by more than 4 of those interviewed.

The major suppliers are illustrated in Exhibit III-5.

Note, we believe there may still be some user confusion about the relationship between IBM and Lexmark and a more appropriate figure may be 12 for the two companies combined (c.f. 9 for IBM and 3 for Lexmark).

Exhibit III-5 Major Printer Suppliers to Users Questioned
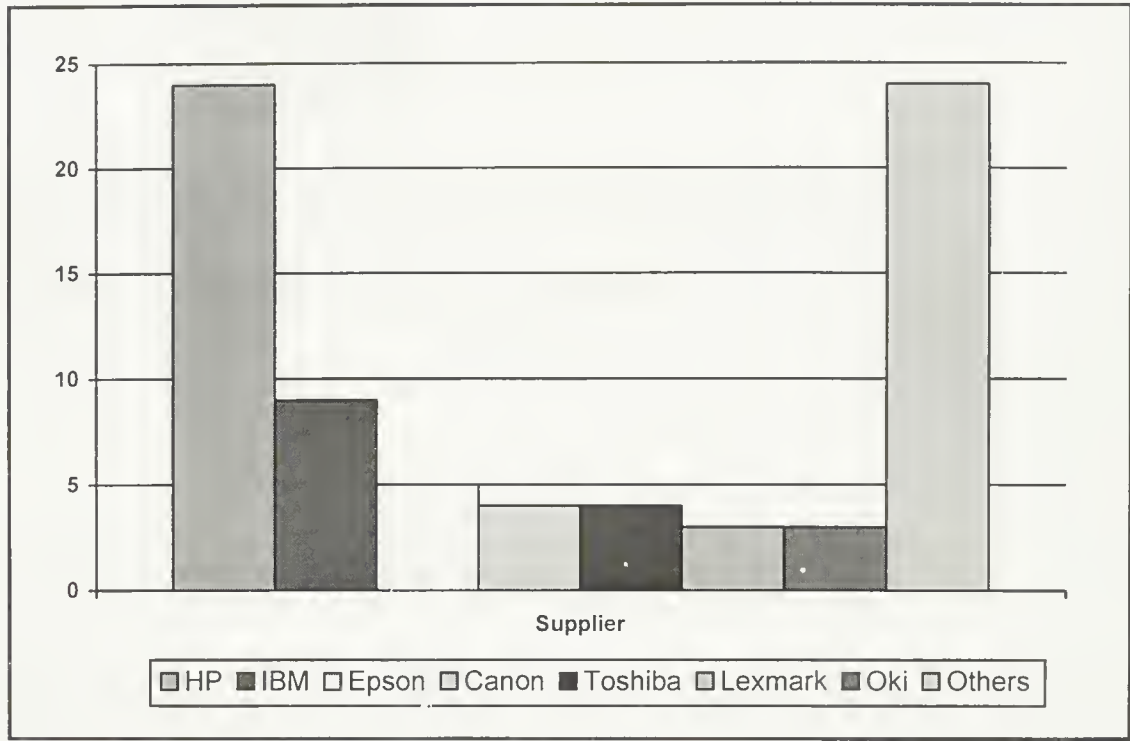
source: INPUT

IV

User Perceptions of Warranties across Hardware Types

A

How Important are Warranties to Users?

Question 1 of the user survey asked, for each of the four product groupings (high-end servers, PCs, laptops and printers):

> *How important are warranty terms and conditions ...... on a scale of 1-5 where 1 = not at all important and 5 = critical.*

In addition, for each of the major manufacturers identified by the user, they were asked in Question 6:

> *For each manufacturer, does the **warranty service provided** generally meet your expectations? (Rate 1-5) where 1 = very dissatisfied and 5 = very satisfied.*

The results are shown on the same axes and illustrated in Exhibit   IV-1. Exhibit IV-2 shows these results in tabular form.

Exhibit IV-1 Importance of and Users' Satisfaction with Warranty Provision
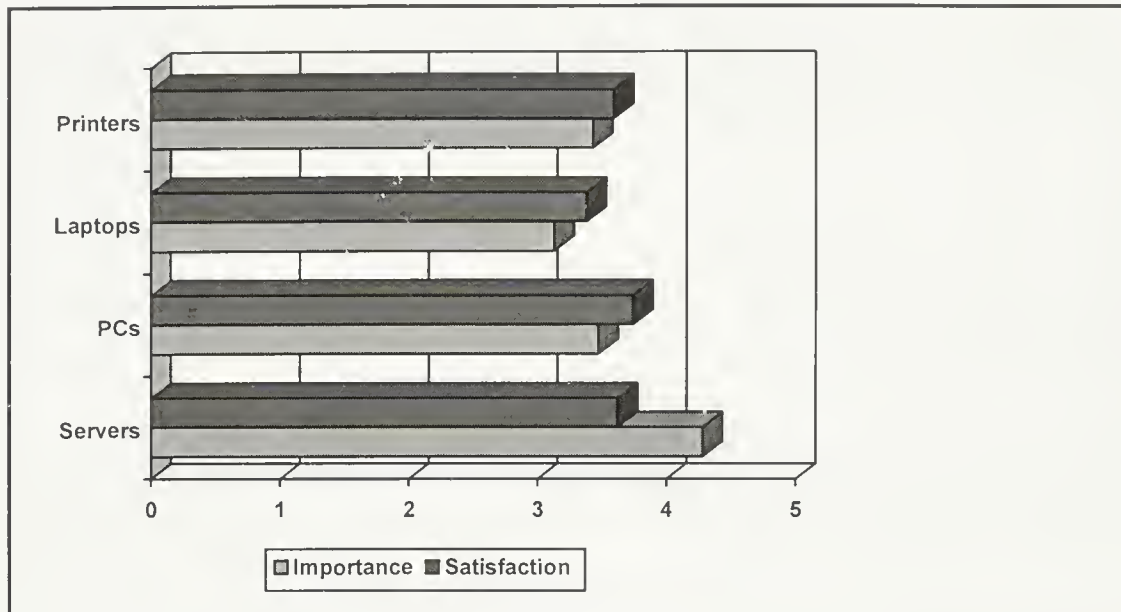
As may be seen in Exhibit IV-1, warranties were rated of higher importance for High-end Server products than for the rest. Importance ratings for PCs and printers was significantly lower with the rating for laptops even lower still.

In practice we believe that the High-end Server figure understates its true importance to the user community since in some cases, servers are perceived to be so important as to be held within a maintenance contract.

Satisfaction ratings have been illustrated on the same graph to show:

- The discrepancy between the importance of warranty for servers and the user level of satisfaction.
- That the variance in these figures is significantly less for satisfaction than for importance.

Exhibit IV-2 Importance of and Users' Satisfaction with Warranty Provision

Product Group	Importance (Average)	Satisfaction (Average)	Difference
High-end Servers	4.28	3.62	0.66
Personal Computers	3.47	3.74	-0.27
Laptops	3.13	3.38	-0.25
Printers	3.43	3.59	-0.16

source: INPUT

The two previous Exhibits show that users regard warranty provision as of greatest importance on High-end Server products, with those on other product groups of less importance.

The major findings of these two questions are reviewed in Sections IV to VII of this report, dealing with each product grouping in turn.

B
User's Preferences for After Sales Support

Question 4 asked:

Which of the following arrangements for after-sales service would you prefer on a volume purchase of PCs?

- *Warranty bundled as part of a purchase price.*

- *No warranty, purchase price separate from maintenance contract.*

- *No warranty, rely on time and materials service.*

- *Warranty limited to return to base service.*

- Other.

Users were free to select multiple options, if they wished. The results to this question are illustrated in Exhibit IV-3. Although this question was

focused upon volume purchase of PCs, a substantial number of those answering this question, 18 out of 44, stated that this depended upon the product type or manufacturer.

This finding suggests that a simple solution is not feasible and suppliers may need to liaise with their users at the time of purchase to ensure the warranty offered is appropriate to their needs or that other service options are available.

Exhibit IV-3 After-sales Preference (Volume PC Purchase)
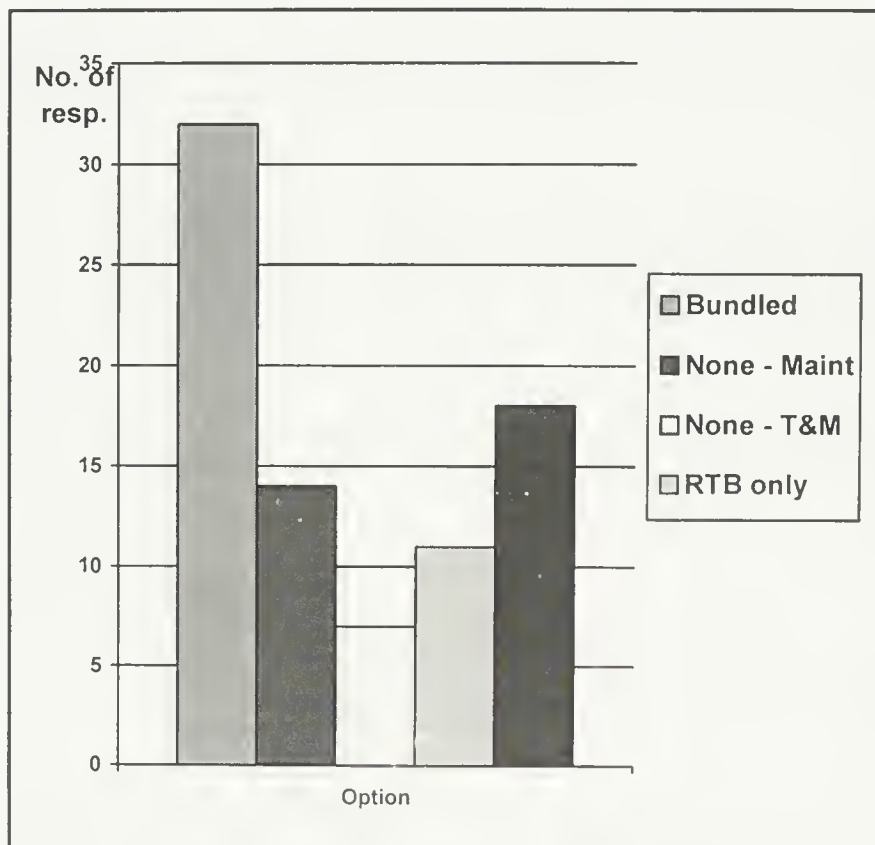
source: INPUT

Note: answers may not be mutually exclusive. Sample size: 44

Although Exhibit IV-3 shows the majority of users prefer warranties to remain bundled with the product (32 respondents), some propose alternatives including scrapping the warranty entirely in preference to using either a) their in-house maintenance engineers (14 respondents) or b) time and materials contracts (7 respondents). When these options are

combined with a third option - warranty for return to base only (11 respondents - there is a precise 50/50 split between respondents

wishing to keep warranties as they are, and those preferring a diminution of full on-site after sales warranty offerings.

A total of 18 respondents suggested that their preferences for full on site support depended on product type, with their need being least urgent for portable computers and most urgent for servers. However, in these cases, a number of these interviewees already have single source service agreements or outsourcing contracts in place and use others to manage their service operations.

Question 8 of the survey asked the user to specify an on-site call-out time that his/her organisation would be willing to pay for.   The question stated:

The cost of improving on-site call-out times increases exponentially. For example, if an 8 hour call-out time costs X, a 4 hour call out time costs 1.5X and a 2 hour call out time costs 3X.

Given the nature of your organisation, which of these call out times would you be willing to pay for?

- *An 8 hour call out time.*
- *A 4 hour call out time (50% more expensive).*
- *A 2 hour call out time (100% more expensive again).*

The survey showed that in the main, users favour a faster response, often 2 hours on a server, with a slower response for PCs and laptops.   One user stated that 48 to 72 hour response on PCs was acceptable.

The answers provided to this question are illustrated in Exhibits IV-4 and IV-5.

Note: The first pie chart shows splits when users offered the same response irrespective of product types. This occurred in 54% of cases.

The second pie chart shows splits in the remaining 45% of cases when users gave a different answer for different product types. Here, 19% of the 22% stating a two hour response did so for servers only.

Exhibit IV-4 Users' Willingness to Pay for Various On-site Response times

(users offering the same response for different product types)
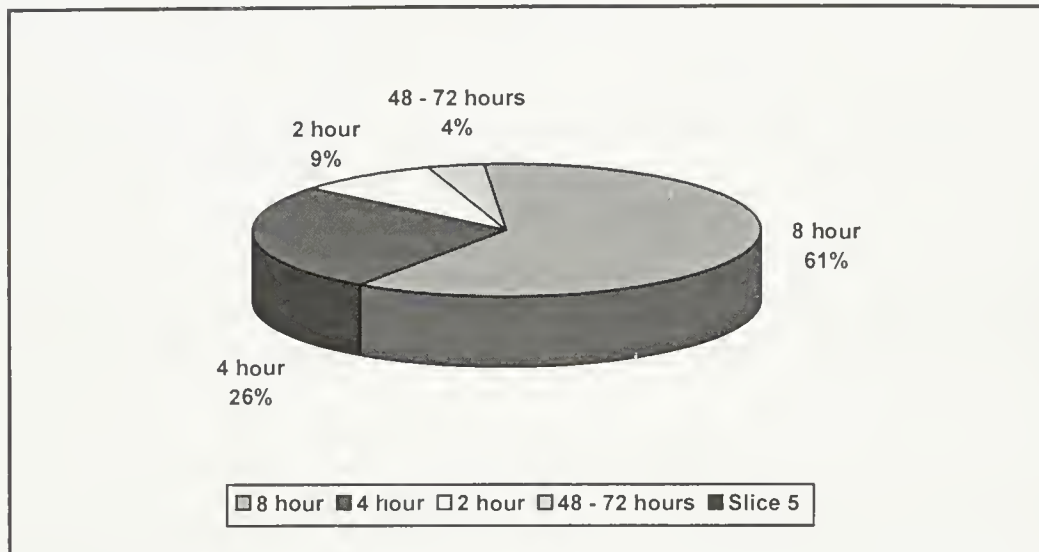
Sample size :27   *source: INPUT*

Exhibit IV-5 Users' Willingness to Pay for Various On-site Response times

(users offering different responses for different product types)

Sample size :23   *source: INPUT*

C

Warranty Management : A Common Problem

Question 3 of the survey posed the following question:

With the present hardware you have, combined with the new hardware you will purchase in the future, how do you propose to manage your variety of warranties?

Many of those interviewed acknowledged the problem, the typical response being '*with difficulty*'; For example, even within product streams of the same manufacturer, the warranties offered may have multiple variations, including:

- An on-site service provided by the manufacturer

- A return service, which in turn may be arranged by a) the manufacturer, b) the responsibility of the user or c) provided as part of a courier exchange service

- A reseller warranty delegated by the manufacturer, which may vary on the same type of product dependent upon the source of purchase

Despite these complexities, there were three main types of solution proposed by those interviewed, namely:

- By the customer, using its own computer management tools, help desk or central support unit.

- Externally, managed by the user's outsourcing company or maintenance provider.

- Considered at the time of product purchase, sometimes resulting in a standard approach to warranty provision.

Where the customer used its own resources to manage warranties, the majority used computerised tools on a centralised basis, although a small number indicated it was handled at departmental level or held off-line.

Where an external service provider was employed to manage warranties on behalf of an end-user, it was usually combined with a single source

service agreement. In a few instances (see later), this may be combined with a single purchasing policy.

Typically the service provider was either a traditional third party maintenance (TPM) company or a major manufacturer, such as IBM, Compaq, Olivetti or Digital. One user stated they used an IBM dealer for IBM products and Digital for the rest. Some refused to name the company used, simply stating it was their on-site service provider.

Several of those interviewed have outsourced their computer operations and rely upon their outsourcing provider to manage warranty provision on their behalf. In most of these cases, the users believe that the warranty allowed them to reduce the costs of service provision by permitting them to negotiate a discount with their service provider.

In one instance, the user stated that even the type of product supplied was immaterial as it was up to the outsourcer to supply a fit product to perform the task required

In addition to those identified earlier who have a centralised purchasing policy, including one with a world-wide agreement with IBM, a number stated that they took the **standardisation of warranties** into account when making the decision on which products to buy.

Examples of this include a user who would only consider on-site warranties, then either maintenance or nothing! Interestingly, his product set were the following: HP and Digital servers, IBM, HP and Compaq PCs.

Other users standardise on all 1-year warranties and another on all 3-year warranties.

Few constructive suggestions were made as to how warranties could be managed more effectively; however, one user suggested that the system should produce its own expiry date. This may not be possible using conventional methods '*when the system is down, it cannot be interrogated to find out*', but use of integral intelligent transponders may make this feasible.

Exhibit IV-6 shows the popularity of each of these three methods with the 43 who responded to question 3.

Exhibit IV-6   Warranty Management - Methods Adopted
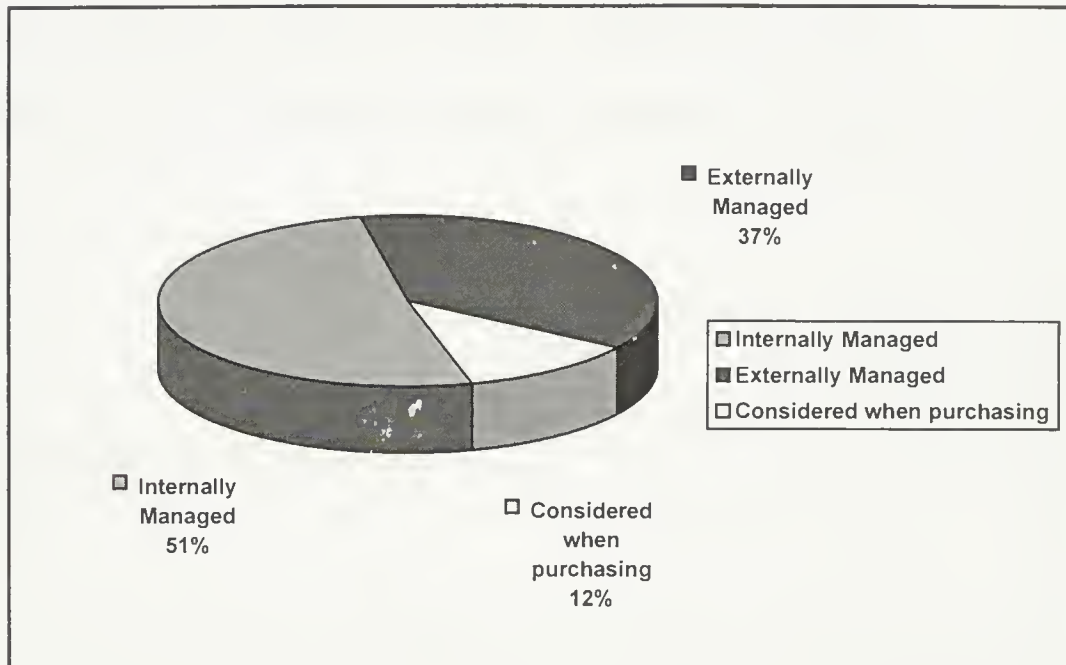
Totals summarised and grouped from the 43 users who responded to Question 3.

V

User Perceptions of Warranties Specific to Each Hardware Type

A

High-End Server Warranties

1. Types

Exhibit III-2 illustrated the manufacturers of the main High-end Servers in use at those surveyed. This is shown in tabular form in Exhibit V-1.

Exhibit V-1   Main Servers In Use

Manufacturer	Number of Respondents
IBM	19
Compaq	12
Hewlett-Packard	7
Digital	6
Olivetti	3
Bull	3
Dell	3
Unisys	3
Others	4

source: INPUT

More than 2000 High-end Servers are in use at those surveyed for this report.

Section VI of this report reviews the warranties offered by the leading manufacturers, including the first four companies identified in Exhibit V-1 and a few others of note.

2. Warranty Terms

Question 9 (i) asked the following:

> *For the **standard** warranty included in the purchase price, what is the warranty's duration in years*

Section VI of this report reviews the warranties offered by the leading manufacturers and it is evident that most of the products will have either a 1 year or 3 year warranty. This is confirmed by the customer answers to Question 9 (i) and illustrated in Exhibit V-2.

Note. Numbers shown do not correspond to those answering the earlier question. In some cases users had servers with different warranty duration.

Exhibit V-2   Warranty Term - High-end Servers
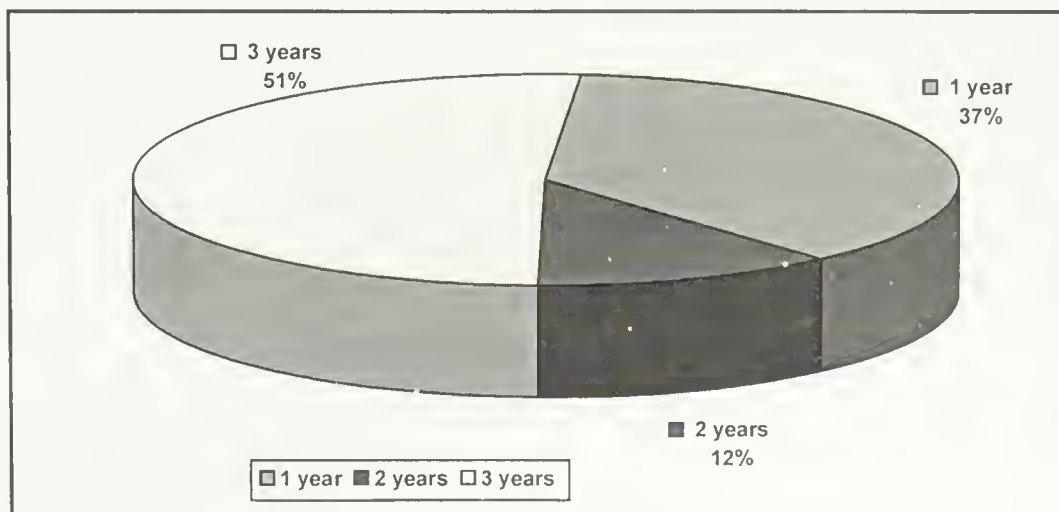
Sample size: 50 respondents   source: INPUT

The second part of Question 9 asked the user the following:

For the **standard** *warranty included in the purchase price, what is the warranty's: Service response times :*
a. If On-site: (e.g. 2 hour etc.)
b. If Return to depot (e.g. turnaround time next day)

For server products, return to depot is widely acknowledged to be an inappropriate offering and only three users attempted to answer this part.

