INDEPENDENT MAINTENANCE

WESTERN EUROPE, 1990 - 1995

INPUT

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INPUT OFFICES

North America

Headquarters
1280 Villa Street
Mountain View, CA 94041-1194
(415) 961-3300
Telex 171407 Fax (415) 961-3966

New York
959 Route 46 East, Suite 201
Parsippany, NJ 07054
(201) 299-6999
Telex 134630 Fax (201) 263-8341

Washington, D.C.
1953 Gallows Road, Suite 560
Vienna, VA 22182
(703) 847-6870 Fax (703) 847-6872

International

Europe
Piccadilly House
33/37 Regent Street
London SW1Y 4NF, England
(071) 493-9335
Fax (071) 629-0179

Paris
52, boulevard de Sébastopol
75003 Paris, France
(33-1) 42 77 42 77 Fax (33-1) 42 77 85 82

Tokyo
Saida Building
4-6, Kanda Sakuma-cho
Chiyoda-ku, Tokyo 101, Japan
(03) 864-0531 Fax (03) 864-4114

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INPUT®
Piccadilly House 33/37 Regent Street, London SW1Y 4NF
071-493-9335

Researched by
INPUT
Piccadilly House
33/37 Regent Street
London SW1Y 4NF
England

Published by
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Abstract

This report provides an analysis of the Western European market for independent maintenance. Contained within the report is a five-year market forecast for Western Europe covering the period 1990-1995. The report also identifies the factors that have contributed to the success of independent maintenance, presents the views of users and independent vendors, and identifies factors that will likely influence the future development of the market.

Data that relate to the business activities, marketing approach and future plans of independent vendors are presented and analysed.

Also contained within the report are market forecasts for the individual country markets in Western Europe: Belgium, France, Italy, the Netherlands, Sweden, Spain, the United Kingdom and West Germany. Additionally, profiles on 66 independent vendors are provided.

This report contains 183 pages, including 72 exhibits.

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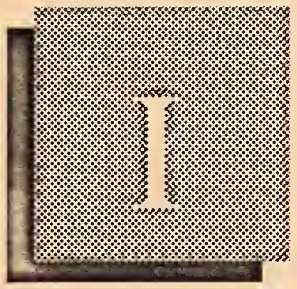
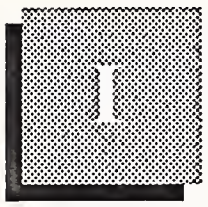


Introduction



Introduction

This report has been produced by INPUT as part of the 1990 Customer Service Programme—Europe.

A

Objectives

The primary objectives of this report are to analyse the market and identify opportunities for independent maintenance in Western Europe, to identify the factors that have contributed to the success of independent maintenance and the forces that will influence its likely future development.

Additional objective are to:

- Provide individual market forecasts for the major country markets within Western Europe
- Analyse data related to the business activities, marketing approach and future plans of independent maintenance companies
- Provide individual company profiles of independent maintenance vendors

B

Scope and Definitions

This report assesses the entire market for independent maintenance in Western Europe. INPUT defines independent maintenance activity as all maintenance of computer and data communications equipment not provided by the manufacturer of that equipment. In detail, this market can be divided into three subsectors of activity:

- Maintenance conducted by completely independent vendors that are solely or partly dedicated to the provision of this service. Previously, these vendors were referred to as third-party maintenance vendors

(TPMs), a term that INPUT now considers obsolete. Therefore, the term used is now *independent maintenance vendor* or *independent vendor*.

- Maintenance conducted by an organisation (typically a dealer or value-added reseller) that is responsible for the sale of the equipment but is not the manufacturer

Independent maintenance by equipment vendors, which is maintenance provided by an equipment vendor that does not supply or badge-engineer the maintained equipment. Normally this type of service is termed multivendor maintenance.

The report assesses the size of the total independent market analysed across these three subsectors for the base year 1989 and provides a five-year forecast for the period 1990 to 1995.

C Methodology

Field research for this report was conducted between March and May 1990.

Vendor data were obtained through the use of a formal questionnaire and in-depth telephone interviews with 30 leading independent vendors throughout Western Europe. Where appropriate, data relating to the large pan-European companies were collected at the headquarters and at the country organisation level.

Data relating to additional vendors were collected by requesting these companies to update existing profile information. In total, data were collected from 66 independent vendors.

Data relating to the views and perceptions of equipment vendors were obtained from discussions with these vendors. These discussions are conducted on an ongoing basis by INPUT.

User data were collected during INPUT's annual computer user survey in 1990, during which computer users throughout Western Europe are questioned on a number of aspects related to the servicing of their computer systems. These interviews are conducted by telephone in the respondent's mother tongue by a native of that country. Interviews were conducted with 34 users of independent vendor maintenance, including five in-depth interviews. Details related to the sample of independent maintenance users are listed in Exhibit I-1.

EXHIBIT I-1

Independent Maintenance User Sample

Country	Number of Users
France	3
Italy	9
Netherlands	5
Norway	5
Sweden	3
United Kingdom	8
West Germany	1
Total	34

A copy of the independent vendor questionnaire is included in Appendix K, and a copy of the user questionnaire is included in Appendix L.

D

Economic Statistics

Exhibit I-2 provides a list of the U.S. dollar exchange rates and the inflation assumptions used in this report.

Conversion to U.S. dollars is used for comparative purposes.

The forecasts, in keeping with INPUT's standard practice, are expressed in current (1990) currencies and therefore include an allowance for inflation.

EXHIBIT I-2

Economic Statistics

Country	Currency	U.S. Dollar Exchange Rate	Inflation (Percent)
Austria	AS	12.77	+3.0
Belgium	BF	38.06	+3.2
France	FF	6.17	+3.5
Italy	Lira	1,336	+5.8
Netherlands	DFl	2.05	+1.8
Spain	Pta	115.8	+6.6
Sweden	SK	6.39	+8.0
United Kingdom	£	0.63	+7.0
West Germany	DM	1.81	+3.3

Source: Exchange rates—IMF (average rates for fourth quarter 1989)
Inflation—Barclays Bank (1989)

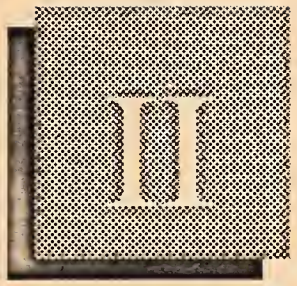
E

Report Structure

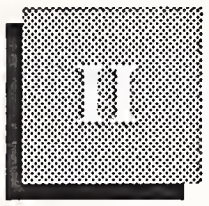
The remaining chapters of this report are organised as follows:

- Chapter II is an executive overview and provides a concise summary of the whole report.
- Chapter III provides a market forecast for the whole of Western Europe and analyses a number of areas related to the market environment.
- Chapter IV assesses the likely future development of the market, provides data relating to the future plans of independent vendors, and presents the views of users related to this development.
- Chapter V provides analysis of the factors that are contributing to the success of independent maintenance.
- Chapter VI provides forecasts for the individual country markets in Western Europe and lists the leading independent vendors in each country.

- Appendixes A through I provide individual profiles of independent vendors in Europe.
- Appendix J reconciles INPUT's 1989 and 1990 market forecasts for the Western European independent maintenance market.
- Appendix K contains the vendor questionnaire.
- Appendix L contains the user questionnaire.



Executive Overview



Executive Overview

A

Independent Maintenance Vendors Face Wider Service Challenge

Independent maintenance vendors will increasingly need to face up to the challenge of developing a wider range of system support services to maintain their growth momentum. Increasing sophistication and complexity of the overall computer system is creating new user demand for a range of operational support services, countering the market trends of lower hardware prices and reduced need for maintenance services. The opportunity for independent maintenance vendors is represented by an independent maintenance market estimated to reach $3.5 billion by 1995, reflecting anticipated growth of 16% per annum. The challenge for independent mainteners is to develop software and other operational support services that meet the widening range of user support service needs.