On-site response answers varied considerably, but generally in the range of '*4 hours*' to '*next-day*' response.

An important feature in assessing the importance and relevance of the warranty offering is how many users have chosen the standard warranty and how many have enhanced it. The answers to Question 10 show the number that have chosen to purchase additional/upgraded warranty cover.

Exhibit V-3 shows how for servers, the majority of those surveyed have chosen to purchase enhancements to the standard warranty. (Sections V-9, V-12 and V-16 of this report will compare this with other products, which show contrasting figures).

Exhibit V-3   Warranty Upgraded Or Not?

YES
82%

NO
18%

YES NO

Sample size: 50 respondents   *source: INPUT*

Typically users upgraded their service to provide a faster response, often by means of a separate maintenance contract rather than a simple warranty upgrade with the supplier of the server.

The few occasions where the customer upgraded the warranty directly with the manufacturer, were where the second and third years of the service were '*Return To Base*' and this was upgraded to an '*On-site*' service.

In some cases, the users already have engineers resident upon their site and the server is simply added to the existing maintenance contract. In other cases, the user wishes to place other constraints upon the service provider, e.g. specific '*fix-times*' in addition to enhanced response times.

The number of choices is large, and the answers provided by the users varied, making it inappropriate to identify them all; however, the main ones are shown in Exhibit V-4:

Exhibit V-4   Summary of the Major Service Enhancements - Servers

- 2 hour response + 2 hour repair or replace.
- 4 hour response + 4 hour fix.
- 3 hour response by specified engineer.
- Service Level Agreement (SLA).
- Customer holds spare equipment.
- Out of hours coverage.
- Immediate access to an engineer.
- Staff on site.

source: INPUT

B

Personal Computer Warranties

1. Types

Exhibit III-3 illustrated the manufacturers of the main Personal Computers in use at those surveyed. This is shown in tabular form in Exhibit V-5.

Exhibit V-5   Main Personal Computers In Use

Manufacturer	Number of Respondents
IBM	24
Compaq	18
Hewlett-Packard	6
Digital	5
Apple	4
Others	17

source: INPUT

Approximately 80,000 PCs are in use at those surveyed for this report. In fact if those who could not provide details are taken into account, the total is expected to exceed 100,000.

Section VI of this report reviews the warranties offered by the leading manufacturers, including the first four companies identified in Exhibit V-5 and a few others of note.

2. Warranty Terms

Question 11 (i) asked the user to state what is the standard warranty included in the purchase price for the Personal Computers in use.

Section IX of this report reviews the warranties offered by the leading manufacturers and it is evident that most of the products will have either a 1 year or 3 year warranty. This is confirmed by the customer answers to Question 11 (i) and illustrated in Exhibit V-6.

Exhibit V-6   Warranty Term - Personal Computers
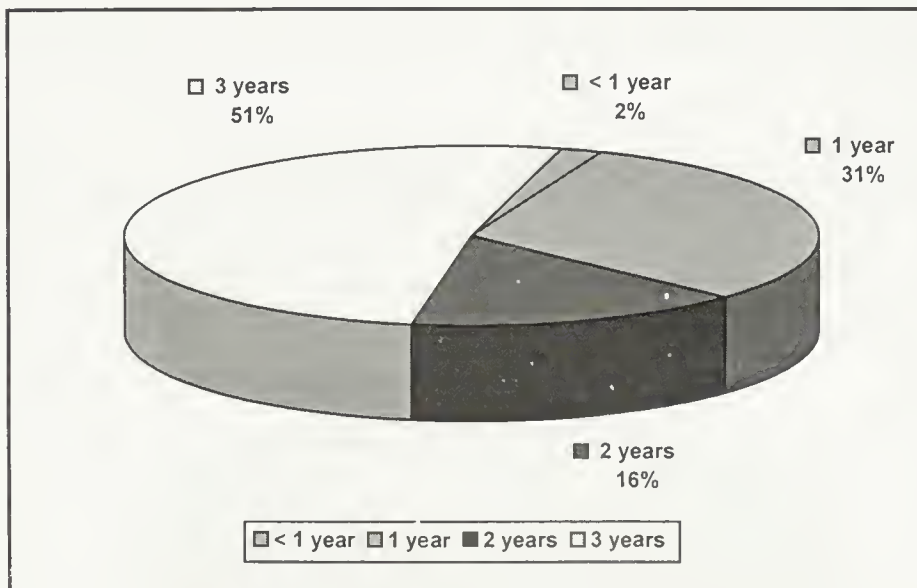
Sample size: 50 respondents   *source: INPUT*

As may be seen, Exhibit V-6 shows a similar result as that of Exhibit V-2, indicating that Server and PC warranties are typically for similar terms.

What these Exhibits do not show is that a number of the 3 year warranties only provide Return to Base service in the second and third years. Some of those responding did not differentiate between an all-embracing three year warranty offering on-site service throughout the 3 years and one only offering on-site service for the first and Return to Base in the second and third. **Almost five times as many stipulated this latter warranty on PCs in comparison with those doing so for Servers.**

The second part of Question 11 asked the user to state the response times for on-site service and return to depot (base) repair.

On-site response times elicited a variety of answers, with some users expressing it in terms of business hours and others in actual elapsed time. What is apparent that few, if any, PC warranties guarantee a time of less than 8 business hours.

The most popular alternatives are either within 8 business hours or *'next-day'*. This latter option does not guarantee a response within a defined period, as a fault call at 0905 one morning may not be attended to until 1630 the following day. For illustrative purposes, Exhibit V-7 shows the percentages offering an on-site response within 8 business hours (usually 24 elapsed hours) and those with slower response times (usually within 2 days).

Exhibit V-7   On-site Warranty Response - Personal Computers
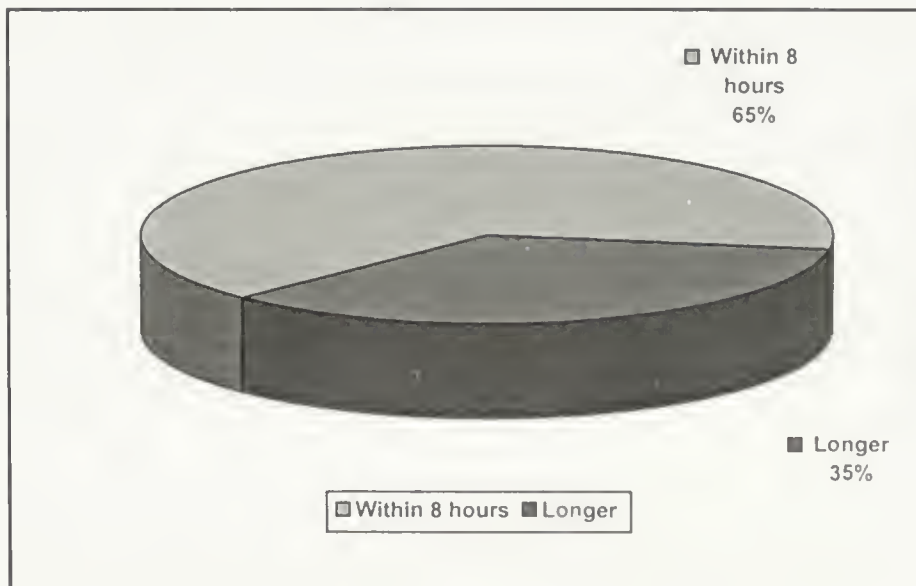
sample size: 50 respondents   *source: INPUT*

For server products, few specified a return to depot time as it is believed to be an inappropriate warranty service; however, 38% of those surveyed provided an answer to the similar question for PCs.

As with the on-site response, the figures provided vary and the answers are grouped as shown in Exhibit V-7. Several of those interviewed stated that no guarantee of time was provided for a return to depot warranty. In fact, this was one of the major complaints about PC warranties raised in Question 7 of the survey.

Exhibit V-8 **Return to Base Warranty Response - Personal Computers**
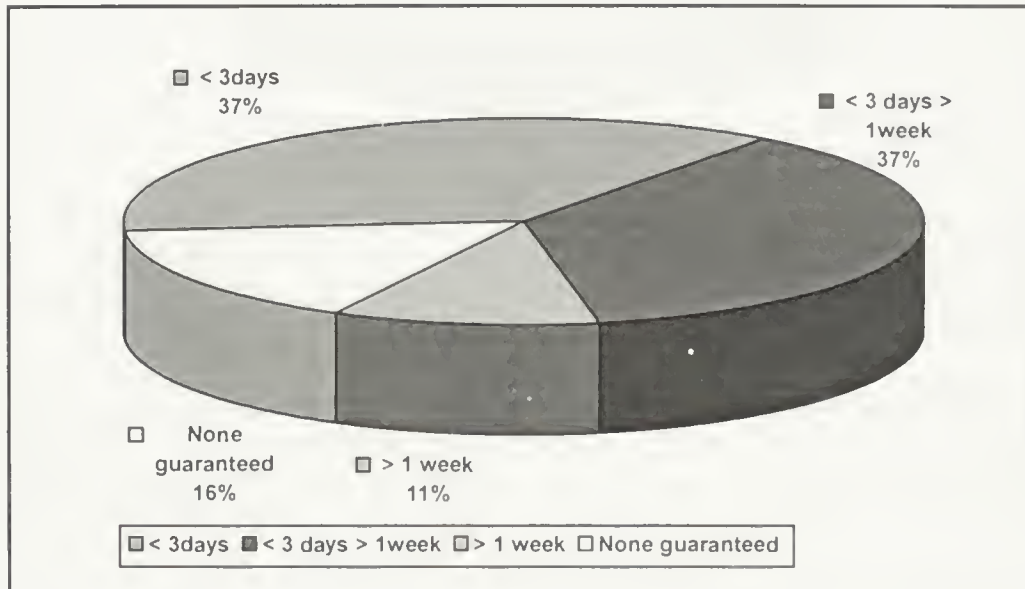
sample size: 50 respondents   *source: INPUT*

Some of those surveyed stated they held spare PCs that could be substituted in the case of a product being returned for repair and a small number stated that this is either part of their purchasing agreement with a manufacturer or dealer or in its service contract.

An important feature in assessing the importance and relevance of the warranty offering, is how many users have chosen the standard warranty and how many have enhanced it. The answers to Question 12 show the number that have chosen to purchase additional/upgraded warranty cover.

Exhibit V-9 shows how for PCs, the minority of those surveyed have chosen to purchase enhancements to the standard warranty. (This contrasts with Servers - see Exhibit V-3 - where the majority have done so.)

Exhibit V-9   Warranty Upgraded Or Not?
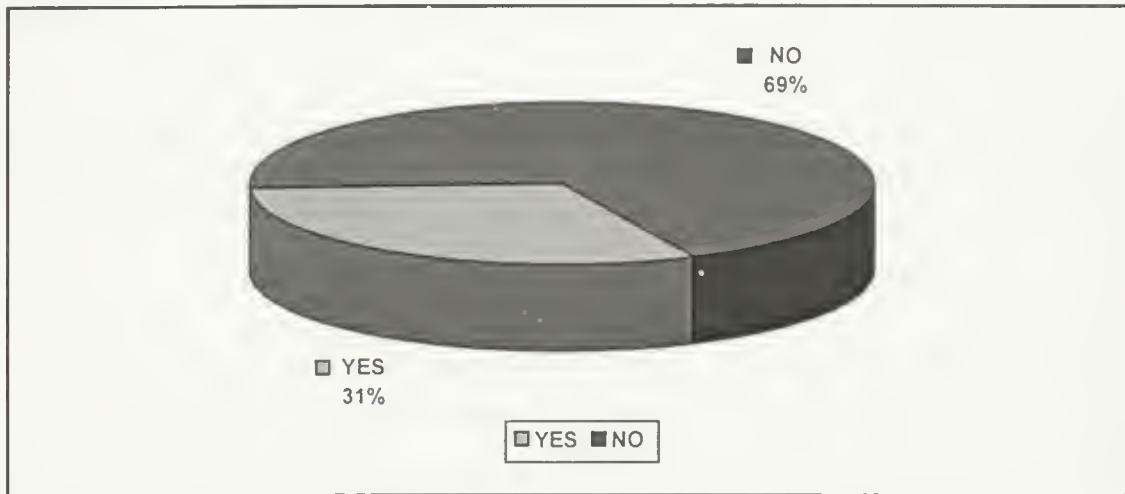
sample size: 50 respondents   *source: INPUT*

Typically users upgraded their service to provide a faster response, often by means of a separate maintenance contract rather than a simple warranty upgrade. Another popular upgrade is to replace the second and third year Return to Base warranty with an on-site service.

As with Servers, in some cases, the users already have engineers resident on their site and PCs are simply added to the existing maintenance contract. In other cases, the user wishes to place other constraints upon the service provider, e.g. specific '*fix-times*' in addition to enhanced response times. The number and variety of choices is fewer than those for Servers.

C

Portable Computer Warranties

1. Types

Exhibit III-4 illustrated the manufacturers of the main Portable (Laptop or Notebook) Computers in use at those surveyed. This is shown in tabular form in Exhibit V-10.

Note.

1. The terms, Portable, Notebook and Laptop, as related to this category of product are used synonymously throughout this report.

Exhibit V-10 Main Portable Computers In Use

Manufacturer	Number of Respondents
Toshiba	15
Compaq	11
IBM	8
Olivetti	3
Bull/Zenith	2
Others	8

source: INPUT

Approximately 11,000 Portable Computers are in use at those surveyed for this report.

Section VI reviews the warranties offered by the leading manufacturers, including the first three companies identified in Exhibit V-1 and a few others of note.

2. Warranty Terms

Question 13 (i) asked the user to state what is the standard warranty included in the purchase price for the Portable Computers in use.

Section VI of this report reviews the warranties offered by the leading manufacturers and it is evident that most of the products have either a 1 year or 3 year warranty.   This is confirmed by customer answers to Question 13 (i) and illustrated in Exhibit V-11.

Exhibit V-11 Warranty Term - Portable Computers
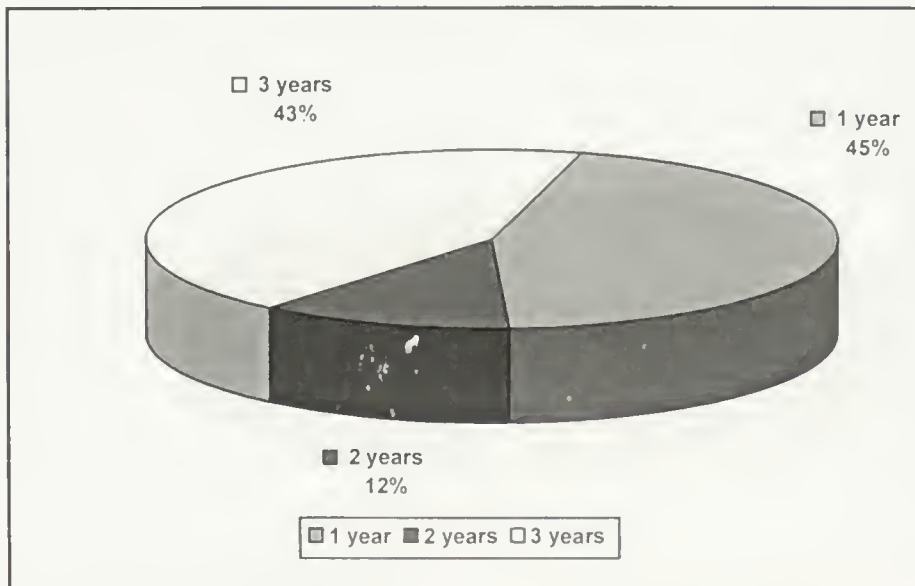
sample size: 50 respondents   source: INPUT

Note. Some interviewees gave more than one answer

As may be seen, Exhibit V-11 shows a similar result to that of Exhibits V-2 and V-6 indicating that Server, PC and Portable Computer warranties are typically for similar terms.

In many cases, the warranty service provided is a Return to Base service. Although the answers provided show a similar spread of service response

times for on-site and return to base services as for PCs (see the previous Section), **it is our belief that many of those surveyed were unclear on the exact terms of their warranty provision**, indicating the difficulty they have in managing them.

As illustrated in Exhibit III-6, users of portable computers rated warranties of less importance than any of the other categories surveyed. This is illustrated both by the number of users admitting to know little about their warranty provision and by the small number that had actually enhanced their warranty. This latter figure is shown in Exhibit VI-3.

In addition, few of those interviewed had comments to make about warranty provision on portable computers; the main criticism was the long time to respond to a call or that the return to base service was either too long or not guaranteed.

Exhibit V-12 Warranty Upgraded Or Not?

■ NO
88%

□ YES
12%

| □YES ■NO |
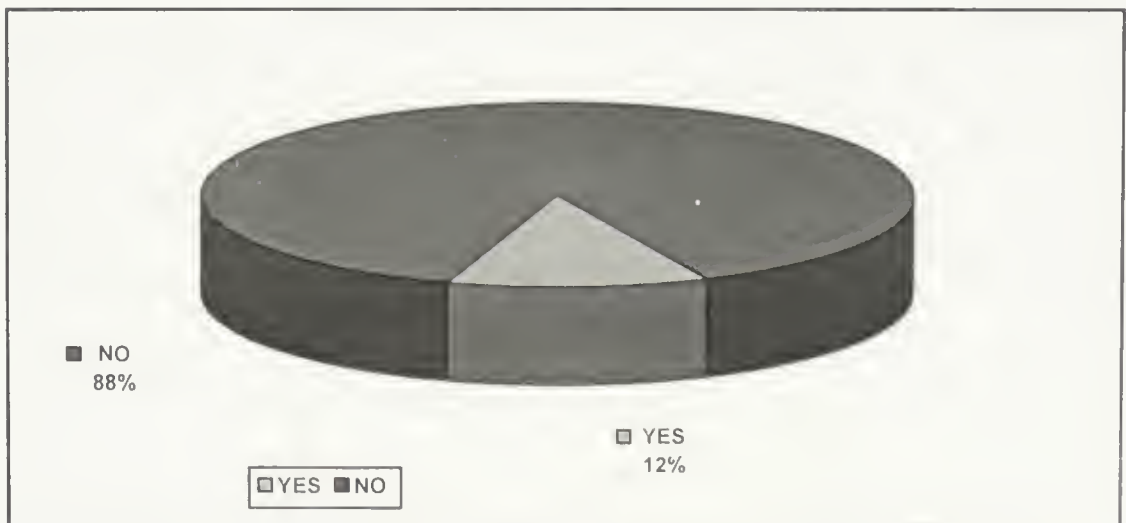
Sample size: 50 respondents   *source: INPUT*

D

Printer Warranties

1. Types

No differentiation was made in the survey about the different types of printer, although undoubtedly some of the issues raised are mainly applicable to one type, e.g. laser printers.

As illustrated in Exhibit III-5, more manufacturers of Printers were identified than any of the other product groupings surveyed. This is shown in tabular form in Exhibit V-13.

Exhibit V-13 Main Printers In Use

Manufacturer	Number of Respondents
Hewlett-Packard	24
IBM	9
Epson	5
Canon	4
Toshiba	4
Lexmark	3
Oki	3
Others	24

source: INPUT

Approximately 15,000 Printers are in use at those surveyed for this report. In fact if those who could not provide details are taken into account, the total is expected to exceed 25,000.

Section IX of this report reviews the warranties offered by the leading manufacturers, including the first four companies identified in Exhibit V-13 and a few others of note.

2. Warranty Terms

Question 15 (i) asked the user to state what is the standard warranty included in the purchase price for the Printers in use.

Section IX of this report reviews the warranties offered by the leading manufacturers and, with reference to Exhibit V-13, it is evident that, as with the other product groups surveyed, most of the products will have either a 1 year or 3 year warranty. This is confirmed by the customer answers to Question 15 (i) and illustrated in Exhibit V-14.

Exhibit V-14 Warranty Term - Printers
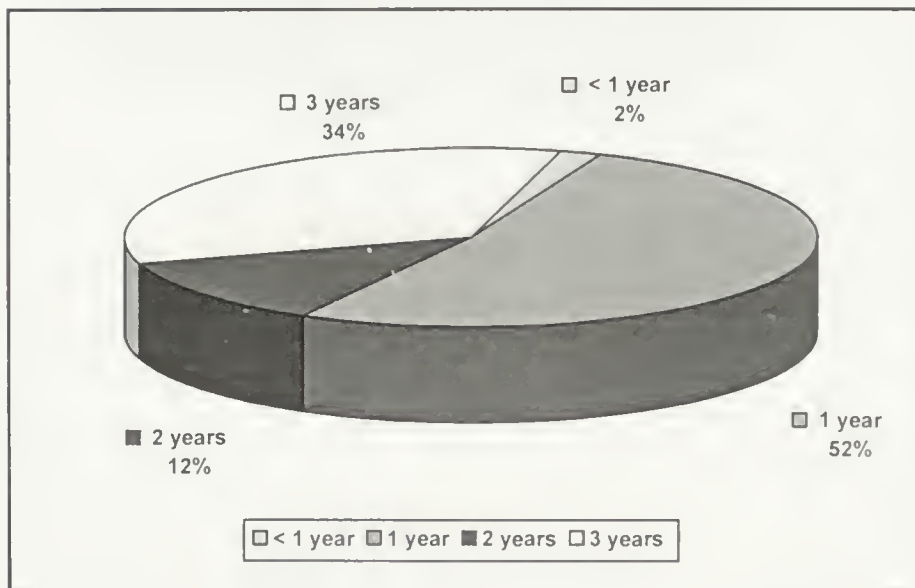
Sample size: 50 respondents   *source: INPUT*

Exhibit V-14 shows that for Personal Computers, the most common warranty term is for 3 years, whereas for Printers, as shown above the most common term is 1 year. As with other products, a 2 year term is uncommon.

The second part of Question 15 asked the user to state the response times for on-site service and return to depot (base) repair.

On-site response times elicited a variety of answers, with some users expressing it in terms of business hours and others in actual elapsed time. What is apparent is that for the majority of users on-site printer response is usually within 8 business hours, and in some cases a shorter time. A small proportion have either next day or slightly longer responses. This is illustrated in Exhibit V-15.

Exhibit V-15   On-site Warranty Response - Printers

Within 8
hours
82%

Longer
18%

Within 8 hours   Longer
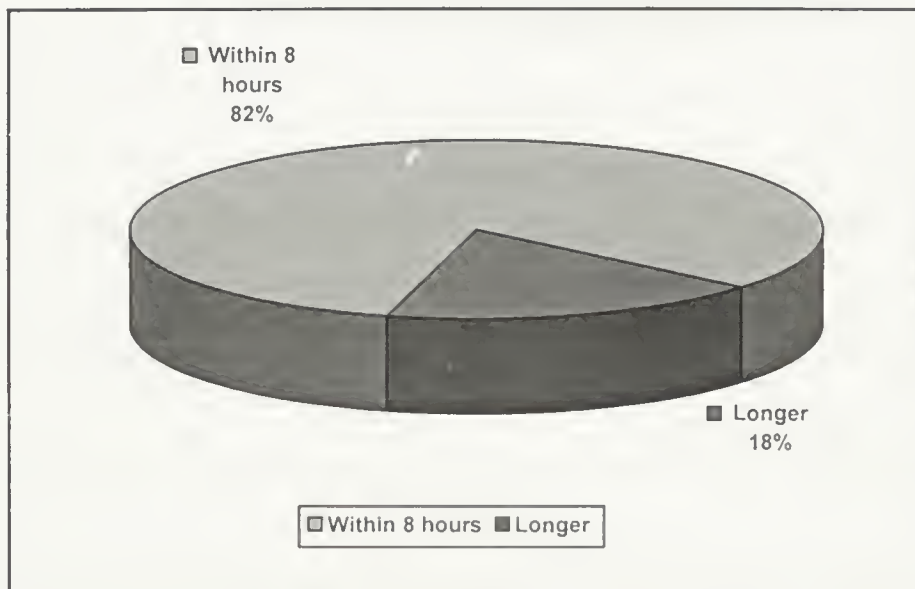
Sample size: 50 respondents   *source: INPUT*

For server products (see Section V-A), few specified a return to depot time; however for printers several expressed a time, although few commonalties were observed. One Hewlett Packard user was obviously distressed to state '*the Return to Base service on his printers was two months*'. In this case

A reasonable balance was observed between those users who have upgraded their printer warranties and those who have not. This is illustrated in Exhibit V-16.

Exhibit V-16   Warranty Upgraded Or Not?

■ NO
52%

□ YES
48%

□YES ■NO
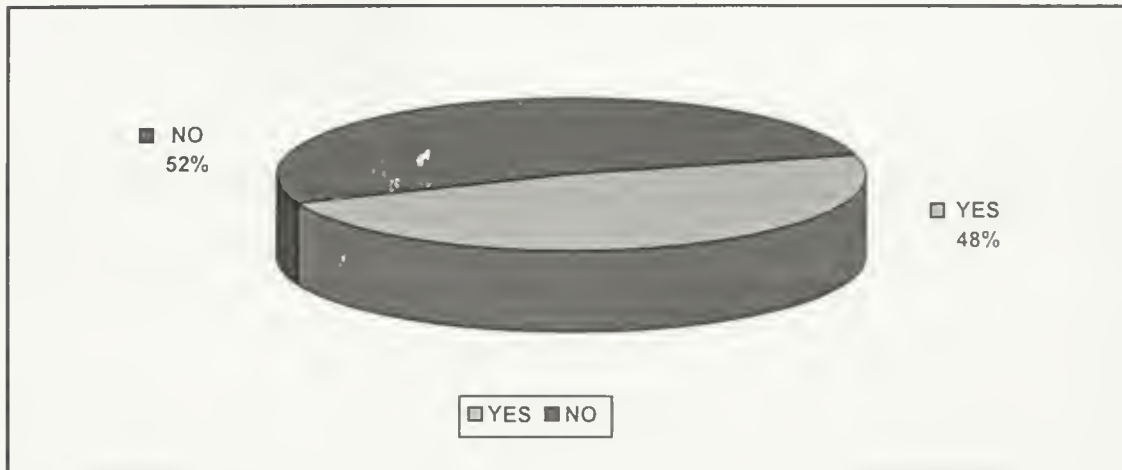
Sample size: 50 respondents   *source: INPUT*

Typical enhancements purchased by those who have done so are shown in Exhibit V-17.

Exhibit V-17 Summary of the Major Service Enhancements - Printers

- All on-site service for laser printers.
- Hot-line immediate telephone support.
- Customer can assign priority at the time of fault call.
- Service Level Agreement (SLA).

source: INPUT

Several of those interviewed stated they can replace a printer with others they hold as spares or assign other printers to take over the workload in the event of a failure. In some cases customers have chosen to operate on this principle for smaller printers, in preference to having a maintenance contract.

Fewer concerns were raised about printer warranties in comparison with the other products surveyed although, as shown in Exhibit V-16, a sizeable proportion has upgraded their warranty.

VI

Vendors' Warranties Specific to Each Hardware Type

A

High End Server Warranties

The term '*Server*' is now commonly applied to a wide variety of systems ranging from multi-processor mainframe systems with hundreds of users through to desk-side systems using a single microprocessor and serving a handful of users.

For the purpose of this report, INPUT has defined the term '*High-End Server*' to include multi-user systems from traditional mid-range suppliers such as IBM and Hewlett-Packard and servers from those better known as PC suppliers, e.g. Compaq and Dell.

Exhibit III-1 identified the main servers in use at those surveyed. Main manufacturers identified are IBM, Compaq, Hewlett-Packard, Digital, Olivetti, Bull, Dell and Unisys.

This subsection concentrates on the first four of these companies; however, it includes others for comparison. The companies are reviewed in alphabetical order in each subsection.

Warranty offerings vary, with the emphasis of the mid-range suppliers more likely to be concerned with offering service on an on-going basis than the PC suppliers.

In many instances the warranty on these products is a basic offering which is designed to be supplemented by the customer purchasing faster response or additional hours of coverage.

Exhibit VI-1 illustrates the hardware warranty offerings of some of the major suppliers of this type of product.

Exhibit VI-1 Hardware Warranty Offerings - High-End Servers

	Hardware Term (Yrs)	Type	Response	Service Provider
Compaq ProLiant	3	On-site	Variable	Digital & others
Dell PowerEdge	3	On-site	Next day	Digital & Wang
Digital Alpha-Server	3	On-site	Variable	Digital
Hewlett-Packard NetServer	3	On-site	Next day	HP
IBM AS/400	1	On-site	Variable	IBM
Mitsubishi Shogun	3 + 2	3 On-site + 2 years for parts	8 hours	(In UK) Open Systems Engineering
Sequent 5000 Series	0.25 (90 days)	On-site	4 hours	ICL Sorbus

source: INPUT

1.   Compaq

On its ProLiant and ProSignia server systems Compaq offers a three year on-site warranty. On-site service is provided by the reseller if it is a Compaq accredited Systems Service Provider or by Digital's Multivendor Customer Services (MCS) Division if the reseller is not accredited.

There are several exclusions including consumables and software. Monitors connected to a Compaq server have a one year on-site warranty.

If the product was bought in the European Union (EU) countries, Switzerland or Norway, then warranty service is available in any one of these countries or only in the country of purchase if elsewhere.

The emphasis at Compaq is changing and it is attempting to sell a wider range of services under its '*CompaqCare for Business*' support package, which provides:

- Information Tools
- Telephone Support
- Training

2.   Dell

Dell PowerEdge Systems are provided with a next-day 3 year warranty and includes reloading of MS-DOS and Windows, if required.

However, in recognition that often this does not meet mission-critical customer needs, Dell offers a series of SelectCare Service Upgrades. These range from enhancements to the response time to 4 hours to around the clock telephone and on-site service, including data back-up restoration.

Netware and Windows NT telephone support are separately charged services.

Dell usually uses engineers from Digital and Wang to provide its on-site hardware service, although networking support may be provided by others.

3.   Digital

Digital AlphaServers are sold with a 3 year warranty; however, normal response is next business day and Digital attempts to enhance this to a 4 hour response service.

Monitors and Options are provided with a one year on-site warranty if purchased with a system or one year Return to Digital otherwise. Operating System Software is provided with one-year telephone support.

An uplift to provide 4 hour response and software updates is available, as is a variety of other service options.

4.   Hewlett-Packard

HP NetServers are provided with a next-day response three year warranty. Customers are recommended to purchase HP SupportPacks for enhanced response (which can be extended to 4 hour response around the clock) and telephone support.

Its larger 9000 Series servers are provided with a one-year four-hour response warranty.

5.   IBM

Users of IBM AS/400 systems are provided with a one year warranty which allows them to call a single point of contact for all hardware and software queries.

Its ASSIST/400 service is available from 0800 - 1900, Monday to Friday. In addition to telephone support, various electronic tools and fault databases are accessible.

IBM will not guarantee a specific response time but determines it at the time of fault call. It is usually less than 4 hours for serious server faults.

6.   Mitsubishi

Still better known as Apricot, Mitsubishi Electric's Shogun Servers are provided with a LifeTime™ warranty.

Although Mitsubishi did not feature in the main manufacturers identified in the user survey, we include it in the research because of its approach to warranty provision.

However, Mitsubishi's definition of LifeTime is 5 years, of which on-site service is provided for the first three.   Parts are then covered for the remaining two years.

Mitsubishi manages warranty provision and uses third parties, (Open Systems Engineering in the UK) to provide on-site service on servers with a target of 8-hour response.   Software warranty support is limited to reloading of DOS, although its partner usually provides additional assistance.

A comprehensive range of extended and expanded service options is available to supplement the standard warranty.

7.   Sequent

Another offering a different approach to warranty provision is Sequent.

Sequent's servers are provided with a 90-day four-hour response warranty; however, it claims that few, if any, customers rely on warranty provision and usually take out a maintenance contract.

If the customer takes out an annual (or longer) maintenance contract, the first 90 days are provided free of charge irrespective of the hours of coverage purchased.   The warranty is extended to one year if a five year support deal is agreed.

A feature of the Sequent coverage is that its 8-hour cover period is flexible and may cover hours such as 0700 - 1500 or 1000 - 1800.

Sequent provides a number of on-line service tools, but uses ICL Sorbus to provide on-site hardware maintenance.

The approach adopted by Sequent, although one may suggest it is minimalist, appears to correspond with the desires of users, many of whom (see Exhibit V-3) upgrade their warranty, whatever is provided by the manufacturer.

Note. No details have been provided by Sequent, but it is believed that the standard Sequent warranty offering in France is 1 year.

B

Personal Computers

Although personal computer (PC) warranties have been enhanced and extended in recent years, there is evidence that this is changing.

In particular, some manufacturers are providing different warranties across their different product ranges. The days of a simple one-year warranty, either on-site or return-to base, on all products has disappeared.

The use of warranty as a means of product or channel differentiation is now commonplace. Consequently, INPUT believes that simple comparison between PC manufacturers is meaningless. This subsection illustrates the different warranty offerings from the major suppliers and a few others chosen for comparison.

The first four companies identified as suppliers of high-end servers, namely IBM, Compaq, Hewlett-Packard and Digital, occupied the same positions among the PC users surveyed.

Exhibit VI-2 illustrates the hardware warranty offerings of some of the major suppliers of this type of product.

Exhibit VI-2 Hardware Warranty Offerings - Personal Computers

	Hardware Term (Yrs)	Type	Response	Service Provider
Compaq **Deskpro X000 range**	3	year 1 On-site, years 2 & 3 RTB	Variable	Digital & others
Dell **Optiplex**	3	year 1 On-site, years 2 & 3 collect & return	Next day, but not guaranteed	Digital & Wang
Digital **low end PCs**	3	year 1 On-site, years 2 & 3 RTB	Variable	Digital
Hewlett-Packard **Vectra range**	3	year 1 On-site, years 2 & 3 RTB	Next day	HP
IBM **300 series**	3	RTB	Variable	IBM
SNI	3	1 On-site + 2 years RTB	on site next day, but RTB 10days	SNI

source: INPUT

1.   Compaq

Compaq desktop PCs (Fresario, Prolinea and Deskpro ranges) are provided with a 3-year warranty, the first year of which is on-site service and the remaining two years a return-to-base service.

However, from 1 August 1996, these ranges have been discontinued and the new Deskpro X000 ranges have different warranty terms.

The recent launch of the Deskpro X000 ranges (2000, 4000 and 6000) has brought a change to Compaq's warranty provision.

These new products also have a three year warranty with the first year on-site and the subsequent years return to base. However, in years two and three the warranty covers **parts only and not the labour** involved in fitting them.

Attached external monitors have a one year on-site warranty if connected to a Compaq desktop PC, but only a carry-in service if connected to a portable Compaq product.

Similar to its server products, Compaq offers a variety of service options, which the customer may purchase.

2.   Dell

In addition to its PowerEdge systems, usually used as high-end servers (see earlier), Dell has two PC ranges:

- OptiPlex
- Dimension

The former of these is provided with a next business day on-site service for the first year and a '*Collect and Return*' service on the base (system) unit for the following two years.

The Dimension range has a one year '*Collect and Return*' warranty.

During the '*Collect and Return*' period, Dell arranges collection of the faulty unit on the day of the customer call or following day, repair is carried out by a Dell authorised repairer and the unit returned to the customer (usually within 4 days).

However, as stated in the user survey, this turnaround time is a target and no guarantees are given.

The cost of shipping the unit to and from the repairer is borne by Dell.

3.   Digital

Digital also differentiates its PC warranty provision by offering a three year on-site warranty on its high-end PC products and a three year warranty on its lower-end products with only the first year on-site.

Monitors and Options purchased with Digital PCs are entitled to one-year warranty which, if purchased with a PC, is on-site or if separately on a Return to Digital basis. Repairs are usually carried out within 48 hours. Customers are liable for the cost of transportation in both directions.

One year telephone support is provided for operating system software and 90 days advisory telephone support for applications.

4.   Hewlett-Packard

Hewlett-Packard (HP) sells several ranges of PCs under the 'Vectra' banner.

A three year warranty is provided on these products with the first year being on-site service and the remaining two a return to base offering.

On-site service is usually next-day response, with no guaranteed turnaround time for the return to base service.

Warranties can be enhanced to include on-site service in years two and three, faster response, additional hours of coverage etc., by users purchasing an HP SupportPack. This is believed to be a particularly low-cost option attractive to users.

5.   IBM

The mainstays of IBM's Business PC ranges are the 300 Series (330 & 350) and the 700 Series (730 and 750), although it also markets the PS/2 and ValuePoint Performance ranges.

PCs in these series have a 3-year return to base warranty, supplemented with a year's membership of 'Helpware', IBM's telephone software assistance operation.

Its Aptiva ranges are aimed at the SoHo customer and its warranty is reduced to 1 year for hardware and 60 days Helpware. In practice, some dealers and the superstores enhance the warranty themselves.

6.   SNI

Siemens Nixdorf (SNI) PCs are provided with a three year warranty, the first year of which is on-site and the following two years, *'Return to SNI'*.

Normal on-site response is next-day, but turn-around time for *'Return to SNI'* is normally 10 working days, which is longer than most others.

Cost of carriage to SNI is the customer's responsibility, although SNI pays for its return.

Various warranty extensions are available to enhance the service provided, e.g. A one-year return service can be enhanced to one year on-site for 6% of the product list price (at the time of sale).

C

Portable Computers

This product grouping brought with it the introduction of a new company into the frame - Toshiba. Although it has launched desktop products, it is better known as the market leader for portable computers, a position confirmed in the user survey (see Exhibit VI-1).

Otherwise the leading suppliers are little different from those identified in the previous two product groups.

Note. In this section of the report, we have not detailed the warranty offerings of Olivetti.

Exhibit VI-3 illustrates the hardware warranty offerings of some of the major suppliers of this type of product.

Exhibit VI-3 Hardware Warranty Offerings - Portable Computers

	Hardware Term (Yrs)	Type	Response	Service Provider
Apple	3 months	RTB	Variable	Various resllers
Compaq **Armarda range**	1 & 3	year 1 RTB (1100 series) and year 3 RTB (4100 series)	Next day, but not guaranteed	Digital
Dell **Lattitude**	1	year 1 RTB with option to extend up to 5 years	Variable	Digital
IBM **Thinkpad**	various	various	Variable	HP
Toshiba **all**	1	RTB for parts and labour, with option to upgrade to either an extra 1 year or 3 years	Variable	IBM

source: INPUT

1.   Apple

Currently Apple products have a 3 month carry-in warranty, although many are sold by its resellers with a '*warranty upgrade*' of 1 year on-site.

It is a feature of many products, not only from Apple, sold through the retail channel that the reseller may provide enhancements to the warranty, often at its own expense The user survey concentrated on major computer users and we suspect that most of the products are purchased either directly or through corporate resellers.

It is believed that these conditions are under review currently and are likely to change shortly.

2.   Compaq

In a similar fashion to its desktop products, Compaq has recently discontinued some of its portable products (the Contura) range and replaced them with others with different warranty conditions.

The Armada range consists of the 1100 with a one year return to base warranty and the 4100 with a three year return to base warranty.

The LTE 5000 products are still on sale and have a three year return to base warranty.

In all cases, parts and labour are included (c.f. its new Deskpro products described in the previous subsection).

3.   Dell

Dell '*Latitude*' Notebook computers are provided with a one year '*Collect and Return*' warranty (see Section IX B), with options to extend this for up to 5 years.

On-site options are also available providing next day service. These can be expanded to cover a number of European countries at an additional charge. This process of charging extra for European coverage is relatively rare among the major manufacturers.

4.   IBM

The '*Thinkpad*' range from IBM has a variety of warranties dependent upon the product. Some have a 1 year return to base warranty, whereas others have 3 years.

In addition, a year's subscription to Helpware (see Section IX-B) is included.

IBM's warranty surpasses that of Dell by being truly international and IBM has a large range of locations where products may be returned.

5.   Toshiba

All Toshiba portable computers are sold with a standard one year parts and labour return to base warranty. The reseller may act as the base and arrange shipment to the Toshiba repair operation at its expense.

However, enclosed with each Toshiba product is a '*warranty kit*' containing an information booklet and application form to apply for an International/Extended Warranty.

Depending upon the product type, customers are then provided with either a one year or three year international warranty. Typically higher value products are eligible for 3 years and others 1 year.

Customers must complete the form and return it to Toshiba to be eligible for this warranty. Note Batteries are limited to a one year warranty and the Deskstation products only have a local (country of origin) warranty.

D

Printers

As seen in Exhibit III-5, a larger number of different product types were quoted in the printer product group than in the other three. However, Hewlett-Packard (HP) was identified as the major printer manufacturer by approximately half of all of those surveyed (24).

The confusion some of the users expressed about the terms of their warranties is exemplified even if only this one manufacturer is considered.

Some HP products have a 1 year 'Return to Manufacturer' (base) warranty, others have 1 year on-site service and others a 3 year warranty. In some cases, HP provides an *Express Exchange* service in which a replacement product is delivered by courier to the customer site on the next business day, at which time the faulty unit is collected.

In addition, with the launch of new products, it has modified its warranty offerings on these to be different from similar models in older ranges. Its SupportPack options provide customers with the opportunity to enhance and extend service on its product range, including on-site service options and extended terms.

Other main printer manufacturers identified in the user survey, IBM, Epson, Canon and Lexmark, are reviewed in this section of the report.

Exhibit VI-4 illustrates the hardware warranty offerings of some of the major suppliers of this type of product.

Exhibit VI-4 Hardware Warranty Offerings - Printers

	Hardware Term (Yrs)	Type	Response	Service Provider
Canon BJC range	1 most products, 3 for BJC 2100* & 4100*	RTB for 1 year or RTB for 3 years*	typically 5-7 days	JAE Crow in UK, resellers elsewhere in Europe
Epson	1	year 1 RTB	4 hour on-site response available at extra cost	GEC Avery or Equinox in UK, resellers elsewhere in Europe
Hewlett-Packard deskjet and Laserjet ranges	1 & 3* *= deskjet 540/600/660 only	Variable	Variable	HP
IBM	3 months* and 1 year *= 3130 and 3930 only	year 1 On-site, years 2 & 3 RTB	Variable	IBM or a dealer (such as Infoproducts in NL
Kyocera	1 but can upgrade to 3 on-site	RTB	Variable	Wellman in UK or resellers
Lexmark	1	1 On-site + 2 years RTB	on site next day	resellers
Oki	1?	RTB for dot matrix and on site for laser printers (not confirmed by Oki)	?	?

source: INPUT

1.   Canon

Canon's warranty offerings mimic those of HP in that some products have a one year return to base warranty (most products), others have 1 year on-site (BJ300 and 330) and others (BJC 2100 and 4100) a 3 year return to base warranty.

Typical turnaround time for return to base service is 5 to 7 days. In the UK, Canon has its own service operation and can provide an on-site service within 8 hours. However, in many other countries it does not have its own operation and users partners and resellers to provide service on its behalf.

Enhancements and extensions to the warranty are available, including European cover for up to 5 years.

2.   Epson

From the 1st July 1996, Epson changed its warranty from one of 3 years' duration to a single year.

The standard warranty is a one-year return to base service; Epson arranges the collection and return of its products in a similar fashion to the Dell PC and portable computer warranty described earlier.

Epson has service partners that can provide on-site service and customers may purchase enhancements including 4-hour on-site response if required.

3.   Hewlett-Packard

As stated earlier, the variety of HP warranties is one of its features. Examples for the current printer ranges are:

Deskjet 320/850/1200C/1600C	-	1 Year Exchange
Laserjet 4L/4V/5L/5P	-	1 Year Return to HP
Laserjet 4Si/5Si/Colour Laserjet	-	1 Year on-site service
Deskjet 540/600/660	-	3 Year Exchange

On-site service is next-day, as usually is the exchange service; however, no guarantees are provided for turnaround time for return to base service.

Some items, e.g. paper trays, are not covered by the warranty and customers must remove these items prior to exchanging them.