Independent maintenance of computer equipment in Western Europe is now a relatively well-developed market. Developments over the last three years have been in the main due to a frenzy of merger and acquisition activity and aggressive marketing by independent maintenance vendors. During this period a number of large pan-European independent maintenance companies have emerged that have the financial stability and the depth of expertise to provide a credible alternative to the maintenance services traditionally provided by the equipment vendors. Through dedication to the provision of computer maintenance, lower overheads than the equipment vendors and an aggressive marketing approach, independent maintenance companies have been positioned to compete favourably on price and take advantage of user needs to reduce the cost of maintaining computer systems. The strength of independent maintenance has resulted in the equipment vendors' losing market share at a time that growth of the customer services market has slowed appreciably. Currently the equipment vendors are losing about $1,280 million in maintenance revenues to the independent companies, a sum that represents a market share of about 8%. INPUT growth forecasts for the independent maintenance market indicate that independent vendors will

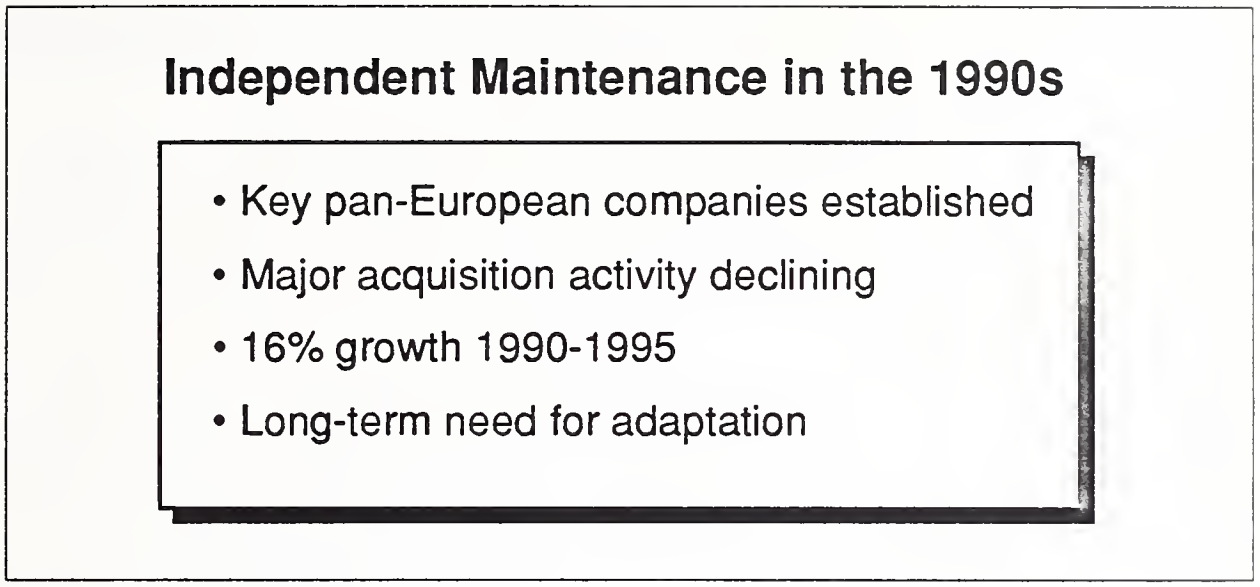
increase market share during the period 1990 to 1995. A 15% compound annual growth rate (CAGR) indicates that by 1995 the independent vendor sector of the market will reach about $2,600 million, representing a market share of about 11%.

The equipment vendors have reacted to the success of independent maintenance companies by introducing multivendor/single-source service offerings, but these will have a limited effect on suppressing the growth of the independent vendor sector of the market. Although users claim that the predominant reason for changing to independent maintenance is cost, there are also other reasons, such as the provision of true multivendor maintenance, flexibility of service offerings and the responsiveness of independent vendors to user needs. The result is that even where equipment vendors are able to compete on price, some of the reasons for users' changing to independent maintenance remain, indicating that opportunities for equipment vendors to regain lost business are limited.

One major weakness of independent maintenance companies is the inability of those companies to provide credible software support, an aspect of service that is seen by users as a major strength of equipment vendors. It is this lack of software support that will likely prove to be the Achilles heel of independent maintenance companies. As new technology continues to reduce the need for computer maintenance, the attractiveness of independent maintenance will decline and users will become open to integrated service solutions comprising equipment maintenance, software support and a range of associated professional services. This change, which INPUT predicts will occur during the latter half of the 1990s, will be responsible for a rapid decline in revenues for independent maintenance companies that have failed to foresee market changes and are unable to adapt. To survive the period of change, independent maintenance companies need to plan and implement changes that will transform the companies from independent maintenance to independent service companies.

Exhibit II-1 highlights INPUT's view of the key factors that will influence independent maintenance, primarily in the period 1990 to 1995, including the major long-term need for adaptation.

EXHIBIT II-1



The last three years have seen the development of a number of large independent maintenance companies, most of which operate at a pan-European level. Through a policy of acquiring market leaders, Granada Computer Services has emerged as a clear market leader with operations in nine European countries. Thomainfor, through similar acquisition activity, has become the second largest independent maintenance company in Europe with operations extending to seven European countries. These two companies—together with Sorbus, Getronics and Spectral/MIS—are the five leading companies in Europe and between them account for almost 40% of user expenditure for computer maintenance by independent vendors.

Now that these major independent companies are established, any further acquisition of major independent companies is unlikely. For example, the sixth largest independent company in Western Europe is Econocom. This company derives less than 50% of total revenues from independent maintenance and operates relatively autonomously at a country level, making wholesale acquisition unlikely. Other leading companies are also likely to be immune from acquisition—for example, Ibimaint is 100% owned by Olivetti, and Telub is a subsidiary of a state-owned company. However, at the time of going to press, an unexpected change of ownership at Telub was announced.

INPUT forecasts that the independent maintenance market will grow at 16% compound annual growth rate (CAGR) over the period 1990 to 1995. This growth rate will provide an opportunity for independent vendors to increase market share at the expense of the equipment vendors. However, growth opportunities could well encourage independent vendors to develop a sense of false security. New technology will continue to reduce the need for equipment maintenance and will place emphasis on the importance of other services, such as software support and

professional services. This trend could be responsible for a crisis developing in independent companies that are unprepared for the change in emphasis.

To survive the decline in equipment maintenance, independent companies will need to adapt by undergoing a metamorphosis that will change their profile from providers of independent maintenance to independent service companies.