4.   IBM

Many of the smaller printers sold by IBM are manufactured by its former subsidiary, Lexmark, and it is uncertain how many of the users specified IBM for these models and how many Lexmark itself.

Smaller printers, e.g. IBM 3112 and 3116, are usually covered by a 1 year warranty, but larger devices such as the 3130 and 3930 only have a 3 month warranty and customers are encourage to purchase maintenance contracts.

A wide range of extended maintenance options are available including 5 years on-site service, if required.

5.   Kyocera

Kyocera, similar to Epson, has reduced its warranty provisions in recent years. Its standard offering is now a 1 year return to base warranty on all of its printers.

However, this can be enhanced to provide on-site service for up to 3 years. This 'Ecoshield' service is provided by Kyocera partners and the guaranteed response is next day.

A feature of this service is the provision of a loan printer, if the engineer is unable to repair the product on-site. However, this is not guaranteed at the time of the engineer visit, as he/she may not hold spare units and it may take up to 16 hours (2 business days) for the loan printer to be provided.

6. Lexmark

Most of Lexmark's printers are provided with a 1 year warranty, offering telephone support and on-site service (normally next day). For some of these products the on-site element is a courier exchange offering similar to the HP Express Exchange service.

Exceptions to this are the Winwriter 150C and the colour ink-jet 4076, both of which are provided with a 3 year return warranty.

However all warranties including these latter two can be extended to provide on-site service for up to five years.

7. Oki

Oki refused to participate in this research project and would not provide any details of their warranties.

A major dealer stated that its offerings are a 1 year return to Oki warranty on dot matrix printers and 1 year on-site service for laser printers.

VII

Comparisons between Vendors' Service and Users' Expectations

A

Comparisons across all Hardware Types

Questions 7 and 17 of the user survey asked:

> *'Where expectations are not met, what is your main complaint?'* (Q7)

> *'Do you have any other comments you would like to make about product warranties or the upkeep of the products discussed?' (Q17)*

Comments of a general nature are summarised in Exhibit VII-1.

Wherever possible the order shown is based upon the number of users stating a particular comment, and no comment is listed unless it was made by at least two respondents.

Exhibit VII-1 Unfulfilled User Expectations - All Product Groups

User Remarks	Manufacturer and Country
Often there is no commitment by the supplier in terms of warranty performance, only a vague commitment to use best endeavors	general
Extensions to warranties are too expensive	AST Italy
Warranty service is inappropriate for critical devices (hence the large percentage using other service provision for high-end servers and large printers).	general
Repairs are not good enough and service vendors exhibit poor quality control (	Hewlett Packard Spain
Persistent problems are not analysed and rectified (short term fix).	Hewlett Packard Spain
A user cannot specify the maintainer, if it is not the manufacturer, and several prefer manufacturer service/warranty	Compaq and Dell, generally
The warranty offered is less important than the ability of the manufacturer to supply it. Poor dealer performance.	The Netherlands generally and IBM Netherlands in particular
Manufacturer has inconsistent warranty provisions across their product ranges	Hewlett Packard Italy
Suppliers are too keen to sell warranty upgrades	general

source: INPUT

Many of the leading manufacturers, e.g. IBM, Compaq, Hewlett-Packard, are identified as major suppliers in at least three of the product groups surveyed and others such as Olivetti, Bull and Digital in two of these groups.

Consequently, it would not be too surprising to find many similarities between the warranties on offer.

In practice, the user views were simplistic focusing upon the duration of the warranty and whether it was for on-site service or return to base.

The complexity and variance of offering, the speed of response, the parts covered and other topics shown in Section VI for the various manufacturers, is scarcely evident from the users.

Many of the manufacturers have different warranties for different product ranges, yet there is little acknowledgement of this from the users themselves.

It may be that, as some users stated, they either:

- Leave warranty management to a third party, e.g. outsourcing company or maintainer - see Exhibit III-11 (37%).

  or

- Consider the product warranty at the time of purchase and buy a suitable product with the warranty required (12%)

  or

- Purchase enhancements/extensions at that time or place it under their normal service arrangements (varied by product type).

B

Comparisons Relating to High End Servers

The emphasis of most High-end Server suppliers is on providing a wide range of service options for their customers. Warranty provision is possibly deemed to be of less interest and the main aim is to allow the customers to obtain the service of its choice, albeit as a revenue earning opportunity for the supplier.

Most system options are warranted to the same extent as the server in which they are installed, although, in a few cases, reduced terms are offered.

Software support offerings in the warranty period are very limited with, once again, the emphasis on purchasable provision or the use of other companies to provide this service.

As illustrated in Exhibit V-3, a majority (82%) of users of High-end Servers have purchased upgraded warranties or services on these products. As shown in Exhibit V-4, many of these are in the area of improved service response and guaranteed fix times.

Most of those interviewed for this project are major computer users, with tens, if not hundreds, of servers. Consequently many already have maintenance contracts on other systems and addition of a few more systems to existing contracts does not pose a problem.

It is likely, as expressed by some of those surveyed, that the warranty provided by the product manufacturer is simply **used as a method of reducing total service costs as a bargaining weapon in negotiations with a service provider or outsourcing companies.**

The most common warranty upgrade purchased, as distinct from a service contract, was the upgrade of second and third year services to on-site service for those products where the warranty for these years was restricted to a return to base service.

Respondents to this survey usually referred to servers in what is conventionally interpreted as mid-range systems or high-end PCs, with little reference to mainframe systems. It is apparent, that some of the services mentioned by users in France, in particular the '*Concept contract*', have their origins in the mainframe arena. The services offered in this contract include remote diagnosis and recovery.

Exhibit VII-2 summarises key user dissatisfactions pertaining to high-end server warranties

Exhibit VII-2 Unfulfilled User Expectations - High End Servers

User Remarks	Manufacturer and Country
warranties are not good enough, hence the high % upgrades taken out (see also Exhibit II-2).	General
Call-out times are too long	IBM UK, IBM France x 3
Return to Base warranty is of no use	Compaq, IBM Netherlands, Dell UK
No performance guarantees	Digital Spain
Manufacturers keep changing warranty specifications	Compaq France

source: INPUT

C

Comparisons Relating to Personal Computers

The main features of PC warranties are:

- The use of differentiated warranty offerings by companies such as Dell and IBM.

- A number of companies offering three year warranties - the first year of which is on-site.

- The range of enhancements that is available to the warranty service.

- The involvement of resellers in warranty service provision (although see some of the comments made by users on this topic - Exhibit VIII-6).

- Some evidence of a move towards reduced warranty terms in order to reduce the costs of warranty provision, e.g. Compaq.

As shown in Exhibit II-1, users of Personal Computers were, in general, more satisfied (3.74) with warranty provision than users of other product groups (Mean of 3.58).

Although this difference may not be statistically significant, it partially explains why these users were less likely than average to have purchased enhanced warranties (31% against a mean of 43).

While some users had purchased improved response warranties from the equipment manufacturer, the most common options were related to service provision by an incumbent service provider.

Exhibit VII-3 summarises key user dissatisfactions pertaining to personal computers warranties.

Exhibit VII-3 Unfulfilled   User   Expectations   -   Personal Computers

User Remarks	Manufacturer and Country
Return to Base service takes too long	IBM Netherlands
Time to respond to a fault call is too long	IBM x 2 Spain, Sanyo Spain
Suppliers do not consider warranties to be important	IBM Spain, Sanyo Spain, IBM France
The costs of extending or enhancing warranties is too large.	Apple x 2 France, AST France, IBM France, Compaq France

source: INPUT

D

Comparisons Relating to Portable Computers

Warranty provisions on portable computers appear to be changing and differentiation across the product ranges (see Compaq, IBM and Toshiba) fairly commonplace.

The geographic coverage also varies considerably, with IBM perhaps offering a truly international warranty and others, such as Dell, charging for it.

The Toshiba process encouraging the customer to complete the necessary application form is perceived to have some benefits.

Even smaller numbers of portable computer users (12%) have purchased upgraded warranties than for any other product.

Insurance against loss, theft and/or accidental damage is one of the options identified by some users in Italy. No details were made available on whether this insurance is available from the supplier or if it is purchased separately.

Exhibit VII-4 itemises the key user dissatisfaction pertaining to portable computer warranties. Unlike the other product categories, criticisms of current warranty arrangements were relatively few.

Exhibit VII-4 Unfulfilled User Expectations - Portable Computers

User Remarks	Manufacturer and Country
Time to respond to a fault call is too long	IBM x 3 Spain, Toshiba x 2 Spain, Compaq Italy

source: INPUT

E

Comparisons Relating to Printers

Typically printer warranties are shorter than for the other product groups included in this research project. One year warranties are common, with usually only smaller products, e.g. ink-jet printers having a three year warranty.

However, like all of the products featured a wide range of enhancements are available.

A feature of printer warranties is that response times quoted are usually next business day and often this is insufficient for customers who are reliant upon a particular device. Although some offer enhancements to provide a faster response, the actual performance is heavily dependent upon the ability of the supplier to perform the service at the required standard.

Only the larger companies such as Hewlett-Packard and IBM have sizeable internal service operations to provide this faster response. Others using third parties faced some criticism in the user survey.

Second to servers as the product group most likely to have its warranty enhanced, printers had, on average, the shortest warranty term of the four groups researched (Exhibit VIII-4).

A feature of the enhancements offered and purchased was immediate telephone support. It is believed that delineation of problems into whether the cause is the system, software or printer, may be one of the reasons why this service is offered.

Almost half (48% - Exhibit VII-4) of all printer users had upgraded the warranty on their printers. Substantial numbers have bought on-site service for the second and third year; how much this is due to the good marketing of its '*SupportPack*' by Hewlett-Packard is impossible to say.

Some of the users who have not purchased enhancements to printer warranties, stated they hold spare units or can re-assign other printers in the event of a problem necessitating removal of a printer from site.

Exhibit VII-5 summarises key user dissatisfactions pertaining to printer warranties.

Exhibit VII-5 Unfulfilled User Expectations - Printers

User Remarks	Manufacturer and Country
High value parts are not covered (printheads?)	Hewlett Packard UK
Time to respond to a fault call is too long	Hewlett Packard Italy

source: INPUT

APPENDICES

APPENDIX 1

User Questionnaire

INPUT USER SURVEY - JUNE 1996
Hardware Platform Warranty Terms & Conditions

Strategic questions

Q1. For your organisation, how important are warranty terms and conditions associated with the following IT hardware (on a scale of 1-5 where 1 = not at all important and 5 = critical):

High-end
servers..
PCs

....

Laptop computers

....

Printers

....

Q2. What is the approximate total number of units held across your organisation for the following products and specify what % of these are currently covered by a warranty:

High-end
servers..
PCs

....

Laptop computers

....

Printers

....

Q3. With the present hardware you have, combined with the new hardware you will purchase in future, how do you propose to manage your variety of warranties?

Q3. With the present hardware you have, combined with the new hardware you will purchase in future, how do you propose to manage your variety of warranties?

....
....
....

Q4. Which of the following arrangements for after-sales service would you prefer on a volume purchase of PCs? (please tick)

- Warranty bundled as part of a purchase price ☐
- No warranty, purchase price separate from maintenance contract ☐
- No warranty, rely on rely on time and materials service ☐
- Warranty, limited to return to base (on-centre) service ☐
- Other..

Tactical questions

Q5. Please specify the **main** manufacturer used in your company for each of the following:
High-end servers

....
PCs

....
Laptop computers

....
Printers

....

The following set of questions use 1-5 rating scales where 1 = v. dissatisfied and 5 = v. satisfied

Q6. For each of the above manufacturers, does the **warranty service provided** generally meet your expectations? (Rate 1-5)
High-end servers

....
PCs

....
Laptop computers

....
Printers

....

Q7. Where expectations are not met, what is your main complaint?

High-end servers

....

PCs

....

Laptop computers

....

Printers

....

Q.8 The speed of response to an on-site call out is inversely proportional to the cost. For example, if an 8 hour call out time costs X, a 4 hour call out costs 1.5 times as much this and a 2 hour call out costs 3 times as much. Given the nature of your organisation, which call out time would you prefer? (Please tick)

An 8 hour call out   □
A 4 hour call out (50 % more expensive)   □
A 2 hour call out (100% more expensive again) □

HIGH-END SERVERS

Q.9 For the **standard** warranty included in the purchase price, what is the warranty's:

(i) Duration (years): ....

(ii) Service response times :
        a. If On-site: (e.g. 2 hour etc.)...
        b. If Return to depot (e.g. turnaround time next day) ....

 Q.10 Have you purchased any **additional /upgraded warranty** cover, for example for:

Improved response time (e.g. from next day to 2 hour   □
On-site engineer   □
Other(please specify)   □

PCs

Q.11 For the **standard** warranty, included in the purchase price, what is the warranty's:

(ii) Duration (years): ....

(ii) Service response times :
        a. If On-site: (e.g. 2 hour etc.)...
        b. If Return to depot (e.g. turnaround time next day) ....

Q.12 Have you purchased any **additional /upgraded warranty** cover, for example for:

Improved response time (e.g. from next day to 2 hour   □
On-site engineer   □
Other(please specify)   □

Portable PCs

Q.13 For the **standard** warranty, included in the purchase price, what is the warranty's:

(ii) Duration (years): ....

(ii) Service response times :
        a. If On-site: (e.g. 2 hour etc.)...
        b. If Return to depot (e.g. turnaround time next day) ....

 Q.14 Have you purchased any **additional /upgraded warranty** cover, for example for:

Improved response time (e.g. from next day to 2 hour   ☐
On-site engineer   ☐
Other(please specify)   ☐

Printers

Q.15 For the **standard** warranty, included in the purchase price, what is the warranty's:

(ii) Duration (years): ....

(ii) Service response times :
        a. If On-site: (e.g. 2 hour etc.)...
        b. If Return to depot (e.g. turnaround time next day) ....

 Q.16 Have you purchased any **additional /upgraded warranty** cover, for example for:

Improved response time (e.g. from next day to 2 hour   ☐
On-site engineer   ☐
Other(please specify)   ☐

Q.17 Are there any other comments you wish to make either about warranties or the prod

Thank you for very much for you time. That completes the interview.
....

INPUT®

FAX TRANSMITTAL FORM

Date: 16 August 1996

Name: Gitte Jakobsen / Terry Hannington

Confidential: Y/N

Location:

Urgent: Y/N

Company: Olivelli

Tel:

Fax: 00 39 125 52 6127

From:

Page 1 of ___

Subject: Warranties Report

12 plus Cover sheet
Toc + exhibit list

Dear Gitte

Please find enclosed a faxed version of the warranties report. Apologies if the typesetting is not perfect, the lady that normally does this job should be returning from sick leave on Monday - her stand in has done the best she can in the meantime. When the fully typeset version of the report is complete, we will send this by DHL - this should be on Tuesday (The version you have will not change in content)

Regards,

Chris Harris

FIVE NATION USER & VENDOR ANALYSIS

OF COMPUTER & HARDWARE PERIPHERAL

WARRANTIES

PERCEPTIONS & REALITIES

FIVE NATION USER & VENDOR ANALYSIS

OF COMPUTER & HARDWARE PERIPHERAL

WARRANTIES

PERCEPTIONS & REALITIES

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II

# EXECUTIVE OVERVIEW

STRATEGIC ISSUES & USER PERCEPTIONS

A

USER IT ASSETS BY BRAND, TYPE & QUANTITY

Of the 50 users interviewed for this research project, 30, i.e. 60%, could provide approximate numbers of their installed base, while the others were either unwilling or unable to provide details.

In total those interviewed are responsible for more than 100,000 units of Server, PC, Laptop and Printer equipment. The split by product grouping is shown in Exhibit III-1.

Exhibit III-1 Number of Products Installed at Users Interviewed
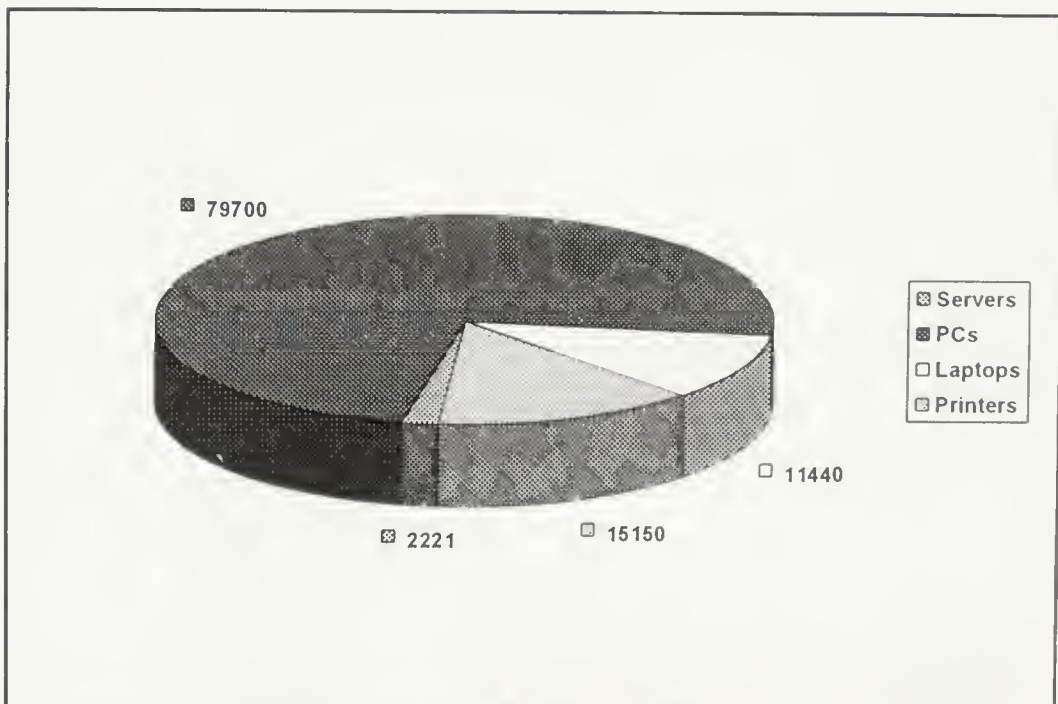
Totals from the 30 users who could provide details.

As may be seen from Exhibit III-1, those interviewed are responsible for a large number of computer hardware products and, INPUT believes, represent a sizeable share of the customer base in each of the countries researched.

Users were asked to specify the main manufacturer used in their company for the following products:

- High-end servers
- PCs
- Laptop Computers
- Printers

In some cases, interviewees identified a single manufacturer and in others several.

1. High-end Servers

Users were not given guidance on what constitutes a '*High-end Server*' and were free to choose their own definition of product fitting this category.

In total 15 companies were represented by the 60 names supplied. The major suppliers are illustrated in Exhibit III-2.

**Exhibit III-2 Major High-end Server Suppliers**
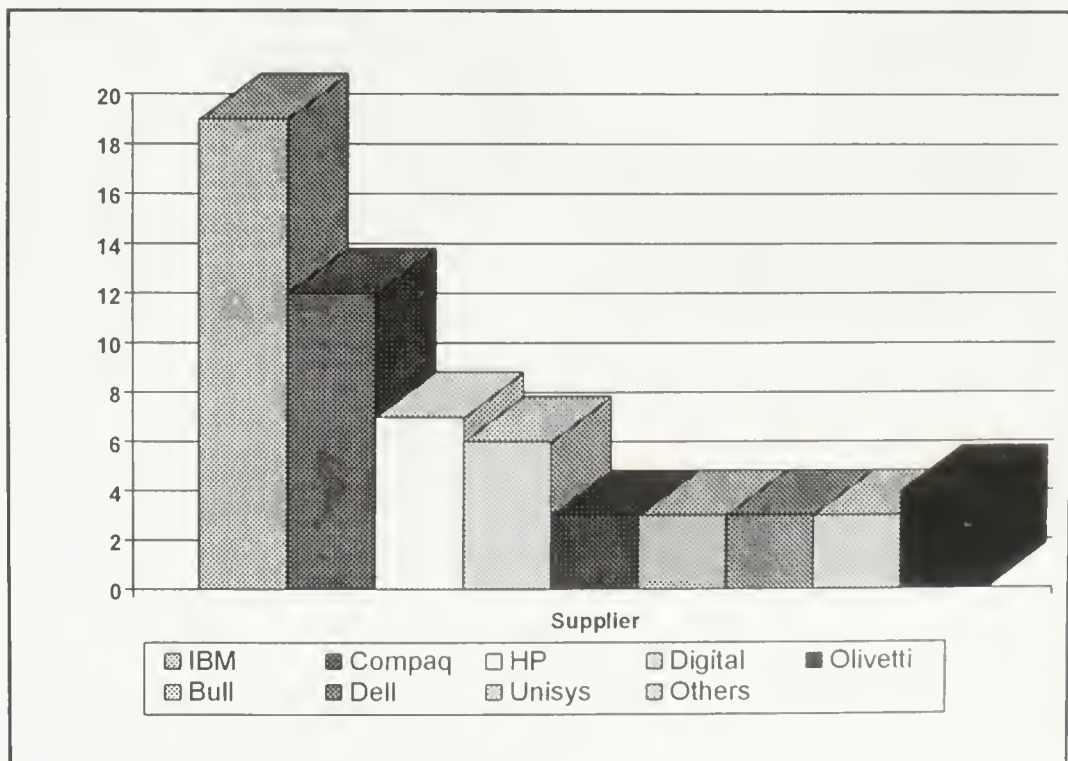
As may be seen in Exhibit III-2, IBM and Compaq are identified as major server suppliers to more than 50% of those interviewed. *'Others'*, shown but not identified, include Siemens Nixdorf and AST.

2.   Personal Computers

A slightly larger number of manufacturers was identified in this category (14) and 74 names in total were provided; however, IBM and Compaq were again the two major suppliers specified.

The major suppliers are illustrated in Exhibit III-3. *'Others'* includes Olivetti, AST, Fujitsu, Siemens Nixdorf and Unisys, identified by 3 or fewer interviewees.

Exhibit III-3   Personal Computer Suppliers

Supplier

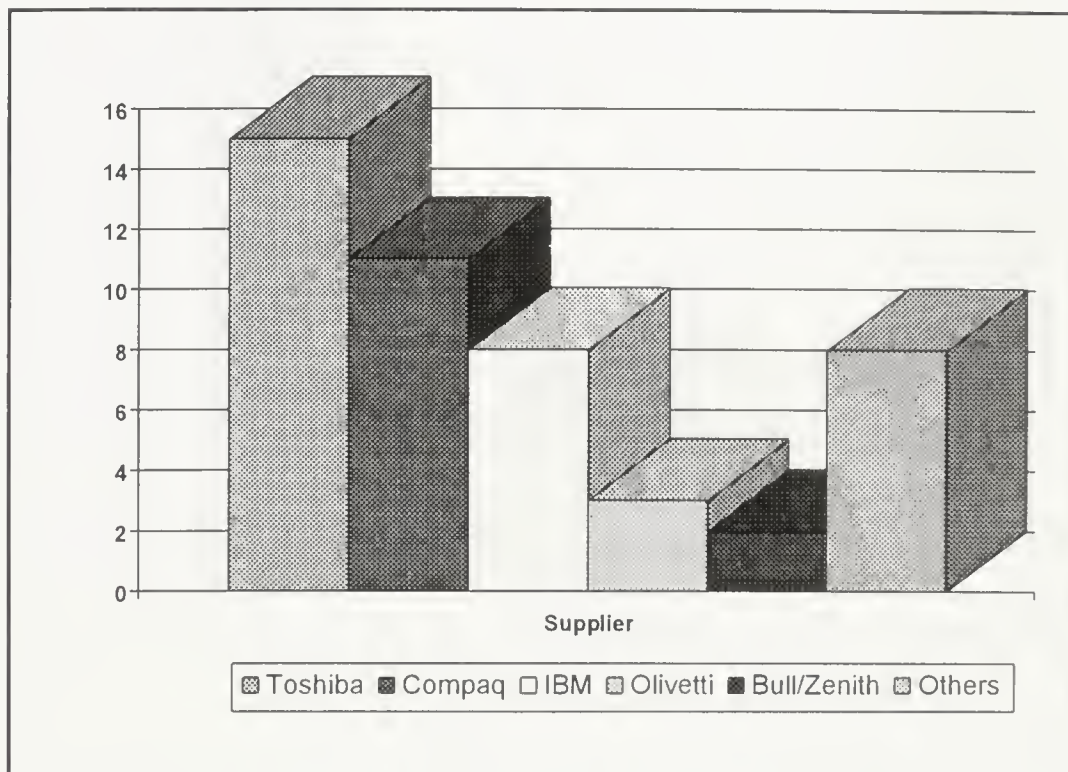▦ IBM ▨ Compaq ☐ HP ☐ Digital ▪ Apple ▨ Others
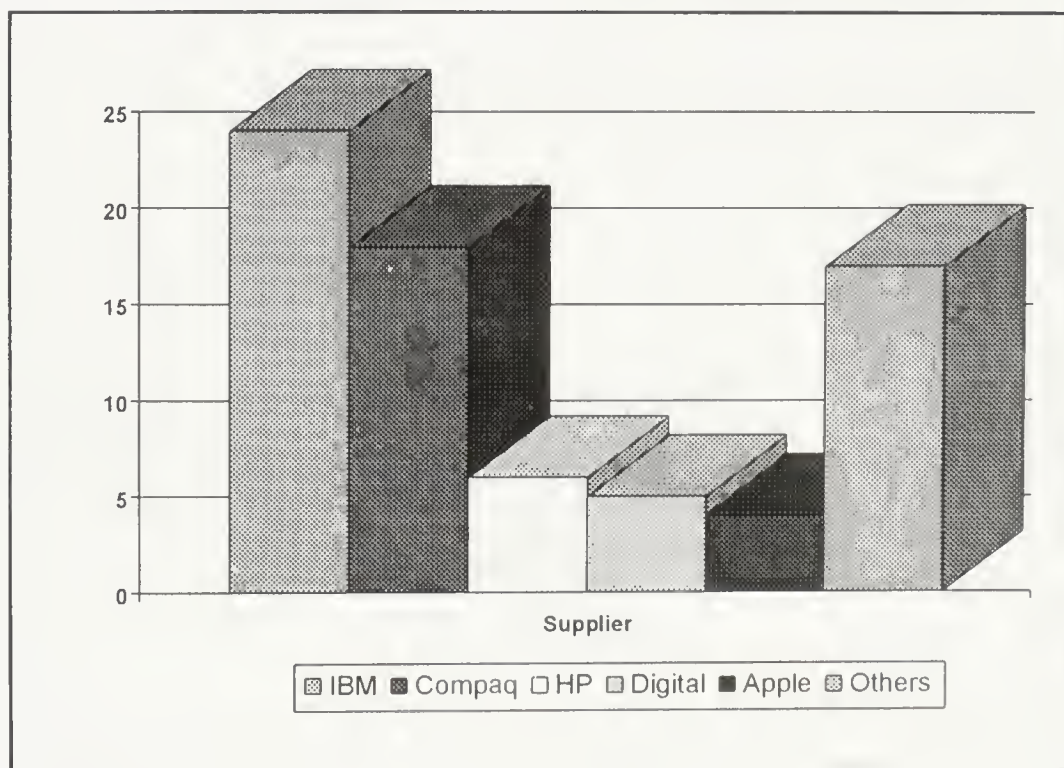
3.   Laptop Computers

Although 13 manufacturers were identified in this category only 5 were specified by more than one interviewee.

The major suppliers are illustrated in Exhibit III-4. Unsurprisingly, Toshiba was the dominant name, being mentioned by 15 of the 47 specified.

Exhibit III-4 Laptop Computer Suppliers

Chart showing supplier counts. Y-axis from 0 to 16. Legend: Toshiba, Compaq, IBM, Olivetti, Bull/Zenith, Others. X-axis labelled "Supplier".
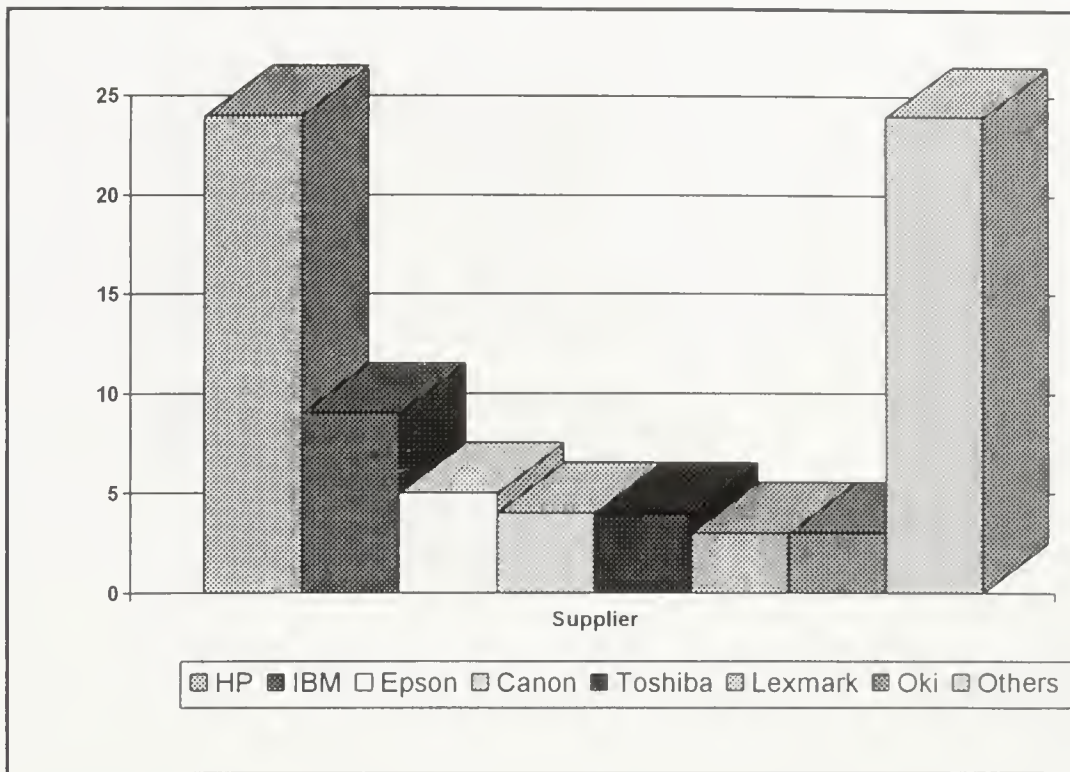
4. Printers

This product grouping elicited the greatest number of responses with 24 manufacturers identified among the 76 names mentioned. However, only a handful, led by Hewlett-Packard (HP), were identified by more than 4 of those interviewed.

The major suppliers are illustrated in Exhibit III-5.

Note, we believe there may still be some user confusion about the relationship between IBM and Lexmark and a more appropriate figure may be 12 for the two companies combined (c.f. 9 for IBM and 3 for Lexmark).

Exhibit III-5 Printer Suppliers


B

IMPORTANCE OF WARRANTIES

Question 1 of the user survey asked, for each of the four product groupings (high-end servers, PCs, laptops and printers):

> *How important are warranty terms and conditions ...... on a scale of 1-5 where 1 = not at all important and 5 = critical.*

In addition, for each of the major manufacturers identified by the user, they were asked (Question 6) to rate their warranty provision on a scale of 1 to 5, where 1 = very dissatisfied and 5 = very satisfied.

It may be appropriate to show both results on the same axes. This is illustrated in Exhibit III-6. Exhibit III-7 shows these results in tabular form.

Exhibit III-6 Importance of and Satisfaction with Warranty Provision
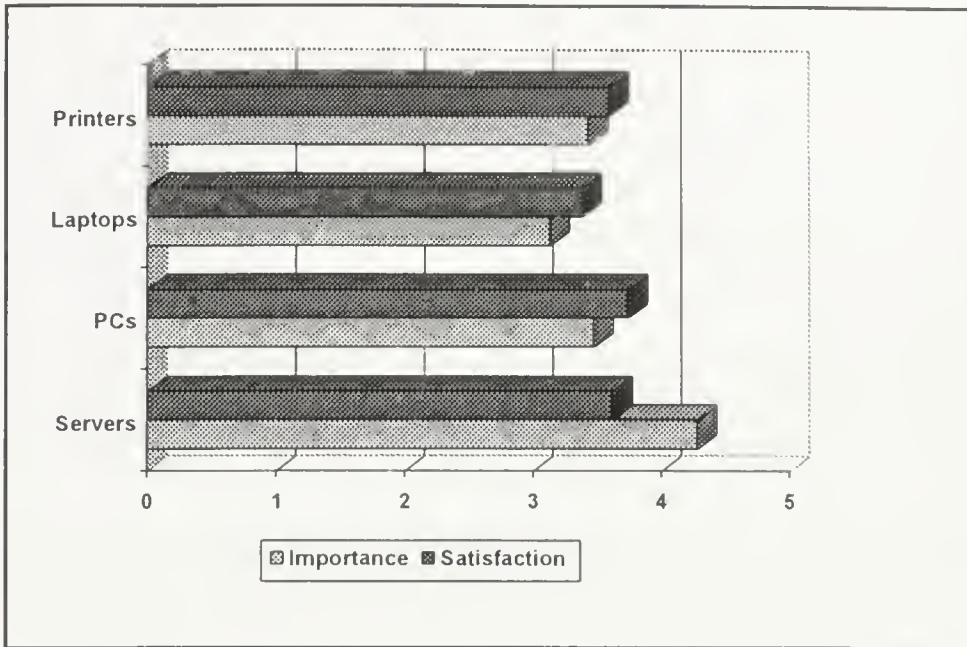
As may be seen in Exhibit III-6, warranties were rated of higher importance for High-end Server products than for the rest. Importance ratings for PCs and printers was significantly lower with the rating for laptops even lower still.

In fact we believe that the High-end Server figure understates its importance to the user community as, in some cases, it was not regarded as important as this type of system may have been placed under a maintenance contract at the outset (see later) and therefore warranty is regarded as less of an issue.

It is arguable whether the satisfaction ratings should be illustrated on the same graph; however, we have done so to show:

- The discrepancy between the importance of warranty for servers and the user level of satisfaction.

- The variance in these figures is significantly less for satisfaction than for importance.

Exhibit III-7 Importance of and Satisfaction with Warranty Provision

Product Group	Importance (Average)	Satisfaction (Average)
High-end Servers	4.28	3.62
Personal Computers	3.47	3.74
Laptops	3.13	3.38
Printers	3.43	3.59

The two previous Exhibits show that users regard warranty provision as of greatest importance on High-end Server products, with those on other product groups of less importance.

The major findings of these two questions are reviewed in Sections IV to VIII of this report, dealing with each product grouping in turn.

USER PREFERENCES

Question 4 asked the user to rate his/her preference for a specific after-sales service on a volume purchase of PCs. The alternatives offered were:

- Warranty bundled as part of a purchase price.

- No warranty, purchase price separate from maintenance contract.

- No warranty, rely on time and materials service.

- Warranty limited to return to base service.

- Other.

Users were free to select multiple options, if they wished. The results to this question are illustrated in Exhibit III-8. Although this question was focused upon volume purchase of PCs, a substantial number of those answering this question, 18 out of 44, stated that this depended upon the product type or manufacturer.

This finding suggest that a simple solution is not feasible and suppliers may need to liaise with their users at the time of purchase to ensure the warranty offered is appropriate to their needs or that other service options are available.

Exhibit III-8 After-sales Preference (Volume PC Purchase)
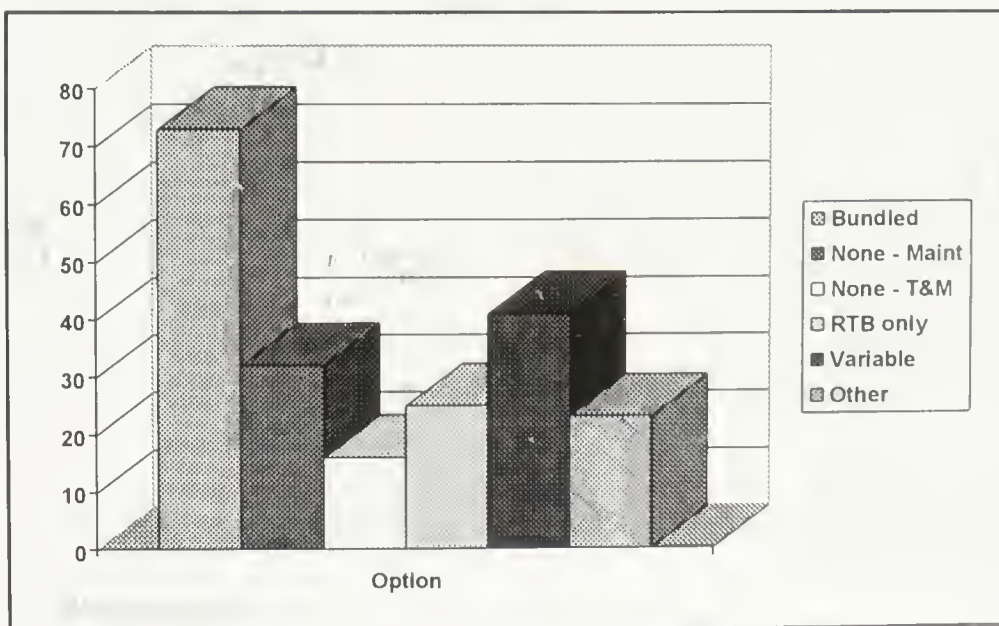
Although Exhibit III-8 shows the majority wishes warranty to remain bundled with the product (73%), some propose alternatives including scrapping the warranty entirely or limiting it to a Return to Base service.

A number of those interviewed already have single source service agreements or outsourcing contracts in place and use others to manage their service operations.

In some of these cases, the onus on operating the warranty arrangements falls upon the outsourcing company or service supplier and the main aim of the user is to ensure he/she obtains some benefit, e.g. reduced service prices, as a result of equipment warranties.

This latter topic was a feature of a number of those answering '*Other*' to this question and may account for some of the slightly lower figures in answer to the question (No. 1) of the importance of warranty provision.

Question 8 of the survey asked the user to specify an on-site call-out time that his/her organisation would be willing to pay for. The question stated.

> *The cost of improving on-site call-out times increases exponentially. For example, if an 8 hour call-out time costs X, a 4 hour call out time costs 1.5X and a 2 hour call out time costs 3X.*

> *Given the nature of your organisation, which of these call out times would you be willing to pay for?*

> - *An 8 hour call out time.*
> - *A 4 hour call out time (50% more expensive).*
> - *A 2 hour call out time (100% more expensive again).*

A sizeable proportion of those responding to this question stated that the call out time would vary with the type of product covered.

In the main, users favour a faster response, often 2 hours on a server, with a slower response for PCs and laptops. One user stated that 48 to 72 hour response on PCs was acceptable.

The answers provided to this question are illustrated in Exhibit III-9.

Exhibit III-9 On-site Response the User Would Pay For
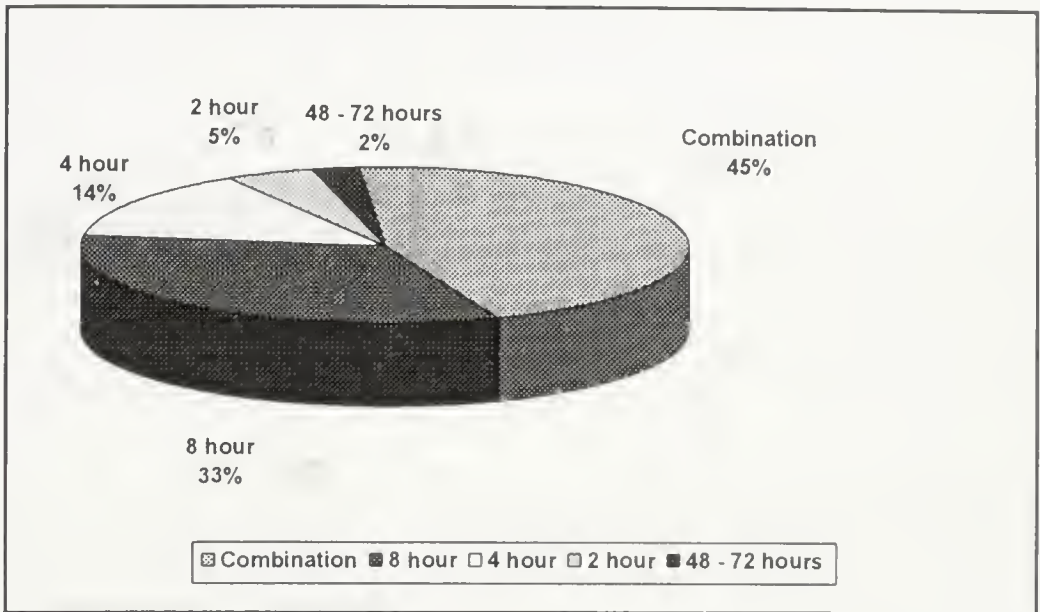
If those specifying '*Combination*' were analysed further and placed into their corresponding time-slots, the percentages for each would be as shown in Exhibit III-10.

Exhibit III-10   On-site Response the User Would Pay For

48 - 72 hours	8 hours	4 hours	2 hours
2%	52%	24%	22%

19% of the 22% stating 2 hour response did so for servers only.

D

WARRANTY MANAGEMENT

Question 3 of the survey posed the following question:

With the present hardware you have, combined with the new hardware you will purchase in the future, how do you propose to manage your variety of warranties?

Many of those interviewed acknowledged the problem, the typical response being *'with difficulty'*; however, there were three main types of solution proposed by those interviewed, namely:

- By the customer, using its own computer management tools, help desk or central support unit.

- Externally managed by the user's outsourcing company or maintenance provider.

- Considered at the time of product purchase and, in some cases, resulting in a standard approach to warranty provision.

Where the customer used its own resources to manage warranties, the majority used computerised tools on a centralised basis, although a small number indicated it was handled at departmental level or held off-line.

Where an external service provider was employed to manage warranties on behalf of an end-user, it was usually combined with a single source service agreement. In a few instances (see later), this may be combined with a single purchasing policy.

Typically the service provider was either a traditional third party maintenance (TPM) company or a major manufacturer, such as IBM, Compaq, Olivetti or Digital. One user stated they used an IBM dealer for IBM products and Digital for the rest. Some refused to name the company used, simply stating it was their on-site service provider.

Several of those interviewed have outsourced their computer operations and rely upon their outsourcing provider to manage warranty provision on their behalf. In most of these cases, the users believe that the warranty allowed them to reduce the costs of service provision by permitting them to negotiate a discount with their service provider.

In one instance, the user stated that even the type of product supplied was immaterial as it was up to the outsourcer to supply a fit product to perform the task required

In addition to those identified earlier who have a centralised purchasing policy, including one with a world-wide agreement with IBM, a number stated that they took the **standardisation of warranties** into account when making the decision on which products to buy.

Examples of this include a user who would only consider on-site warranties, then either maintenance or nothing! Other standardise on all 1-year warranties and another on all 3-year warranties.

Few constructive suggestions were made as to how warranties could be managed more effectively; however, one user suggested that the system should produce its own expiry date. This may not be possible using conventional methods *'when the system is down, it cannot be interrogated to find out'*, but use of integral intelligent transponders may make this feasible.

Exhibit III-11 shows the popularity of each of these three methods with the 43 who responded to this question.

Note. In a few instances, the total for alternative 3 (part of the purchasing procedure) could have been increased to account for some of those categorised as alternative 2 (see earlier).