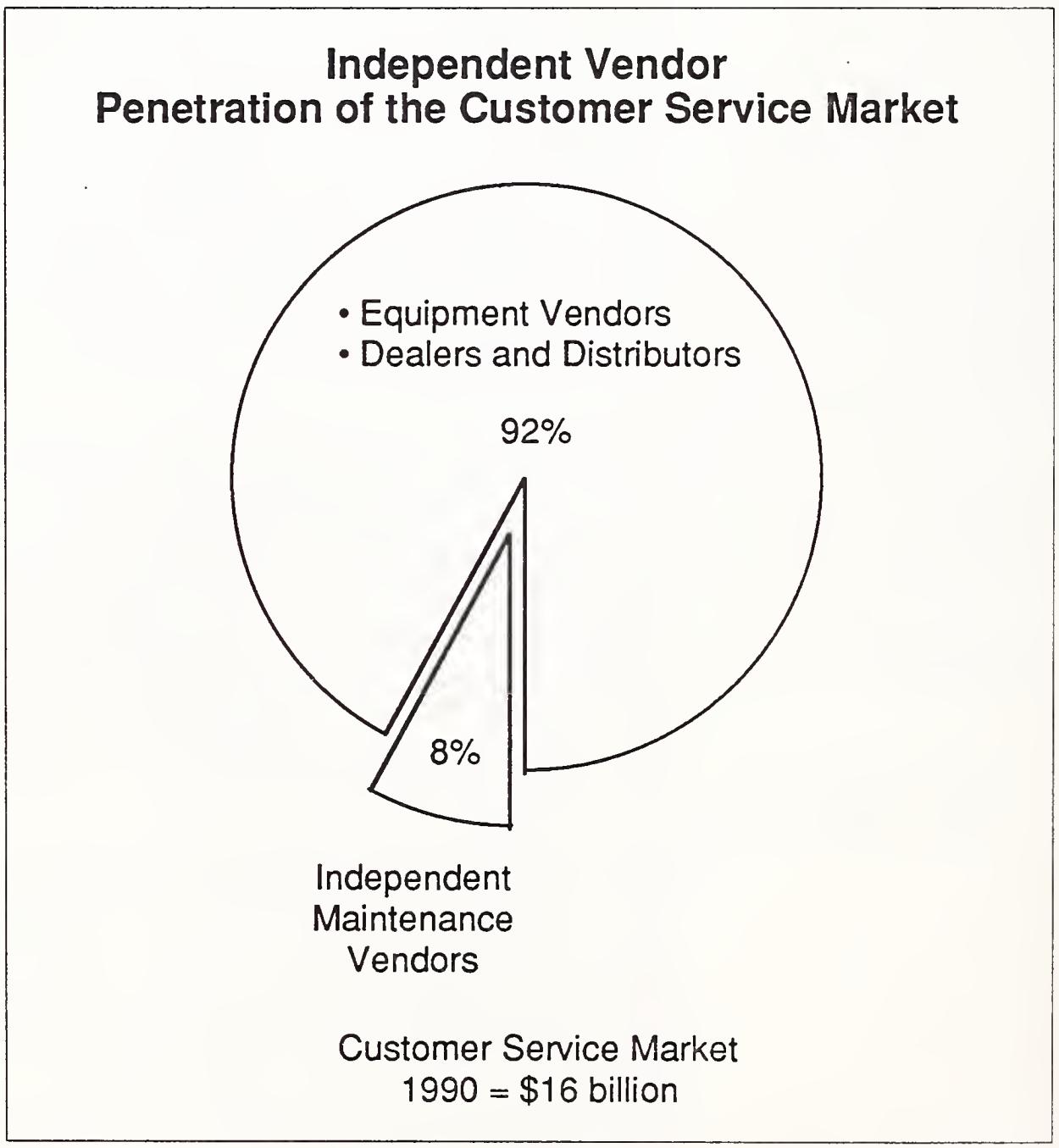
B

The Independent Maintenance Market in Western Europe

1. Penetration of the Customer Service Market

The extent to which independent maintenance vendors have been successful in penetrating the customer service market is illustrated in Exhibit II-2.

EXHIBIT II-2



Penetration of this market by independent maintenance vendors has been achieved at the expense of the equipment vendors. Revenue lost by the equipment vendors due to the success of independent companies is estimated to be about $1,250 million in 1990, equivalent to a market penetration of about 8%.

The independent vendor sector of the independent maintenance market is forecast by INPUT to grow at 15% CAGR over the period 1990 to 1995. INPUT estimates that by 1995 market penetration of the customer services market will have reached about 11%, indicating a revenue loss of almost $2,600 million by the equipment vendors.

Of more significance, this revenue loss is related to hardware maintenance. The hardware maintenance sector of the customer services market is forecast to have a 4% CAGR, therefore equipment vendors are losing revenue to independent companies in an area of the market where they are already seeing declining revenues.

2. Market Drivers

Exhibit II-3 lists the primary factors responsible for driving the growth of the independent maintenance market.

EXHIBIT II-3

Independent Maintenance Market Drivers

- User need for cost reduction
- Provision of local service
- Quality and flexibility

The user need for cost reduction is one of the primary factors driving growth of the independent maintenance market. Independent maintenance companies with lower overheads than the equipment vendors are positioned to take advantage of cost reduction and, aided by an aggressive marketing approach, have been able to achieve success. Activities to reduce computer maintenance costs are being stimulated by the decreasing costs and increased reliability of equipment and also by pressure on computer operations departments to reduce overheads and the cost of computer ownership.

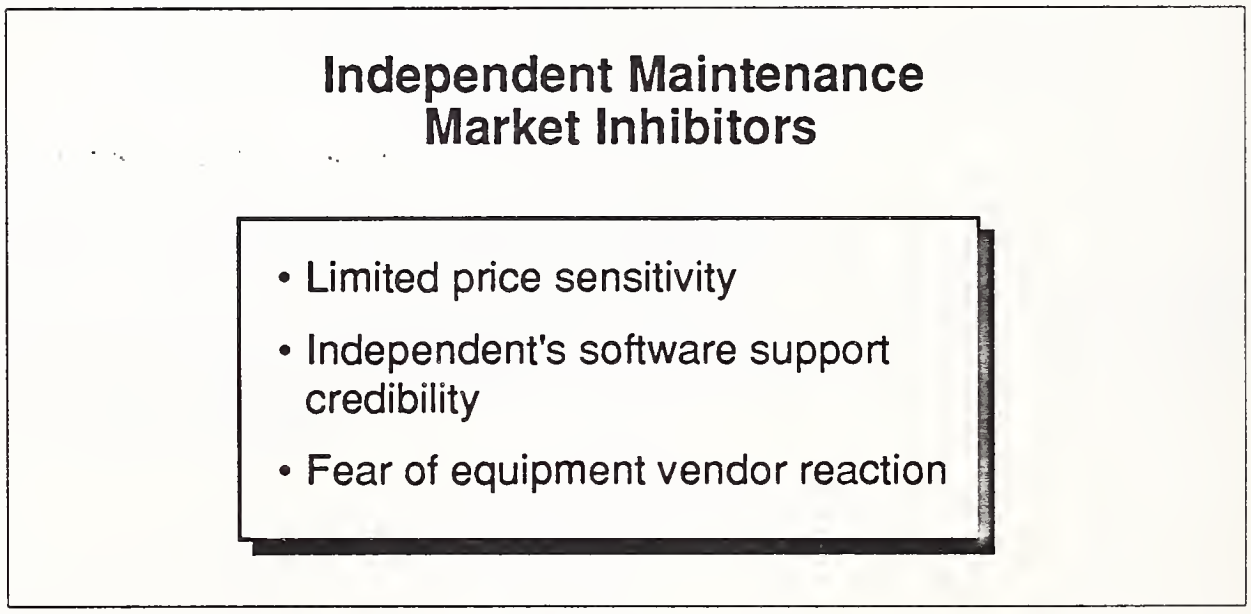
The ability of independent vendors to provide local service is often found to be attractive to users, particularly in geographic areas located away from main business centres. Users claimed that by providing local service centres, the independent vendors could be more responsive to fault calls and hence offer a higher level of service. Also, by being more local, service from independent vendors is perceived by users to be provided on a more user friendly basis.

Therefore, in simple terms, the primary factor driving independent maintenance is that the independent vendors are perceived as providing what the user needs.

3. Market Inhibitors

Factors inhibiting the growth of independent maintenance are listed in Exhibit II-4.

EXHIBIT II-4



Users claim the primary success of independent maintenance companies is the ability to provide maintenance at lower cost than the equipment maintenance vendors. However, INPUT estimates indicate that only 25% of users fall within the price-sensitive category, although this proportion of users is increasing. Even though the activities of the independent vendors are not not necessarily restricted to this sector of the market, the percentage of users that are price sensitive may prove a restriction on market growth.

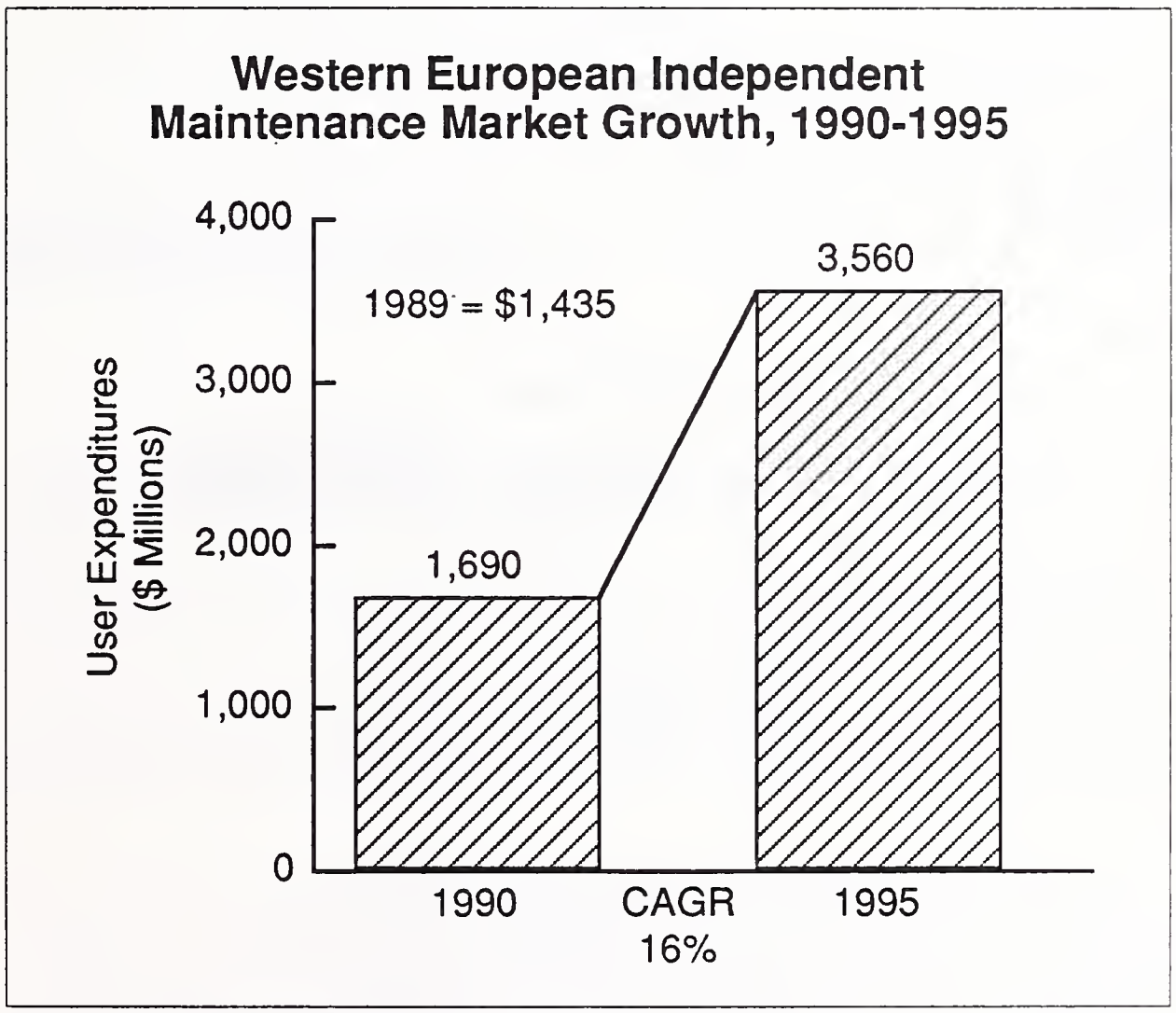
One of the key factors limiting the growth of independent maintenance is the independent vendors' lack of software support capability. Though users of independent maintenance feel that the independent vendor could support software, there is a major issue of credibility—to the extent that a majority of users feel that only the equipment vendor can provide effective software support.

Users fear that if they contract equipment maintenance to an independent vendor, the equipment vendor may react in some way that will preclude the effective provision of service to other parts of the system. For example, there have been instances where users contracting equipment maintenance to independent vendors have experienced increased prices for software support. Other examples include user fears that equipment vendor responsiveness may be reduced.

4. Market Growth, 1990-1995

Exhibit II-5 provides details of INPUT's forecast for the growth of independent maintenance in Western Europe for the period 1990 to 1995.

EXHIBIT II-5



The growth forecast includes user expenditure for independent maintenance services provided by three categories of vendors:

- Independent maintenance vendors
- Dealers and distributors
- Equipment vendors (through multivendor equipment maintenance)

For the period 1990-1995, the forecast is a CAGR of about 16%. To place the opportunity level this growth offers into proportion, over the same time period the overall customer services market in Western Europe is forecast to have an 8% CAGR. In more direct terms, the growth of

independent maintenance should be compared with the growth of the equipment maintenance sector of the overall customer services market, which is forecast to grow 4% per year (compounded) over the same five years.

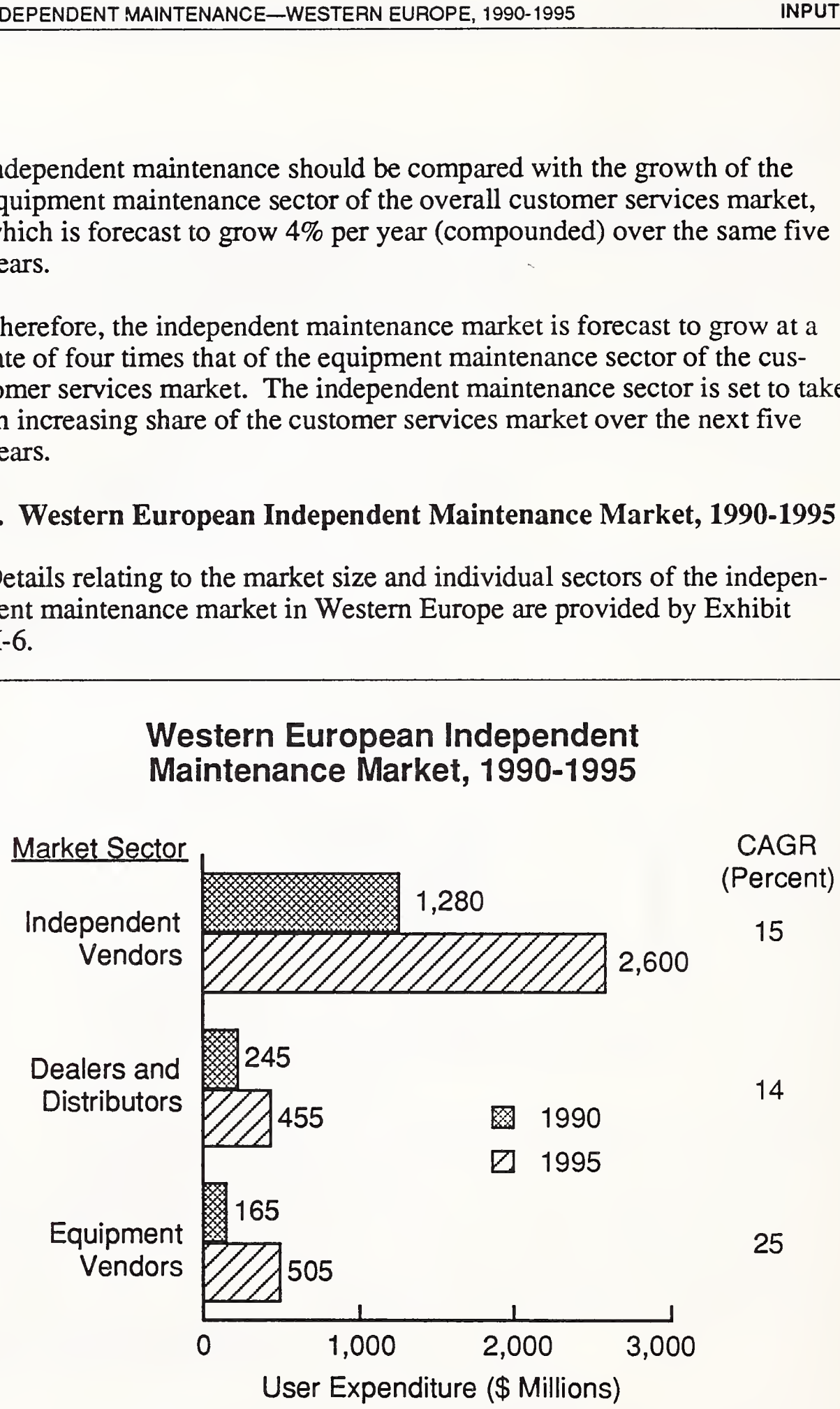
Therefore, the independent maintenance market is forecast to grow at a rate of four times that of the equipment maintenance sector of the customer services market. The independent maintenance sector is set to take an increasing share of the customer services market over the next five years.