Exhibit III-11   Warranty Management - Methods Adopted
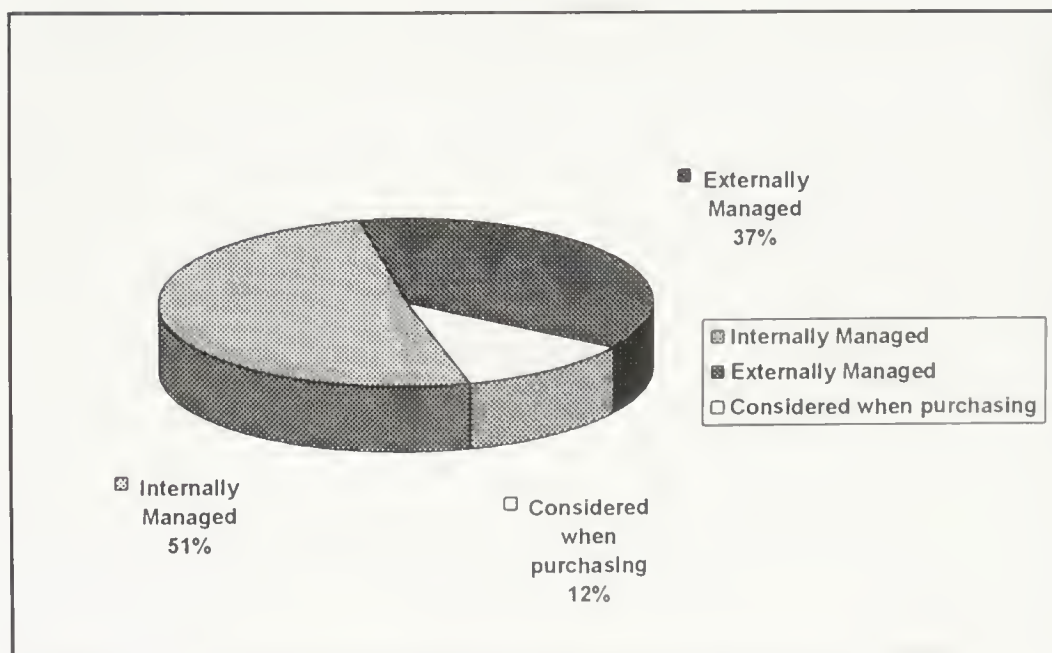
Totals summarised and grouped from the 43 users who responded to Question 3.

WARRANTIES - HIGH-END SERVERS

A

TYPES

Exhibit III-2 illustrated the manufacturers of the main High-end Servers in use at those surveyed. This is shown in tabular form in Exhibit IV-1.

Note. The number shown is the number of users specifying the manufacturer as their major supplier **not** the number of servers in use.

Exhibit IV-1 Main Servers In Use

Manufacturer	Number
IBM	19
Compaq	12
Hewlett-Packard	7
Digital	6
Olivetti	3
Bull	3
Dell	3
Unisys	3
Others	4

More than 2000 High-end Servers are in use at those surveyed for this report.

Section IX of this report reviews the warranties offered by the leading manufacturers, including the first four companies identified in Exhibit IV-1 and a few others of note.

WARRANTY TERMS

Question 9 (i) asked the user to state what is the standard warranty included in the purchase price for the high-end servers in use.

Section IX of this report reviews the warranties offered by the leading manufacturers and, with reference to Exhibit IV-1, it is evident that most of the products will have either a 1 year or 3 year warranty. This is confirmed by the customer answers to Question 9 (i) and illustrated in Exhibit IV-2.

Note. Numbers shown do not correspond to those answering the earlier question. In some cases users had servers with different warranty duration.

Exhibit IV-2 Warranty Term - High-end Servers
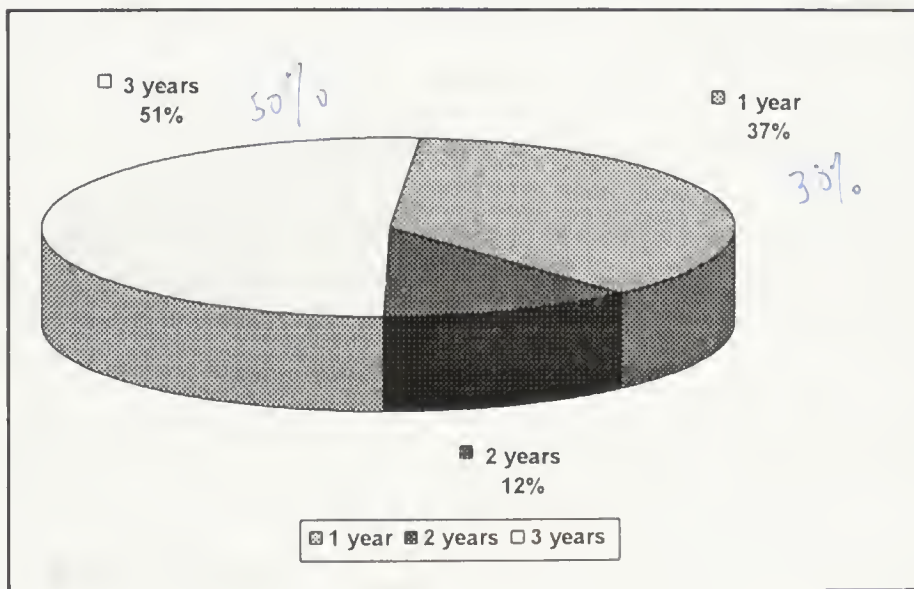
The second part of Question 9 asked the user to state the response times for on-site service and return to depot (base) repair.
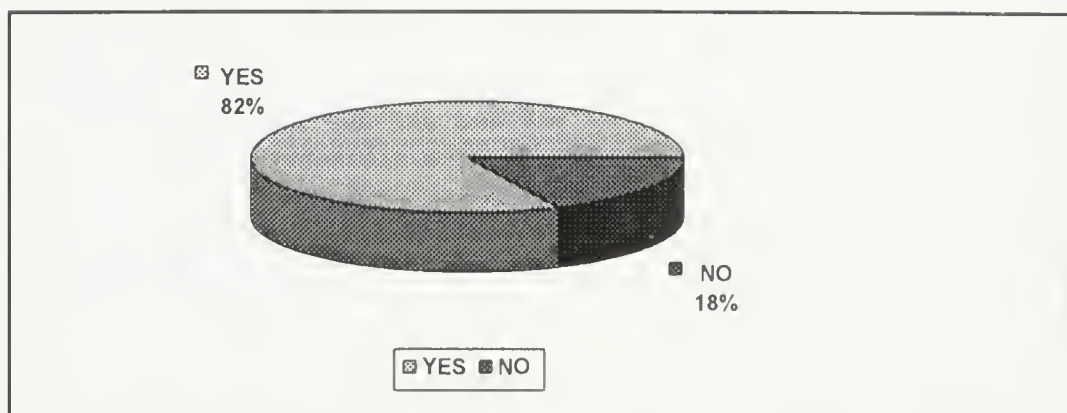
For server products, return to depot is widely acknowledged to be an inappropriate offering and only three users attempted to answer this part.

On-site response answers varied enormously, but generally in the range of '4 hours' to 'next-day' response.

An important feature in assessing the importance and relevance of the warranty offering, is how many users have chosen the standard warranty and how many have enhanced it. The answers to Question 10 show the number that have chosen to purchase additional/upgraded warranty cover.

Exhibit IV-3 shows how for servers, the majority of those surveyed have chosen to purchase enhancements to the standard warranty. (Later sections of this report will compare this with other products, which show contrasting figures).

Exhibit IV-3 Warranty Upgraded Or Not?

Typically users upgraded their service to provide a faster response, often by means of a separate maintenance contract rather than a simple warranty upgrade with the supplier of the server.

The few occasions where the customer upgraded the warranty directly with the manufacturer, were where the second and third years of the service were '*Return To Base*' and this was upgraded to an '*On-site*' service.

In some cases, the users already have engineers resident upon their site and the server is simply added to the existing maintenance contract. In other cases, the user wishes to place other constraints upon the service provider, e.g. specific '*fix-times*' in addition to enhanced response times.

The number of choices is large, and the answers provided by the users varied, making it inappropriate to identify them all; however, the main ones are shown in Exhibit IV-4:

Exhibit IV-4 Summary of the Major Service Enhancements - Servers

- 2 hour response + 2 hour repair or replace.
- 4 hour response + 4 hour fix.
- 3 hour response by specified engineer.
- Service Level Agreement (SLA).
- Customer holds spare equipment.
- Out of hours coverage.
- Immediate access to an engineer.
- Staff on site.

WARRANTIES - PERSONAL COMPUTERS

A

TYPES

Exhibit III-3 illustrated the manufacturers of the main Personal Computers in use at those surveyed. This is shown in tabular form in Exhibit V-1.

Note. The number shown is the number of users specifying the manufacturer as their major supplier **not** the number of PCs in use.

Exhibit V-1   Main Personal Computers In Use

Manufacturer	Number
IBM	24
Compaq	18
Hewlett-Packard	6
Digital	5
Apple	4
Others	17

Approximately 80,000 PCs are in use at those surveyed for this report. In fact if those who could not provide details are taken into account, the total is expected to exceed 100,000.

Section IX of this report reviews the warranties offered by the leading manufacturers, including the first four companies identified in Exhibit V-1 and a few others of note.
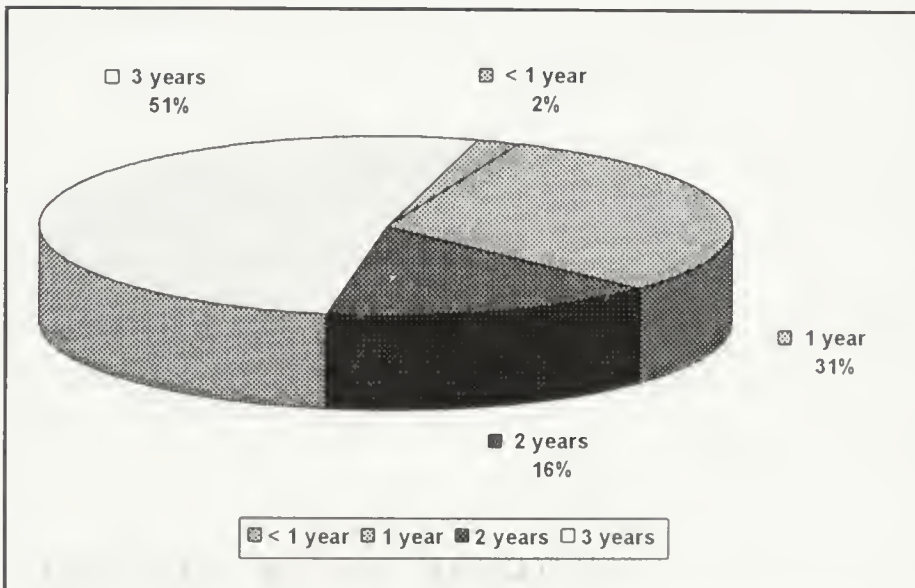
WARRANTY TERMS

Question 11 (i) asked the user to state what is the standard warranty included in the purchase price for the Personal Computers in use.

Section IX of this report reviews the warranties offered by the leading manufacturers and, with reference to Exhibit V-1, it is evident that most of the products will have either a 1 year or 3 year warranty. This is confirmed by the customer answers to Question 11 (i) and illustrated in Exhibit V-2.

Note. Numbers shown do not correspond to those answering the earlier question. In some cases users had PCs with different warranty duration.

Exhibit V-2   Warranty Term - Personal Computers

As may be seen, Exhibit V-2 shows a similar result as that of Exhibit IV-2, indicating that Server and PC warranties are typically for similar terms.

What these Exhibits do not show is that a number of the 3 year warranties only provide Return to Base service in the second and third years. Some of those responding did not differentiate between an all-embracing three year warranty offering on-site service throughout the 3 years and one only offering on-site service for the first and Return to Base in the second and third. Almost five times as many stipulated this latter warranty on PCs in comparison with those doing so for Servers.

The second part of Question 11 asked the user to state the response times for on-site service and return to depot (base) repair.

On-site response times elicited a variety of answers, with some users expressing it in terms of business hours and others in actual elapsed time. What is apparent that few, if any, PC warranties guarantee a time of less than 8 business hours.

The most popular alternatives are either within 8 business hours or '*next-day*'. This latter option does not guarantee a response within a defined period, as a fault call at 0905 one morning may not be attended to until 1630 the following day. For illustrative purposes, Exhibit V-3 shows the percentages offering an on-site response within 8 business hours (usually 24 elapsed hours) and those with slower response times (usually within 2 days).

Exhibit V-3   On-site Warranty Response - Personal Computers
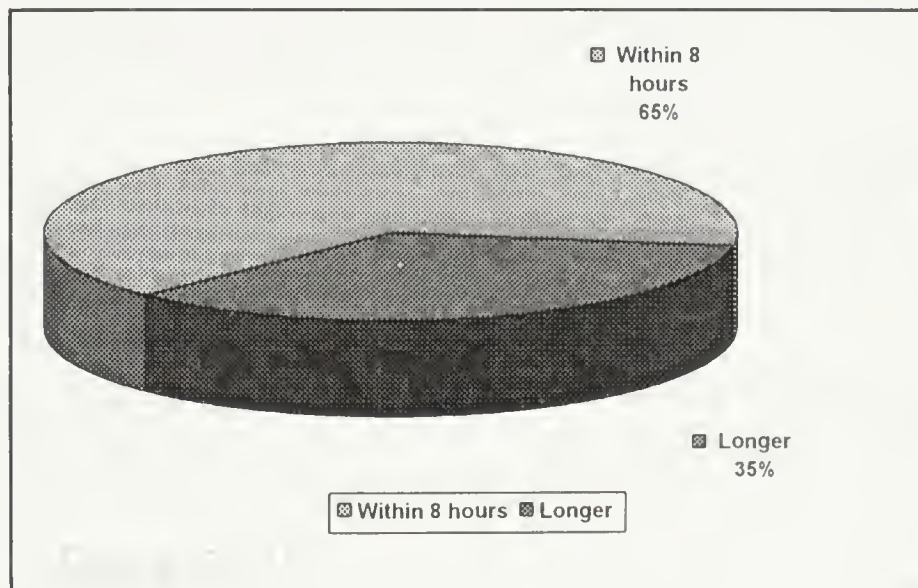
For server products, few specified a return to depot time as it is believed to be an inappropriate warranty service; however, 38% of those surveyed provided an answer to the similar question for PCs.

As with the on-site response, the figures provided vary and the answers are grouped as shown in Exhibit V-4. Several of those interviewed stated that no guarantee of time was provided for a return to depot warranty. In fact, this was one of the major complaints about PC warranties raised in Question 7 of the survey.

**Exhibit V-4   Return to Base Warranty Response - Personal Computers**
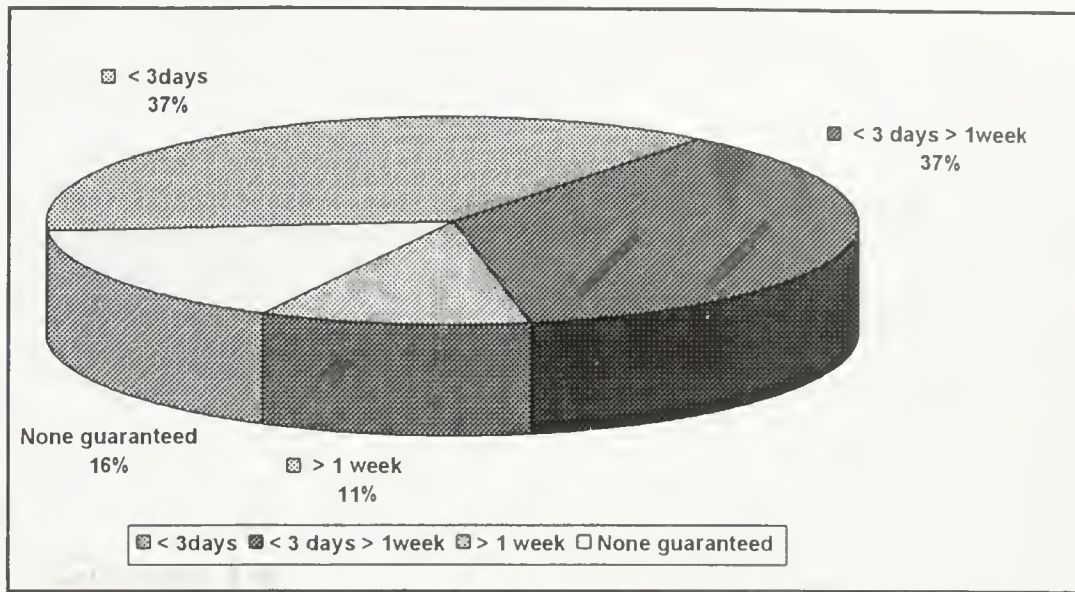
Some of those surveyed stated they held spare PCs that could be substituted in the case of a product being returned for repair and a small number stated that this is either part of their purchasing agreement with a manufacturer or dealer or in its service contract.

An important feature in assessing the importance and relevance of the warranty offering, is how many users have chosen the standard warranty and how many have enhanced it. The answers to Question 12 show the number that have chosen to purchase additional/upgraded warranty cover.

Exhibit V-5 shows how for PCs, the minority of those surveyed have chosen to purchase enhancements to the standard warranty. (This contrasts with Servers - see Exhibit IV-3 - where the majority have done so.)

Exhibit V-5   Warranty Upgraded Or Not?
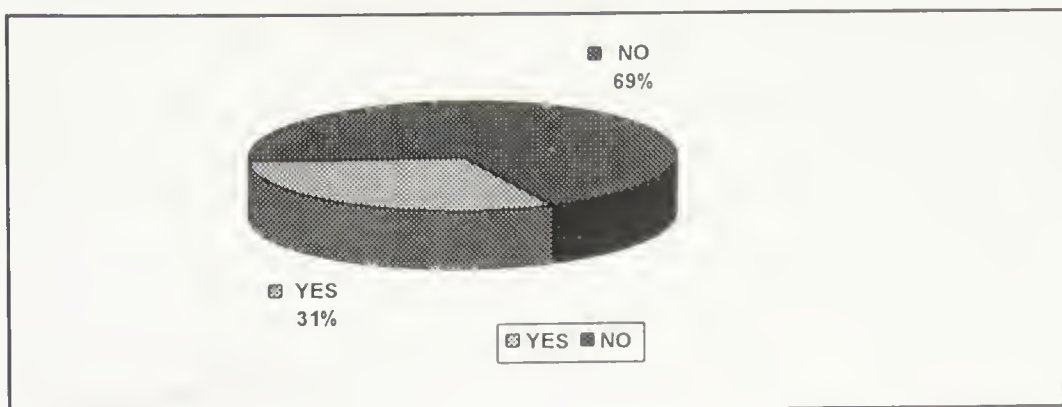
Typically users upgraded their service to provide a faster response, often by means of a separate maintenance contract rather than a simple warranty upgrade. Another popular upgrade is to replace the second and third year Return to Base warranty with an on-site service.

As with Servers, in some cases, the users already have engineers resident upon their site and PCs are simply added to the existing maintenance contract. In other cases, the user wishes to place other constraints upon the service provider, e.g. specific '*fix-times*' in addition to enhanced response times. The number and variety of choices is fewer than those for Servers.

WARRANTIES - PORTABLE COMPUTERS

A

TYPES

Exhibit III-4 illustrated the manufacturers of the main Portable (Laptop or Notebook) Computers in use at those surveyed. This is shown in tabular form in Exhibit VI-1.

Notes.

1. The number shown is the number of users specifying the manufacturer as their major supplier **not** the number of Portable Computers in use.

2. The terms, Portable, Notebook and Laptop, as related to this category of product are used synonymously throughout this report.

Exhibit VI-1 Main Portable Computers In Use

Manufacturer	Number
Toshiba	15
Compaq	11
IBM	8
Olivetti	3
Bull/Zenith	2
Others	8

Approximately 11,000 Portable Computers are in use at those surveyed for this report.

Section IX of this report reviews the warranties offered by the leading manufacturers, including the first three companies identified in Exhibit V-1 and a few others of note.
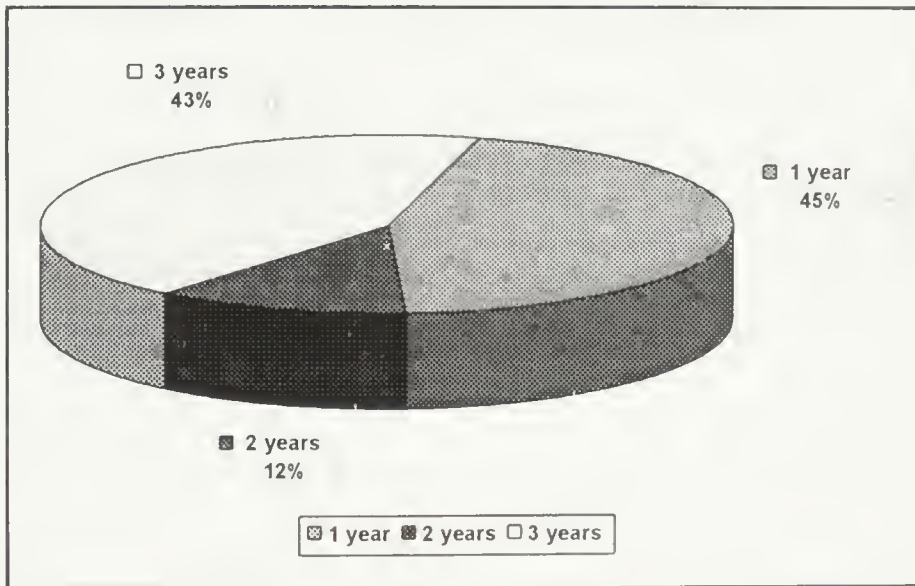
WARRANTY TERMS

Question 13 (i) asked the user to state what is the standard warranty included in the purchase price for the Portable Computers in use.

Section IX of this report reviews the warranties offered by the leading manufacturers and, with reference to Exhibit V-1, it is evident that most of the products will have either a 1 year or 3 year warranty. This is confirmed by customer answers to Question 13 (i) and illustrated in Exhibit VI-2.

Note. Numbers shown do not correspond to those answering the earlier question. In some cases users had Portable Computers with different warranty duration.

Exhibit VI-2 Warranty Term - Portable Computers

As may be seen, Exhibit VI-2 shows a similar result to that of Exhibits IV-2 and V-2 indicating that Server, PC and Portable Computer warranties are typically for similar terms.

In many cases, the warranty service provided is a Return to Base service. Although the answers provided show a similar spread of service response times for on-site and return to base services as for PCs (see the previous Section), it is our belief that many of those surveyed were unclear on the exact terms of their warranty provision.