5. Western European Independent Maintenance Market, 1990-1995

Details relating to the market size and individual sectors of the independent maintenance market in Western Europe are provided by Exhibit II-6.

EXHIBIT II-6

Western European Independent Maintenance Market, 1990-1995



Note: Numbers rounded

The independent maintenance market is dominated by the independent vendors. The market share of the independent vendors is estimated at over 75% in 1990 and forecast to fall only slightly, by about 2%, in 1995.

The equipment vendors have entered the independent maintenance market in the last two years. By offering multivendor maintenance, the equipment vendors have declared an intent to compete with the independent vendors for lost business and response to user needs. The independent vendors view this move by the equipment vendors as purely account protection forced on them by the continuing success of independent maintenance. The equipment vendors' segment of the market is forecast by INPUT to achieve a high 25% CAGR. The equipment vendors' market share, which is currently about 10%, will increase to almost 15% by 1995. However, even with a high growth rate, the equipment vendors will not significantly impact the dominant position of the independent vendors in the market.

Growth in the sector occupied by the dealers and distributors indicates that their market share will remain relatively constant. Growth in this sector is most likely being constrained by the type of equipment marketed through these channels, predominantly small systems and PCs. This type of equipment has now reached a high level of reliability—for example, due to high reliability, INPUT estimates that more than 60% of PCs are sold without a formal service contract.

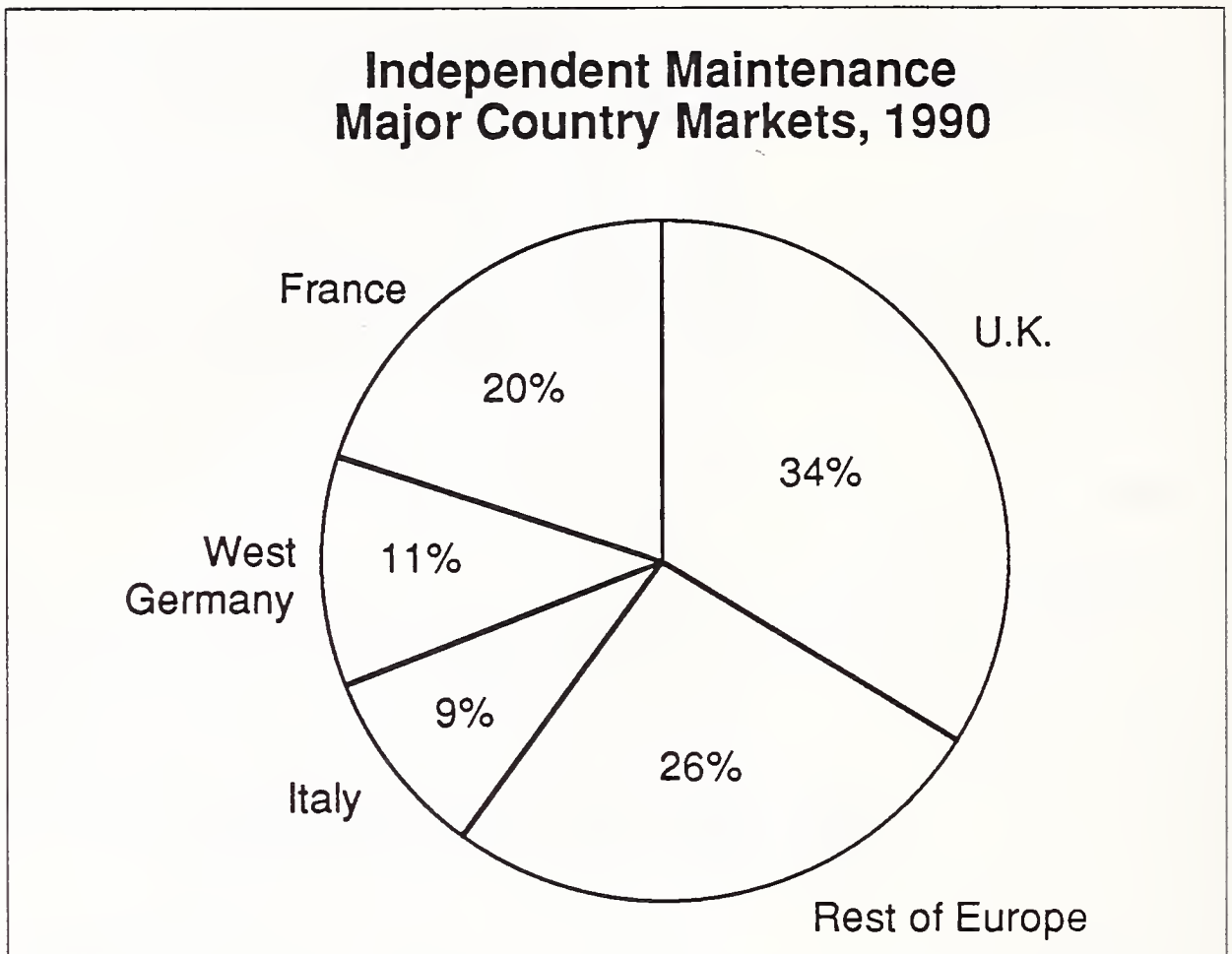
6. Western European Country Markets

Exhibit II-7 illustrates how the independent maintenance market has developed in the four major country markets in Western Europe.

The market for independent maintenance in the United Kingdom is the most developed in Europe. This is partly a consequence of user acceptance and partly due to being the first country in which independent maintenance was implemented following its origins in the U.S. The U.K. percentage share of the European market is forecast to remain relatively constant over the next five years.

One of the least developed markets in Western Europe is that in West Germany, which accounts for only about 10% of the European total. As a market for computer equipment, West Germany is larger than both the U.K. and France and also has the largest installed base. The relative state of development in West Germany is shown by the fact that there are only an estimated two independent vendors with revenues over $5 million, compared with the U.K., which has about 16 vendors with revenues over $5 million. This level of market development is mainly due to the very conservative attitude of West German users who see independent maintenance as a risk. Independent vendors claim that the market in West Germany is now opening, but as yet there are no data that suggest any significant increase in growth.

EXHIBIT II-7



INPUT estimates that the fastest growing market for independent maintenance in Western Europe is the market in Spain, which is forecast to grow at 28% CAGR over the period 1990 to 1995. This rate of growth is due to the high growth of computer products and the fact that independent vendors are aggressively marketing and expanding their services in Spain.