As illustrated in Exhibit III-6, users of portable computers rated warranties of less importance than any of the other categories surveyed. This is illustrated both by the number of users admitting to know little about their warranty provision and by the small number that had actually enhanced their warranty. This latter figure is shown in Exhibit VI-3.

In addition, few of those interviewed had comments to make about warranty provision on portable computers; the main criticism was the long time to respond to a call or that the return to base service was either too long or not guaranteed.

Exhibit VI-3 Warranty Upgraded Or Not?
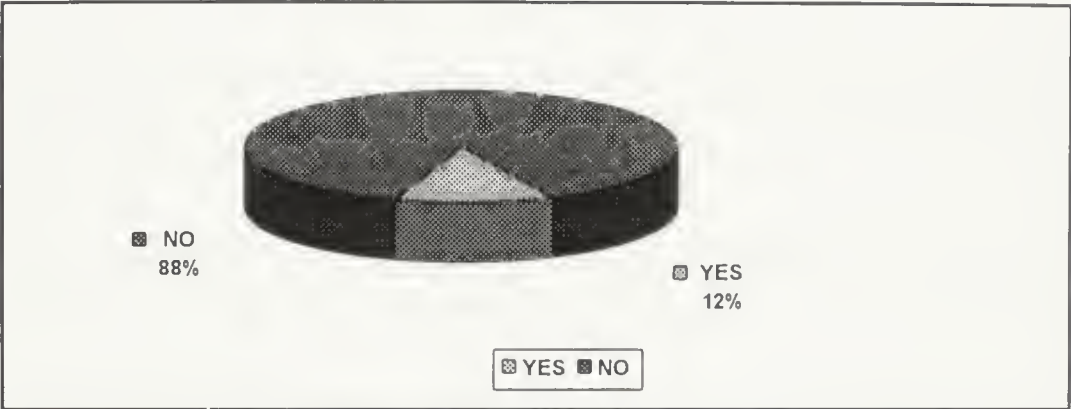
WARRANTIES - PRINTERS

A

TYPES

No differentiation was made in the survey about the different types of printer, although undoubtedly some of the issues raised are mainly applicable to one type, e.g. laser printers.

As illustrated in Exhibit III-5, more manufacturers of Printers were identified than any of the other product groupings surveyed. This is shown in tabular form in Exhibit VII-1.

Note. The number shown is the number of users specifying the manufacturer as their major supplier **not** the number of Printers in use.

Exhibit VII-1 Main Printers In Use

Manufacturer	Number
Hewlett-Packard	24
IBM	9
Epson	5
Canon	4
Toshiba	4
Lexmark	3
Oki	3
Others	24

Approximately 15,000 Printers are in use at those surveyed for this report. In fact if those who could not provide details are taken into account, the total is expected to exceed 25,000.

Section IX of this report reviews the warranties offered by the leading manufacturers, including the first four companies identified in Exhibit VII-1 and a few others of note.

B

WARRANTY TERMS

Question 15 (i) asked the user to state what is the standard warranty included in the purchase price for the Printers in use.

Section IX of this report reviews the warranties offered by the leading manufacturers and, with reference to Exhibit VII-1, it is evident that, as with the other product groups surveyed, most of the products will have either a 1 year or 3 year warranty. This is confirmed by the customer answers to Question 15 (i) and illustrated in Exhibit VII-2.

Note. Numbers shown do not correspond to those answering the earlier question. In some cases users had Printers with different warranty duration.

Exhibit VII-2 Warranty Term - Printers

Pie chart showing:
- < 1 year 2%
- 3 years 34%
- 1 year 52%
- 2 years 12%

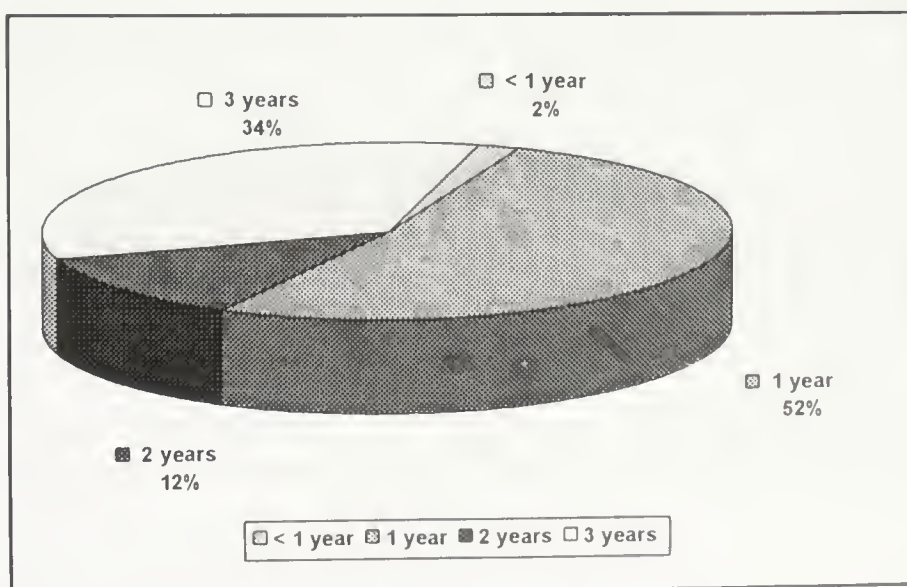Legend: □ < 1 year ▨ 1 year ▨ 2 years □ 3 years

Exhibit V-2 shows that for Personal Computers, the most common warranty term is for 3 years, whereas for Printers, as shown above the most common term is 1 year. As with other products, a 2 year term is uncommon.

The second part of Question 15 asked the user to state the response times for on-site service and return to depot (base) repair.

On-site response times elicited a variety of answers, with some users expressing it in terms of business hours and others in actual elapsed time. What is apparent is that for the majority of users on-site printer response is usually within 8 business hours, and in some cases a shorter time. A small proportion have either next day or slightly longer responses. This is illustrated in Exhibit VII-3.

Exhibit VII-3   On-site Warranty Response - Printers
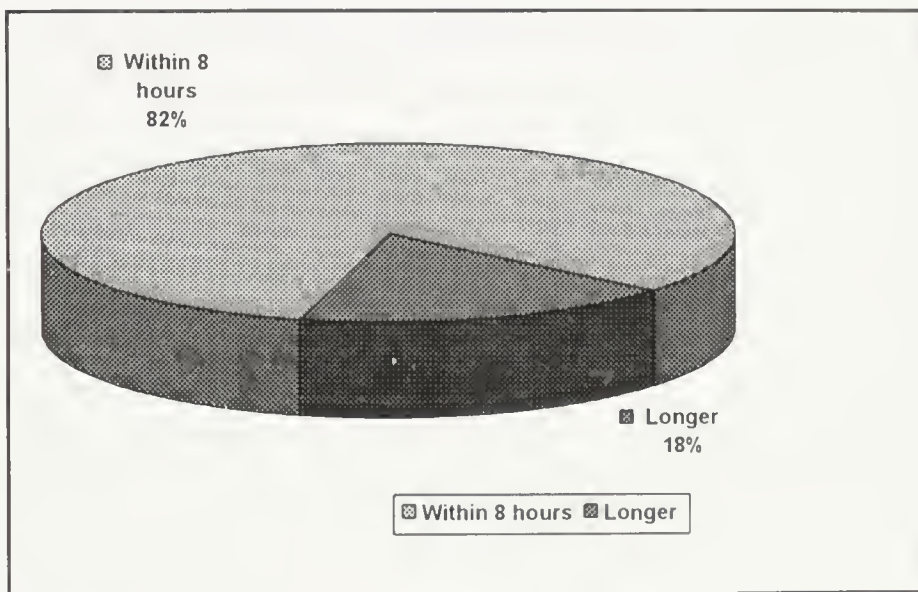
For server products (see Section 4), few specified a return to depot time; however for printers several expressed a time, although few commonalties were observed. One user was obviously distressed to state '*the Return to Base service on his printers was two months*'.

A reasonable balance was observed between those users who have upgraded their printer warranties and those who have not. This is illustrated in Exhibit VII-4.

Exhibit VII-4   **Warranty Upgraded Or Not?**
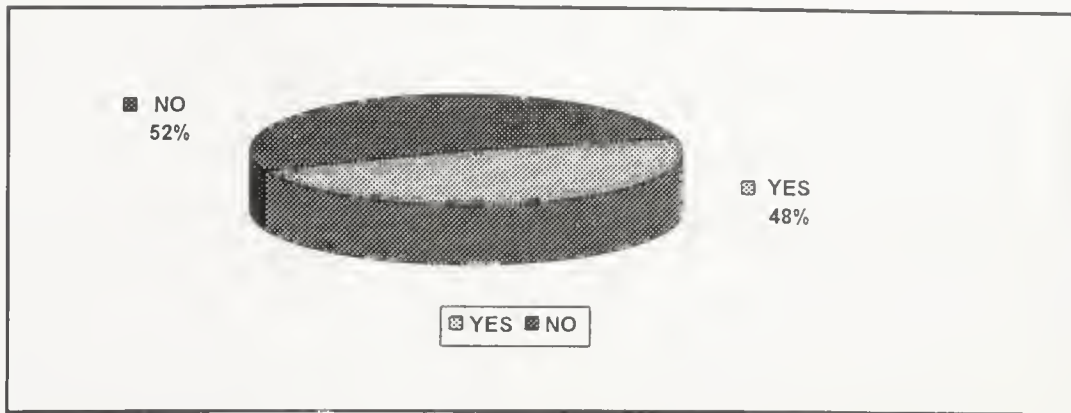
Typical enhancements purchased by those who have done so are shown in Exhibit VII-5.

Exhibit VII-5 Summary of the Major Service Enhancements - Printers

- All on-site service for laser printers.
- Hot-line immediate telephone support.
- Customer can assign priority at the time of fault call.
- Service Level Agreement (SLA).

Several of those interviewed stated they can replace a printer with others they hold as spares or assign other printers to take over the workload in the event of a failure. In some cases customers have chosen to operate on this principle for smaller printers, in preference to having a maintenance contract.

Fewer concerns were raised about printer warranties in comparison with the other products surveyed although, as shown in Exhibit VII-4, a sizeable proportion has upgraded their warranty.

PRODUCT COMPARISON

A

USER EXPECTATIONS

Exhibit III-6 illustrated the importance of warranties to users for each of the product groups surveyed. This is repeated in a slightly modified form as Exhibit VIII-1 below.

Exhibit VIII-1   Importance of Warranty Provision
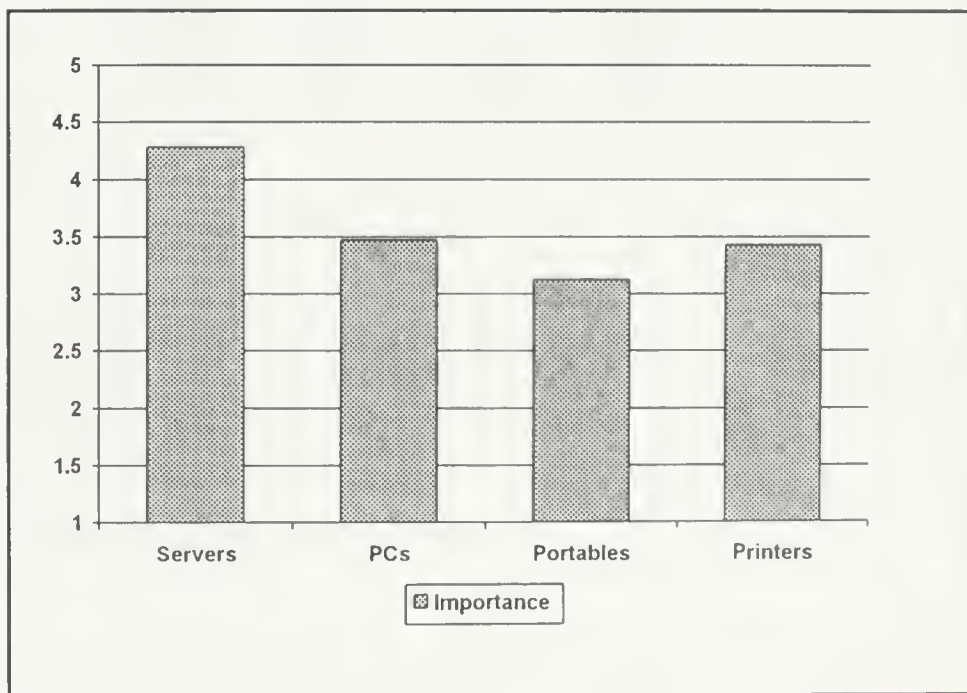
As may be seen in Exhibit VIII-1, warranties were rated of higher importance for High-end Server products than for the rest. Importance ratings for PCs and printers was significantly lower with the rating for portable computers even lower still.

We believe that the figures shown in Exhibit VIII-1 understate the importance of warranties and service issues to users of Servers and Printers. To illustrate our views, we suggest that if the subject is important to the user he/she is more

likely to have modified his/her warranty provision, than those who consider it to be of lesser importance. Exhibit VIII-2 contrasts the percentage of users who have upgraded their warranty or service arrangements for each of the four product groupings.

Exhibit VIII-2   % Who have Upgraded Warranty/Service Provision
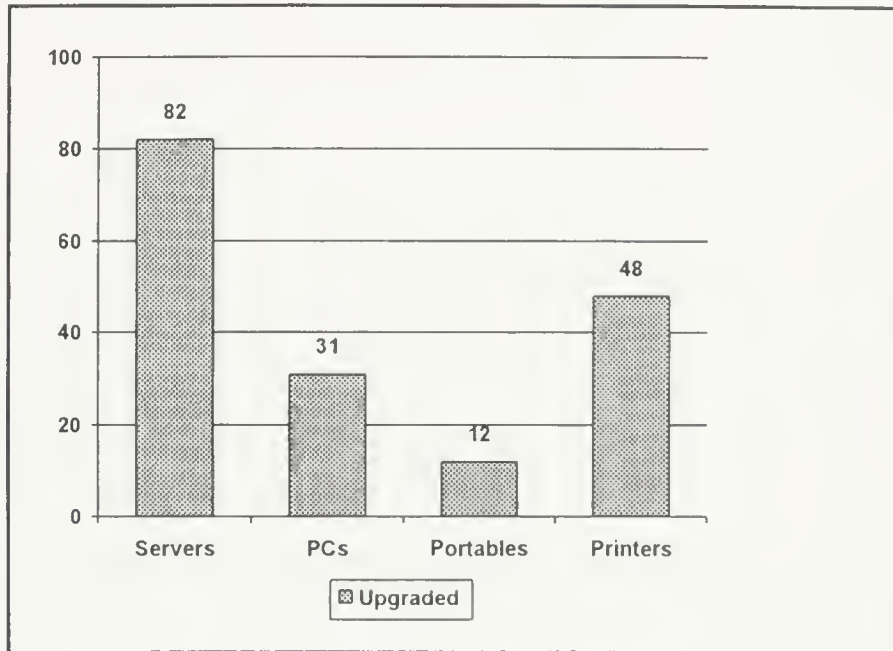
Although it could be interpreted from Exhibit VIII-2 that the warranty provided on Portable and Personal Computers is adequate, hence few users upgrade them, it is more likely that user expectations are not met, particularly for High-end Servers.

Question 7 of the user survey asked:

> *'Where expectations are not met, what is your main complaint?'*

Some of the comments made are shown in Exhibit VIII-3.

Wherever possible the order shown is based upon the number of users stating a particular comment or slight variant. Comments are only shown in this exhibit if they have been made by more than one user. Review of these comments and of those that have enhanced their warranty offering to provide improved response or on-site service may be enlightening.

Exhibit VIII-3   **Unfulfilled User Expectations**

All Product Groups

- Repairs are not good enough and poor quality control.
- Persistent problems are not analysed.
- User cannot specify the maintainer, if it is not the manufacturer, and several prefer manufacturer service/warranty.

Servers

- Generally warranties are not good enough (hence the high % shown in Exhibit VIII-2).
- Call-out times are too long.
- Return to Base warranty is of no use.
- No performance guarantees.
- Manufacturers keep changing warranty specifications.

Personal Computers

- Return to Base service takes too long.
- Time to respond to a fault call is too long.
- Suppliers do not consider warranties to be important.
- The costs of extending/enhancing warranties is too large.

Portable Computers

- Time to respond to a fault call is too long.

Printers

- Time to respond to a fault call is too long.
- High value parts are not covered (printheads?).

WARRANTY DURATION & TYPE

Many of the leading manufacturers, e.g. IBM, Compaq, Hewlett-Packard, are identified as major suppliers in at least three of the product groups surveyed and others such as Olivetti, Bull and Digital in two of these groups.

Consequently, it would not be too surprising to find many similarities between the warranties on offer.

In practice, the user views were simplistic focusing upon the duration of the warranty and whether it was for on-site service or return to base.

The complexity and variance of offering, the speed of response, the parts covered and other topics shown in Section IX for the various manufacturers, is scarcely evident from the users.

Many of the manufacturers have different warranties for different product ranges, yet there is little acknowledgement of this from the users themselves.

It may be that, as some users stated, they either:

- Leave warranty management to a third party, e.g. outsourcing company or maintainer - see Exhibit III-11 (37%).

or

- Consider the product warranty at the time of purchase and buy a suitable product with the warranty required (12%) or purchase enhancements/extensions at that time or place it under their normal service arrangements (varied by product type).

The duration of warranties usually varied between 1 year and 3 years with a few exceptions. Exhibit VIII-4 illustrates a few differences between the product groups surveyed.

Exhibit VIII-4　　　Warranty Duration By Product Group
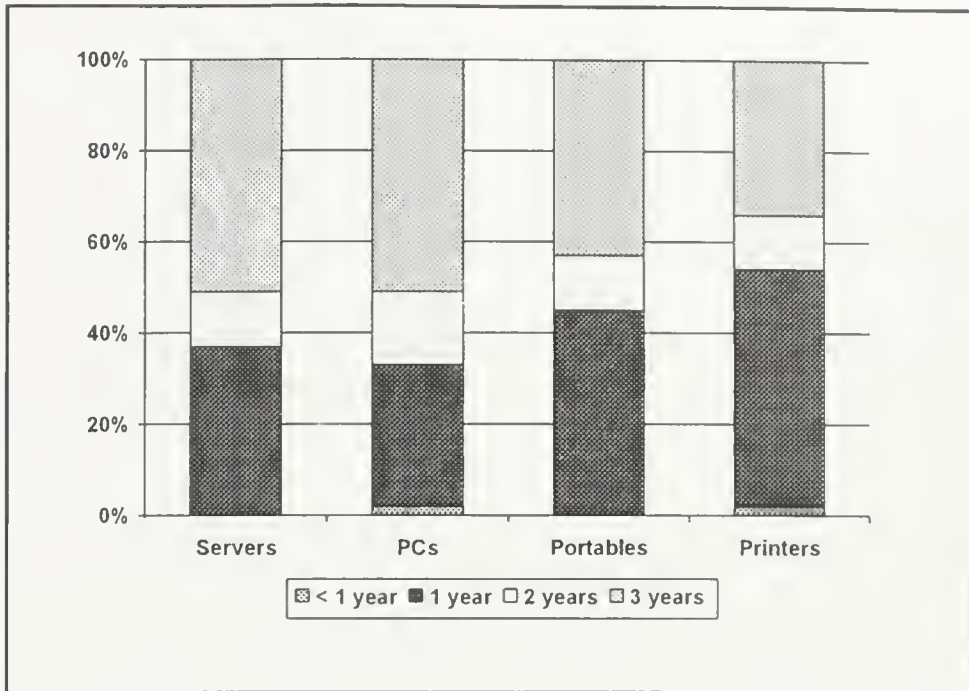
An indication of speed of response is provided by reference to Exhibit VIII-5 illustrating the percentages having an on-site response within 8 hours. However, we suspect that some users stated figures for service agreements, not just warranty service.

Exhibit VIII-5　　　On-site Response Within 8 Hours

C

USER PURCHASES

1. High-end Servers

As illustrated in Exhibit VIII-2, a majority (82%) of users of High-end Servers has purchased upgraded warranties or services on these products.

Full details of the enhancements purchased are not available but, as illustrated in Exhibit IV-4, many of these are in the area of improved service response and guaranteed fix times.

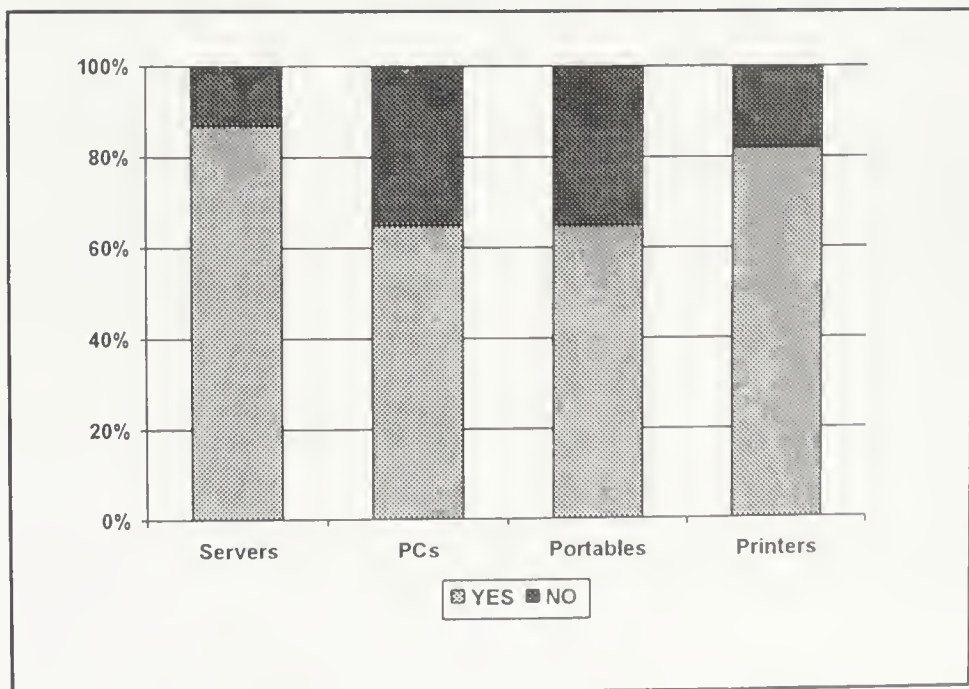Most of those interviewed for this project are major computer users, with tens, if not hundreds, of servers. Consequently many already have maintenance contracts on other systems and addition of a few more systems to existing contracts does not pose a problem.