C

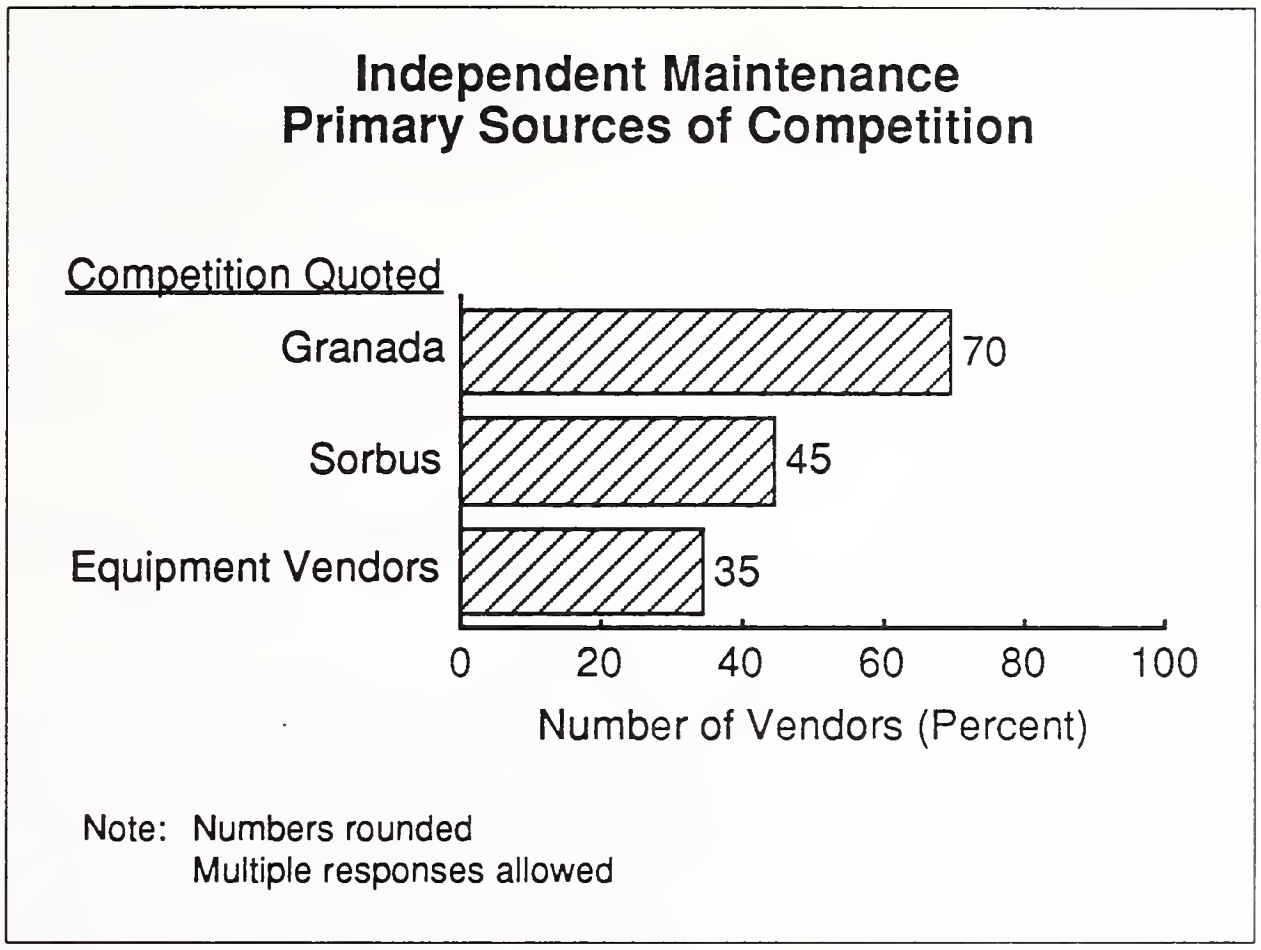
Independent Maintenance Market Environment

1. Primary Source of Competition

The primary sources of competition in the independent maintenance market in Western Europe are illustrated in Exhibit II-8.

The fact that Granada is quoted by independent vendors as the major source of competition is a reflection on the dominant position that Granada occupies in the market. The company now employs almost 3,000 staff in independent maintenance operations, which extend to nine European country markets. Granada also retains a high profile in the market, aided by regular mentions in the computer market trade press.

EXHIBIT II-8



The equipment vendors are quoted as the third most prominent source of competition. This position indicates that the equipment vendors are intent on a policy of introducing service offerings that are intended to match those of the independent vendors. In a situation where equipment maintenance revenues, the primary source of income for the equipment vendors' customer services organisation, are stagnating in terms of growth, the equipment vendors have been forced to react to the success of independent vendors. INPUT estimates that 90% of equipment vendors have implemented, or are planning to implement, multivendor service offerings.

Thomainfor, although the second largest independent maintainer in Europe, was quoted as a source of competition by only 20% of the vendors interviewed. The most likely reason for this relatively low-profile competitive position is the company's late entry into the pan-European market through recent acquistions.

2. Equipment Vendor Business Recovery Opportunities

The key opportunities available to equipment vendors to regain business lost to independent maintenance companies are listed in Exhibit II-9. INPUT believes these opportunities offer limited scope for recovery.

EXHIBIT II-9

Equipment Vendor Business Recovery Opportunities

- Equipment replacement time
- Match independent's pricing
- True multivendor service
- Responsiveness

The time of equipment replacement represents one key opportunity for equipment vendors. When new equipment is installed, it is normally covered by the vendor's warranty and during the warranty period the equipment vendor has an opportunity to demonstrate service capability and obtain a service contract following expiration of the warranty period. However, the follow-on contract is not an automatic right and the equipment vendor will likely need to demonstrate a competitive service offering.

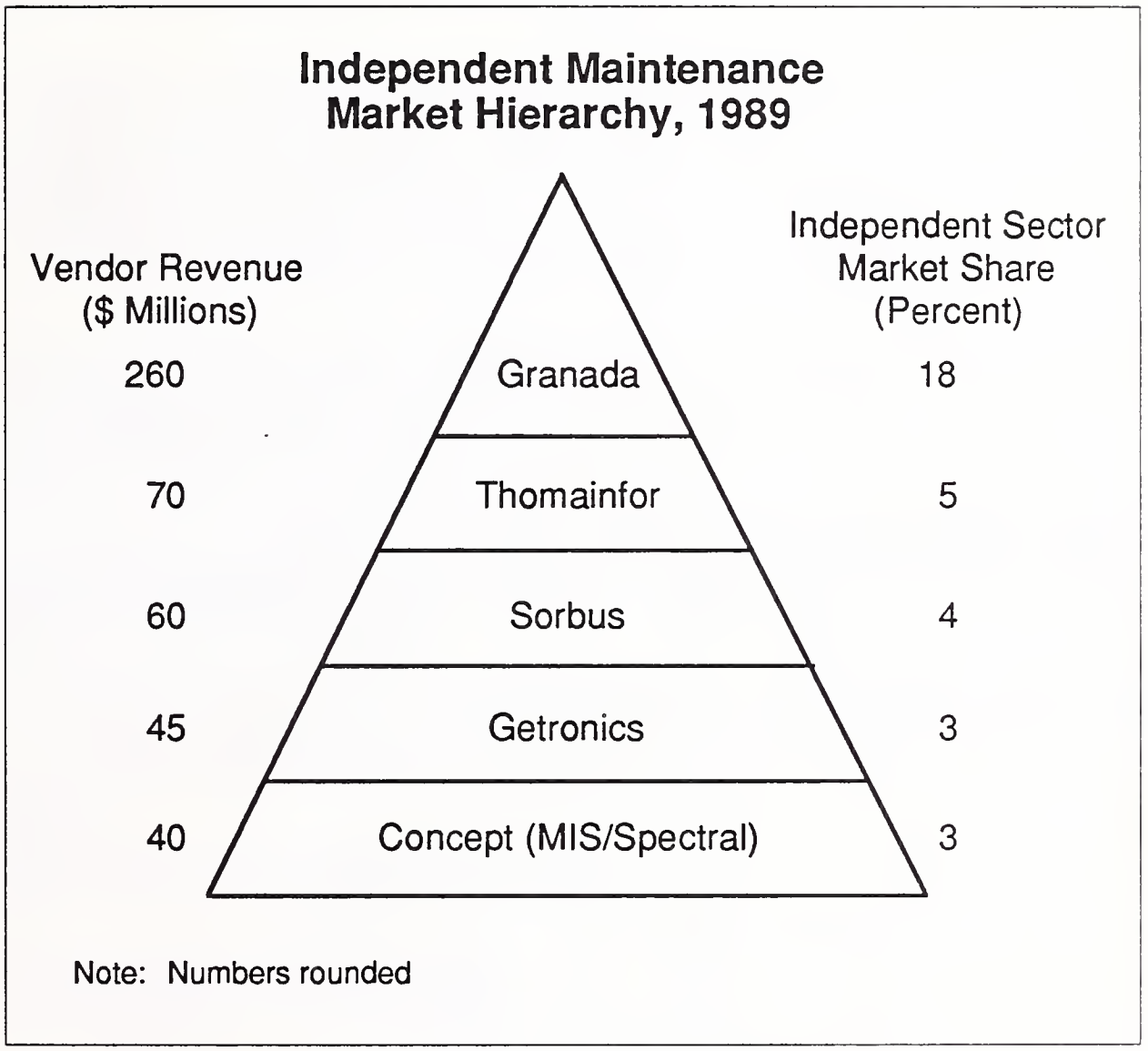
Once a user has opted for independent maintenance on grounds related predominantly to cost savings, this presents a very difficult situation for the equipment vendor, especially taking into account the higher overheads that equipment vendors have. The independent vendor will invariably have obtained the business by offering lower prices; therefore, to recover the business on price, the equipment vendor will likely need to offer a substantial discount that may be unacceptable in terms of profit margin.