It is likely, as expressed by some of those surveyed, that the warranty provided by the product manufacturer is simply used as a method of reducing total service costs as a bargaining weapon in negotiations with a service provider or outsourcing companies.

The most common warranty upgrade purchased, as distinct from a service contract, was the upgrade of second and third year services to on-site service for those products where the warranty for these years was restricted to a return to base service.

Respondents to this survey usually referred to servers in what is conventionally interpreted as mid-range systems or high-end PCs, with little reference to mainframe systems. It is apparent, that some of the services mentioned by users in France, in particular the '*Concept contract*', have their origins in the mainframe arena. The services offered in this contract include remote diagnosis and recovery.

2. Personal Computers

As shown in Exhibit III-7, users of Personal Computers were, in general, more satisfied (3.74) with warranty provision than users of other product groups (Mean of 3.58).

Although this difference may not be statistically significant it partially explains why these users were less likely than average to have purchased enhanced warranties (31% against a mean of 43% - see Exhibit VIII-2).

Although some users had purchased improved response warranties from the equipment manufacturer, the most common options were related to service provision by an incumbent service provider.

3. Portable Computers

Even smaller numbers of portable computer users (12%) have purchased upgraded warranties than for any other product.

Insurance against loss, theft and/or accidental damage is one of the options identified by some users in Italy. No details were made available on whether this insurance is available from the supplier or if it is purchased separately.

4. Printers

Second to servers as the product group most likely to have its warranty enhanced, these devices had, on average, the shortest warranty term of the four groups researched (Exhibit VIII-4).

A feature of the enhancements offered and purchased was immediate telephone support. It is believed that delineation of problems into whether the cause is the system, software or printer, may be one of the reasons why this service is offered.

Almost half (48% - Exhibit VII-4) of all printer users had upgraded the warranty on their printers. Substantial numbers have bought on-site service for the second and third year; how much this is due to the good marketing of its 'SupportPack' by Hewlett-Packard is impossible to say.

Some of the users who have not purchased enhancements to printer warranties, stated they hold spare units or can re-assign other printers in the event of a problem necessitating removal of a printer from site.

D

OTHER

The final question of the user survey asked:

> *'Do you have any other comments you would like to make about product warranties or the upkeep of the products discussed?'*

Many of these issues have already been described earlier in this report; however, a few identified by more than one user are identified in Exhibit VIII-6.

Wherever possible the order shown is based upon the number of users stating a particular comment.

Exhibit VIII-6   **Additional Comments**

- Often there is no commitment by the supplier in terms of warranty performance, i.e. best endeavours.

- Extensions to warranties are too expensive.

- Warranty service is inappropriate for critical devices (hence the large percentage using other service provision for high-end servers and large printers).

- Warranty is less important than the ability of the manufacturer to supply it. (We heard some negative comments about the performance of dealers providing warranty on behalf of manufacturers, especially for IBM and/or in the Netherlands).

- Manufacturer have inconsistent warranty provisions across their product ranges.

- Suppliers are too keen to sell warranty upgrades.

We do not consider it appropriate to include additional comments, where they were made by only one user among the 50 surveyed for this project.

IX

MANUFACTURER WARRANTY PROVISIONS

A

HIGH-END SERVERS

The term *'Server'* is now commonly applied to a wide variety of systems ranging from multi-processor mainframe systems with hundreds of users through to desk-side systems using a single microprocessor and serving a handful of users.

For the purpose of this report, INPUT has defined the term *'High-End Server'* to include multi-user systems from traditional mid-range suppliers such as IBM and Hewlett-Packard and servers from those better known as PC suppliers, e.g. Compaq and Dell.

However, users were not provided with a definition during the survey and they were able to define any product as a high-end server, if they perceived that this is the function it is performing.

Exhibit IV-1 identified the main servers in use at those surveyed. Main manufacturers identified are IBM, Compaq, Hewlett-Packard, Digital, Olivetti, Bull, Dell and Unisys.

This subsection concentrates on the first four of these companies; however, it includes others for comparison. The companies are reviewed in alphabetical order in each subsection.

Warranty offerings vary, with the emphasis of the mid-range suppliers more likely to be concerned with offering service on an on-going basis than the PC suppliers.

In many instances the warranty on these products is a basic offering which is designed to be supplemented by the customer purchasing faster response or additional hours of coverage.

Exhibit IX-1 illustrates the hardware warranty offerings of some of the major suppliers of this type of product.

Exhibit IX-1 Hardware Warranty Offerings - High-End Servers

	Hardware Term (Yrs)	Type	Response	Service Provider
Compaq ProLiant	3	On-site	Variable	Digital & others
Dell PowerEdge	3	On-site	Next day	Digital & Wang
Digital Alpha-Server	3	On-site	Variable	Digital
Hewlett-Packard NetServer	3	On-site	Next day	HP
IBM AS/400	1	On-site	Variable	IBM
Mitsubishi Shogun	3 + 2	3 On-site + 2 years for parts	8 hours	(In UK) Open Systems Engineering
Sequent 5000 Series	0.25 (90 days)	On-site	4 hours	ICL Sorbus

1.   Compaq

On its ProLiant and ProSignia server systems Compaq offers a three year on-site warranty. On-site service is provided by the reseller if it is a Compaq accredited Systems Service Provider or by Digital's Multivendor Customer Services (MCS) Division if the reseller is not accredited.

There are several exclusions including consumables and software. Monitors connected to a Compaq server have a one year on-site warranty.

If the product was bought in the European Union (EU) countries, Switzerland or Norway, then warranty service is available in any one of these countries or only in the country of purchase if elsewhere.

The emphasis at Compaq is changing and it is attempting to sell a wider range of services under its *'CompaqCare for Business'* support package, which provides:

- Information Tools
- Telephone Support
- Training

2. Dell

Dell PowerEdge Systems are provided with a next-day 3 year warranty and includes reloading of MS-DOS and Windows, if required.

However, in recognition that often this does not meet mission-critical customer needs, Dell offers a series of SelectCare Service Upgrades. These range from enhancements to the response time to 4 hours to around the clock telephone and on-site service, including data back-up restoration.

Netware and Windows NT telephone support are separately charged services.

Dell usually uses engineers from Digital and Wang to provide its on-site hardware service, although networking support may be provided by others.

3. Digital

Digital AlphaServers are sold with a 3 year warranty; however, normal response is next business day and Digital attempts to enhance this to a 4 hour response service.

Monitors and Options are provided with a one year on-site warranty if purchased with a system or one year Return to Digital otherwise. Operating System Software is provided with one-year telephone support.

An uplift to provide 4 hour response and software updates is available, as is a variety of other service options.

4.   Hewlett-Packard

HP NetServers are provided with a next-day response three year warranty. Customers are recommended to purchase HP SupportPacks for enhanced response (which can be extended to 4 hour response around the clock) and telephone support.

Its larger 9000 Series servers are provided with a one-year four-hour response warranty.

5.   IBM

Users of IBM AS/400 systems are provided with a one year warranty which allows them to call a single point of contact for all hardware and software queries.

Its ASSIST/400 service is available from 0800 - 1900, Monday to Friday. In addition to telephone support, various electronic tools and fault databases are accessible.

IBM will not guarantee a specific response time but determines it at the time of fault call. It is usually less than 4 hours for serious server faults.

6.   Mitsubishi

Still better known as Apricot, Mitsubishi Electric's Shogun Servers are provided with a LifeTime™ warranty.

Although Mitsubishi did not feature in the main manufacturers identified in the user survey, we include it in the research because of its approach to warranty provision.

However, Mitsubishi's definition of LifeTime is 5 years, of which on-site service is provided for the first three. Parts are then covered for the remaining two years.

Mitsubishi manages warranty provision and uses third parties, (Open Systems Engineering in the UK) to provide on-site service on servers with a target of 8-

hour response. Software warranty support is limited to reloading of DOS, although its partner usually provides additional assistance.

A comprehensive range of extended and expanded service options is available to supplement the standard warranty.

7.   Sequent

Another offering a different approach to warranty provision is Sequent.

Sequent's servers are provided with a 90-day four-hour response warranty; however, it claims that few, if any, customers rely on warranty provision and usually take out a maintenance contract.

If the customer takes out an annual (or longer) maintenance contract, the first 90 days are provided free of charge irrespective of the hours of coverage purchased. The warranty is extended to one year if a five year support deal is agreed.

A feature of the Sequent coverage is that its 8-hour cover period is flexible and may cover hours such as 0700 - 1500 or 1000 - 1800.

Sequent provides a number of on-line service tools, but uses ICL Sorbus to provide on-site hardware maintenance.

The approach adopted by Sequent, although one may suggest it is minimalist, appears to correspond with the desires of users, many of whom (see Exhibit IV-3) upgrade their warranty, whatever is provided by the manufacturer.

Note. No details have been provided by Sequent, but it is believed that the standard Sequent warranty offering in France is 1 year.

PERSONAL COMPUTERS

Although personal computer (PC) warranties have been enhanced and extended in recent years, there is evidence that this is changing.

In particular, some manufacturers are providing different warranties across their different product ranges. The days of a simple one-year warranty, either on-site or return-to base, on all products has disappeared.

The use of warranty as a means of product or channel differentiation is now commonplace. Consequently, INPUT believes that simple comparison between PC manufacturers is meaningless. This subsection illustrates the different warranty offerings from the major suppliers and a few others chosen for comparison.

The first four companies identified as suppliers of high-end servers, namely IBM, Compaq, Hewlett-Packard and Digital, occupied the same positions among the PC users surveyed.

1. Compaq

Compaq desktop PCs (Presario, Prolinea and Deskpro ranges) are provided with a 3-year warranty, the first year of which is on-site service and the remaining two years a return-to-base service.

However, from 1 August 1996, these ranges have been discontinued and the new Deskpro X000 ranges have different warranty terms.

The recent launch of the Deskpro X000 ranges (2000, 4000 and 6000) has brought a change to Compaq's warranty provision.

These new products also have a three year warranty with the first year on-site and the subsequent years return to base. However, in years two and three the warranty covers **parts only and not the labour** involved in fitting them.

Attached external monitors have a one year on-site warranty if connected to a Compaq desktop PC, but only a carry-in service if connected to a portable Compaq product.

Similar to its server products, Compaq offers a variety of service options, which the customer may purchase.

2. Dell

In addition to its PowerEdge systems, usually used as high-end servers (see earlier), Dell has two PC ranges:

- OptiPlex
- Dimension

The former of these is provided with a next business day on-site service for the first year and a '*Collect and Return*' service on the base (system) unit for the following two years.

The Dimension range has a one year '*Collect and Return*' warranty.

During the '*Collect and Return*' period, Dell arranges collection of the faulty unit on the day of the customer call or following day, repair is carried out by a Dell authorised repairer and the unit returned to the customer (usually within 4 days).

However, as stated in the user survey, this turnaround time is a target and no guarantees are given.

The cost of shipping the unit to and from the repairer is borne by Dell.

3. Digital

Digital also differentiates its PC warranty provision by offering a three year on-site warranty on its high-end PC products and a three year warranty on its lower-end products with only the first year on-site.

Monitors and Options purchased with Digital PCs are entitled to one-year warranty which, if purchased with a PC, is on-site or if separately on a Return to Digital basis. Repairs are usually carried out within 48 hours. Customers are liable for the cost of transportation in both directions.

One year telephone support is provided for operating system software and 90 days advisory telephone support for applications.

4.   Hewlett-Packard

Hewlett-Packard (HP) sells several ranges of PCs under the '*Vectra*' banner.

A three year warranty is provided on these products with the first year being on-site service and the remaining two a return to base offering.

On-site service is usually next-day response, with no guaranteed turnaround time for the return to base service.

Warranties can be enhanced to include on-site service in years two and three, faster response, additional hours of coverage etc., by users purchasing an HP SupportPack. This is believed to be a particularly low-cost option attractive to users.

5.   IBM

The mainstays of IBM's Business PC ranges are the 300 Series (330 & 350) and the 700 Series (730 and 750), although it also markets the PS/2 and ValuePoint Performance ranges.

PCs in these series have a 3-year return to base warranty, supplemented with a year's membership of '*Helpware*', IBM's telephone software assistance operation.

Its Aptiva ranges are aimed at the SoHo customer and its warranty is reduced to 1 year for hardware and 60 days Helpware. In practice, some dealers and the superstores enhance the warranty themselves.

6.   SNI

Siemens Nixdorf (SNI) PCs are provided with a three year warranty, the first year of which is on-site and the following two years, '*Return to SNI*'.

Normal on-site response is next-day, but turn-around time for '*Return to SNI*' is normally 10 working days, which is longer than most others.

Cost of carriage to SNI is the customer's responsibility, although SNI pays for its return.

Various warranty extensions are available to enhance the service provided, e.g. A one-year return service can be enhanced to one year on-site for 6% of the product list price (at the time of sale).

PORTABLE COMPUTERS

This product grouping brought with it the introduction of a new company into the frame - Toshiba. Although it has launched desktop products, it is better known as the market leader for portable computers, a position confirmed in the user survey (see Exhibit VI-1).

Otherwise the leading suppliers are little different from those identified in the previous two product groups.

Note. In this section of the report, we have not detailed the warranty offerings of Olivetti.

1. Apple

Currently Apple products have a 3 month carry-in warranty, although many are sold by its resellers with a *'warranty upgrade'* of 1 year on-site.

It is a feature of many products, not only from Apple, sold through the retail channel that the reseller may provide enhancements to the warranty, often at its own expense. The user survey concentrated on major computer users and we suspect that most of the products are purchased either directly or through corporate resellers.

It is believed that these conditions are under review currently and are likely to change shortly.

2. Compaq

In a similar fashion to its desktop products, Compaq has recently discontinued some of its portable products (the Contura) range and replaced them with others with different warranty conditions.

The Armada range consists of the 1100 with a one year return to base warranty and the 4100 with a three year return to base warranty.

The LTE 5000 products are still on sale and have a three year return to base warranty.

In all cases, parts and labour are included (c.f. its new Deskpro products described in the previous subsection).

3.   Dell

Dell '*Latitude*' Notebook computers are provided with a one year '*Collect and Return*' warranty (see Section IX B), with options to extend this for up to 5 years.

On-site options are also available providing next day service. These can be expanded to cover a number of European countries at an additional charge. This process of charging extra for European coverage is relatively rare among the major manufacturers.

4.   IBM

The '*Thinkpad*' range from IBM has a variety of warranties dependent upon the product. Some have a 1 year return to base warranty, whereas others have 3 years.

In addition, a year's subscription to Helpware (see Section IX-B) is included.

IBM's warranty surpasses that of Dell by being truly international and IBM has a large range of locations where products may be returned.

5.   Toshiba

All Toshiba portable computers are sold with a standard one year parts and labour return to base warranty. The reseller may act as the base and arrange shipment to the Toshiba repair operation at its expense.

However, enclosed with each Toshiba product is a '*warranty kit*' containing an information booklet and application form to apply for an International/Extended Warranty.

Depending upon the product type, customers are then provided with either a one year or three year international warranty. Typically higher value products are eligible for 3 years and others 1 year.

Customers must complete the form and return it to Toshiba to be eligible for this warranty. Note Batteries are limited to a one year warranty and the Deskstation products only have a local (country of origin) warranty.

D

PRINTERS

As seen in Exhibit VII-1, a larger number of different product types were observed in the printer product group than in the other three. However, Hewlett-Packard (HP) was identified as the major printer manufacturer by approximately half of all of those surveyed (24).

The confusion some of the users expressed about the terms of their warranties is exemplified even if only this one manufacturer is considered.

Some HP products have a 1 year 'Return to Manufacturer' (base) warranty, others have 1 year on-site service and others a 3 year warranty. In some cases, HP provides an *'Express Exchange'* service in which a replacement product is delivered by courier to the customer site on the next business day, at which time the faulty unit is collected.

In addition, with the launch of new products, it has modified its warranty offerings on these to be different from similar models in older ranges. Its SupportPack options provide customers with the opportunity to enhance and extend service on its product range, including on-site service options and extended terms.

Other main printer manufacturers identified in the user survey, IBM, Epson, Canon and Lexmark, are reviewed in this section of the report.

1.   Canon

Canon's warranty offerings mimic those of HP in that some products have a one year return to base warranty (most products), others have 1 year on-site (BJ300 and 330) and others (BJC 2100 and 4100) a 3 year return to base warranty.

Typical turnaround time for return to base service is 5 to 7 days. In the UK, Canon has its own service operation and can provide an on-site service within 8 hours. However, in many other countries it does not have its own operation and users partners and resellers to provide service on its behalf.

Enhancements and extensions to the warranty are available, including European cover for up to 5 years.

2.   Epson

From the 1st July 1996, Epson changed its warranty from one of 3 years' duration to a single year.

The standard warranty is a one-year return to base service; Epson arranges the collection and return of its products in a similar fashion to the Dell PC and portable computer warranty described earlier.

Epson has service partners that can provide on-site service and customers may purchase enhancements including 4-hour on-site response if required.

3.   Hewlett-Packard

As stated earlier, the variety of HP warranties is one of its features. Examples for the current printer ranges are:

Deskjet 320/850/1200C/1600C	-	1 Year Exchange
Laserjet 4L/4V/5L/5P	-	1 Year Return to HP
Laserjet 4Si/5Si/Colour Laserjet	-	1 Year on-site service
Deskjet 540/600/660	-	3 Year Exchange

On-site service is next-day, as usually is the exchange service; however, no guarantees are provided for turnaround time for return to base service.

Some items, e.g. paper trays, are not covered by the warranty and customers must remove these items prior to exchanging them.

4.   IBM

Many of the smaller printers sold by IBM are manufactured by its former subsidiary, Lexmark, and it is uncertain how many of the users specified IBM for these models and how many Lexmark itself (see Section VII).

Smaller printers, e.g. IBM 3112 and 3116, are usually covered by a 1 year warranty, but larger devices such as the 3130 and 3930 only have a 3 month warranty and customers are encourage to purchase maintenance contracts.

A wide range of extended maintenance options are available including 5 years on-site service, if required.

5.   Kyocera

Kyocera, similar to Epson, has reduced its warranty provisions in recent years. Its standard offering is now a 1 year return to base warranty on all of its printers.

However, this can be enhanced to provide on-site service for up to 3 years. This 'Ecoshield' service is provided by Kyocera partners and the guaranteed response is next day.

A feature of this service is the provision of a loan printer, if the engineer is unable to repair the product on-site. However, this is not guaranteed at the time of the engineer visit, as he/she may not hold spare units and it may take up to 16 hours (2 business days) for the loan printer to be provided.

6.   Lexmark

Most of Lexmark's printers are provided with a 1 year warranty, offering telephone support and on-site service (normally next day). For some of these products the on-site element is a courier exchange offering similar to the HP Express Exchange service.

Exceptions to this are the Winwriter 150C and the colour ink-jet 4076, both of which are provided with a 3 year return warranty.

However all warranties including these latter two can be extended to provide on-site service for up to five years.

7.   Oki

Oki refused to participate in this research project and would not provide any details of their warranties.

A major dealer stated that its offerings are a 1 year return to Oki warranty on dot matrix printers and 1 year on-site service for laser printers.

SUMMARY

The findings of this section confirm the views expressed by some of the users that warranties are a complex issue and the variety of warranty terms is immense.

Even within the same manufacturer, the warranty offered may have multiple variations, including on-site service, return service which may be arranged by the manufacturer, the responsibility of the user or provided as part of a courier exchange service. In some cases, resellers are free to offer their own warranty and the offering may vary on the same type of product dependent upon the source of purchase.

Durations of warranties are typically 1 year or 3 year (we were not advised of any two year warranties - see the user views).

We perceive some downward trend in warranty offerings, with companies such as Compaq, Epson and Kyocera having less comprehensive warranties than previously.

Some users expressed concerns that the manufacturers were making too strong efforts to sell enhanced or extended warranties (see Exhibit VIII-6); however, the user survey show that a considerable number of users do actually purchase these upgrade options, particularly for servers and printers (see Exhibit VIII-2).

1.   High-end Servers

The emphasis of most High-end Server suppliers is on providing a wide range of service options for their customers. Warranty provision is possibly deemed to be of less interest and the main aim is to allow the customers to obtain the service of its choice, albeit as a revenue earning opportunity for the supplier.

Most system options are warranted to the same extent as the server in which they are installed, although, in a few cases, reduced terms are offered.

Software support offerings in the warranty period are very limited with, once again, the emphasis on purchasable provision or the use of other companies to provide this service.

2.   Personal Computers

The main features of PC warranties are:

- The use of differentiated warranty offerings by companies such as Dell and IBM.

- A number of companies offering three year warranties - the first year of which is on-site.

- The range of enhancements that is available to the warranty service.

- The involvement of resellers in warranty service provision (although see some of the comments made by users on this topic - Exhibit VIII-6).

- Some evidence of a move towards reduced warranty terms in order to reduce the costs of warranty provision, e.g. Compaq.

3.   Portable Computers

Warranty provisions on portable computers appear to be changing and differentiation across the product ranges (see Compaq, IBM and Toshiba) fairly commonplace.

The geographic coverage also varies considerably, with IBM perhaps offering a truly international warranty and others, such as Dell, charging for it

The Toshiba process encouraging the customer to complete the necessary application form is perceived to have some benefits.

4.   Printers

Typically printer warranties are shorter than for the other product groups included in this research project (confirming the user perceptions illustrated in Exhibit VIII-4.

One year warranties are common, with usually only smaller products, e.g. ink-jet printers having a three year warranty.

However, like all of the products featured a wide range of enhancements are available.

A feature of printer warranties is that response times quoted are usually next business day and often this is insufficient for customers who are reliant upon a particular device. Although some offer enhancements to provide a faster response, the actual performance is heavily dependent upon the ability of the supplier to perform the service at the required standard.

Only the larger companies such as Hewlett-Packard and IBM have sizeable internal service operations to provide this faster response. Others using third parties faced some criticism in the user survey.