Apart from cost, users also have other reasons for changing to independent maintenance—for example, dissatisfaction with one or more aspects of the equipment vendor's services, such as inability to provide true multivendor offerings or responsiveness. The issue in contention here is that equipment vendor service is not sufficiently flexible in matching user needs; even if the equipment vendor can match prices offered by independent vendors, the original reason for the user opting for independent maintenance remains. Equipment vendors need to reevaluate their product orientation and become more responsive to the needs of individual users.

3. Market Hierarchy, 1989

Data relating to the five leading independent maintenance companies in 1989 are illustrated in Exhibit II-10 and also position these companies in the market hierarchy.

EXHIBIT II-10



The order of the leading five companies has changed over the last eighteen months; these changes relate to Thomainfor and Concept. Thomainfor has emerged as the second largest independent maintenance company in Western Europe, primarily as a consequence of acquiring the European independent maintenance business of Control Data in June 1989. This acquisition increased Thomainfor revenues by about $35 million and extended operations, previously limited to the French market, to cover seven European countries. Since June 1989, Thomainfor has acquired a further eight companies. These eight have been smaller acquisitions and include the operations of Tekserv in Belgium and France.

A second new entrant to the top five ranking is Concept. Concept is a French company, primarily active in the banking and financial sector of the software and services market, that acquired two of the leading inde-

pendent maintenance companies in France at the beginning of 1989. These two companies were Spectral and MIS, whose operations at present are restricted to the French market.

In mid-1989, Getronics, the Dutch company, commenced operations in the Spanish market and is forecasting very high growth for that new operation.

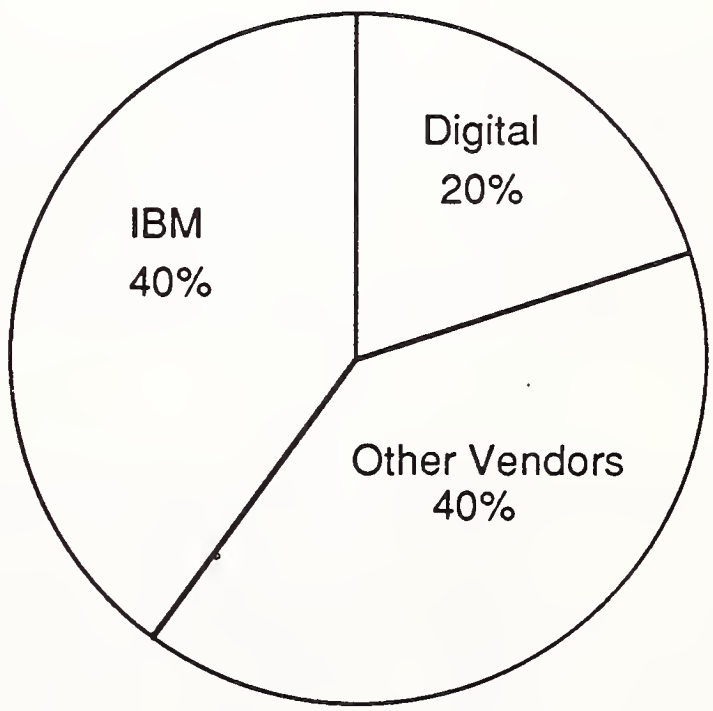
Exhibit II-10 illustrates the dominant position occupied by Granada as market leader, a position that seems unlikely to be challenged. The leading five companies account for almost 40% of user expenditures for computer equipment maintenance supplied by independent vendors in 1989.

4. Independent Vendor Revenue from Installed Base

Exhibit II-11 indicates that the primary source of independent vendor revenue is the installed base of IBM and Digital equipment.

EXHIBIT II-11

Independent Vendor Revenue from Installed Base



Note: Numbers rounded

INPUT estimates the independent vendor sector of the independent maintenance market to be about $1,280 million in 1990, 60% of independent vendor revenues being derived from the installed base of Digital and IBM, indicating that these two vendors will lose a combined $750 million to the independent vendors in 1990.

The fact that 40% of independent vendor revenues are generated from maintenance of the IBM installed base indicates that IBM, including its dealers, will lose over $500 million in equipment maintenance revenues in 1990. INPUT estimates that IBM equipment maintenance revenues are in the region of $2.7 billion. Therefore, independent vendor penetration of the IBM equipment maintenance market is almost 16%.

A similar calculation related to the installed base of Digital equipment indicates that Digital will lose about $250 million in equipment maintenance revenues to the independent vendors in 1990. This loss of revenue equates to over 20% penetration of Digital's equipment maintenance market by independent vendors. INPUT estimates the equipment maintenance revenues of Digital to be about $950 million in 1990.

High penetration of the equipment maintenance markets of IBM and Digital includes maintenance carried out on older and second-user equipment.

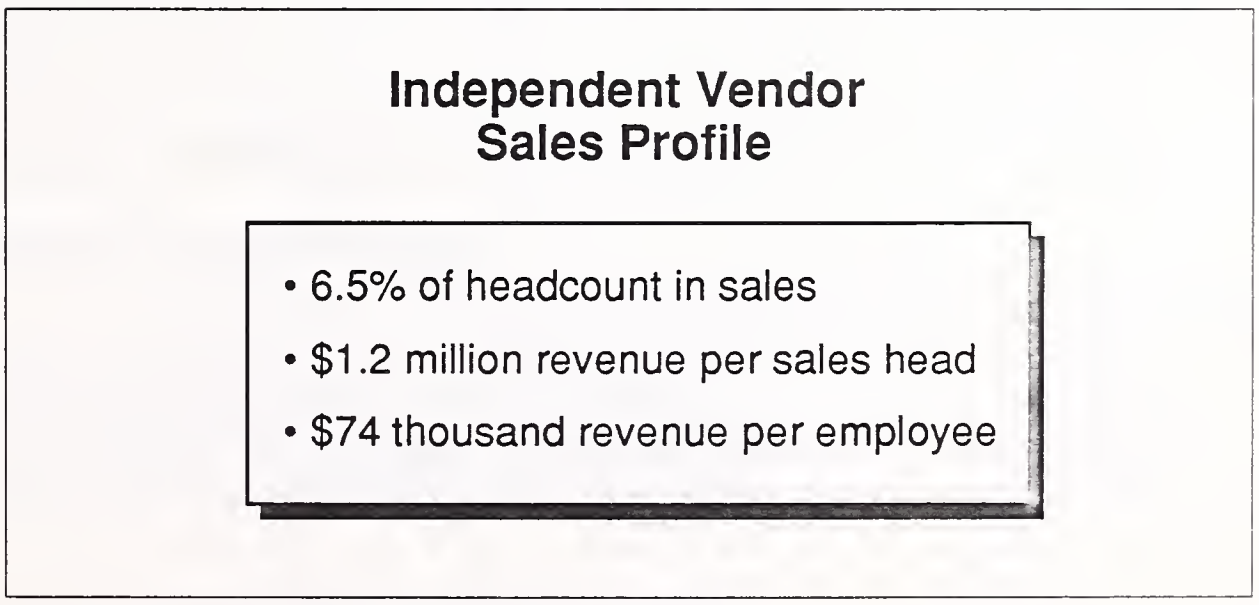
Penetration by independent vendors of other equipment vendors' markets is relatively low. The remaining 40% of independent vendor revenues is being derived from over 100 equipment vendor markets.

Over 70% of independent vendor revenues are derived from maintenance of midrange equipment, PCs and peripherals—with just over 15% derived from maintenance of mainframes.

5. Independent Vendor Sales Profile

The essential characteristics of the sales profile of independent vendors are highlighted in Exhibit II-12.

EXHIBIT II-12



Much of the success of independent maintenance in Western Europe has resulted from an aggressive sales and marketing approach by the independent vendors. The independent vendors, companies that are in the main

dependent on maintenance revenues, have been able to implement a sales and marketing activity dedicated to maintenance. This dedication contrasts with the situation for equipment vendors, where generally the selling of maintenance has tended to be a secondary activity for sales staff whose primary task has been the sale of computer equipment.

An average revenue per head of $1.2 million indicates that in Western Europe there are over 1,000 sales personnel dedicated to independent vendor maintenance. For the equipment vendors to achieve the same high profile of sales activity, almost 10,000 sales staff would be required, all of whom would be dedicated to the sale of equipment maintenance (equipment vendor equipment maintenance revenues are estimated at $11,500 million in 1990).

A second example of the high gearing of the independent vendor sales activity is provided by examining the equivalent profile required by IBM. With 1990 equipment maintenance revenues estimated by INPUT at about $2,700 million in Western Europe, IBM would require almost 2,300 sales staff dedicated to the sale of equipment maintenance.

6. Equipment Vendor Reaction to the Independents' Success

Exhibit II-13 lists the opinions of independent vendors regarding equipment vendor reaction to their success.

EXHIBIT II-13

Equipment Vendor Reaction to Independents' Success

1. Competitive response
2. Cooperative partnerships
3. Restrictive practices

Of the three likely reactions listed, independent vendors' concern over the equipment vendors' competitive response was given the highest importance. The concerns of the independent vendors can be summarised as follows:

- Fears that equipment vendors are willing to compete aggressively on price by introducing pricing flexibility and discounting. Discounts of up to 30% of equipment vendor prices were claimed by independent vendors.

- The introduction of extended warranties to lock out competition from independent vendors, and actions by equipment vendors to bundle service with the sale price of equipment

- Introduction by equipment vendors of multivendor/single-source maintenance offerings that would compete with the independent vendors. However, the independent vendors believe that these services are being introduced as a result of competitive pressures rather than recognition of user need.

Independent vendors believe that there will be a trend of cooperative partnerships between equipment vendors and independent vendors. Independent vendors claim that the motivation behind this trend is equipment vendor multivendor services and results from limited multivendor capability. Therefore, partnerships can be used to supplement the equipment vendor capability.

One anticipated reaction is that equipment vendors may introduce restrictive practices to constrain the activities of independent vendors—for example, by restricting availability of spare parts and diagnostic software and access to equipment documentation.

D

The Successes and Challenges of Independent Maintenance

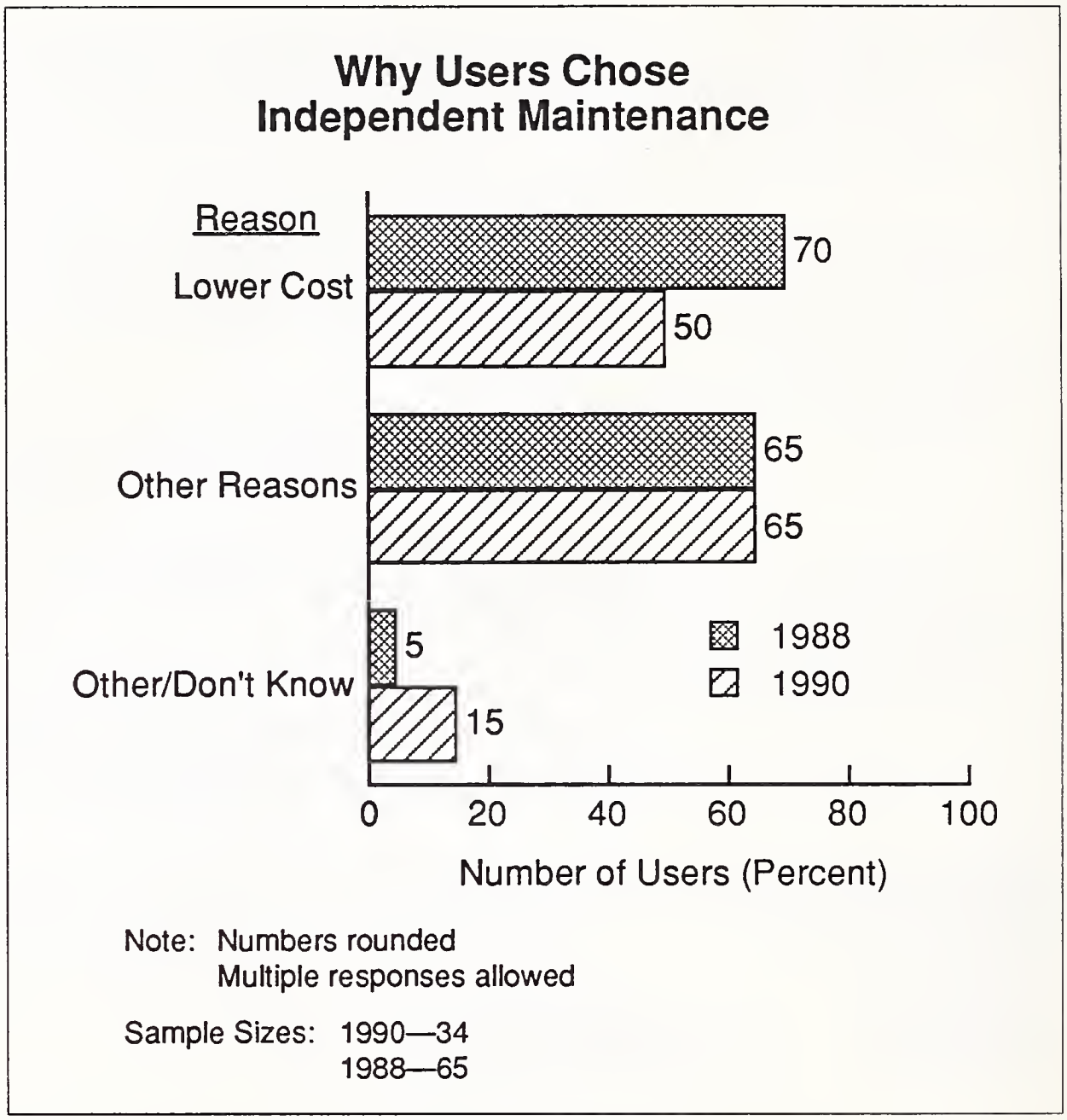
1. Why Users Chose Independent Maintenance

The reasons users chose independent maintenance are illustrated in Exhibit II-14.

Whereas cost was the primary reason for users' deciding to contract with independent maintenance companies in 1988, the prominence of cost as a reason has lowered in the last two years. This reduced role of cost suggests that there are other reasons for the successful growth of independent maintenance, or that equipment vendors have become more price-competitive as a result of pressure from the success of independent maintenance. INPUT considers that the most likely answer is a combination.

When presented in a composite form, the percentage of users who contract with independent maintenance companies for reasons other than cost has remained relatively constant over the last two years. However, hidden inside these figures is an indication that the percentage of users who change to independent maintenance because of the availability of local service, higher quality service and more-flexible contracts has increased slightly.

EXHIBIT II-14



Note: Numbers rounded
Multiple responses allowed

Sample Sizes: 1990—34
1988—65

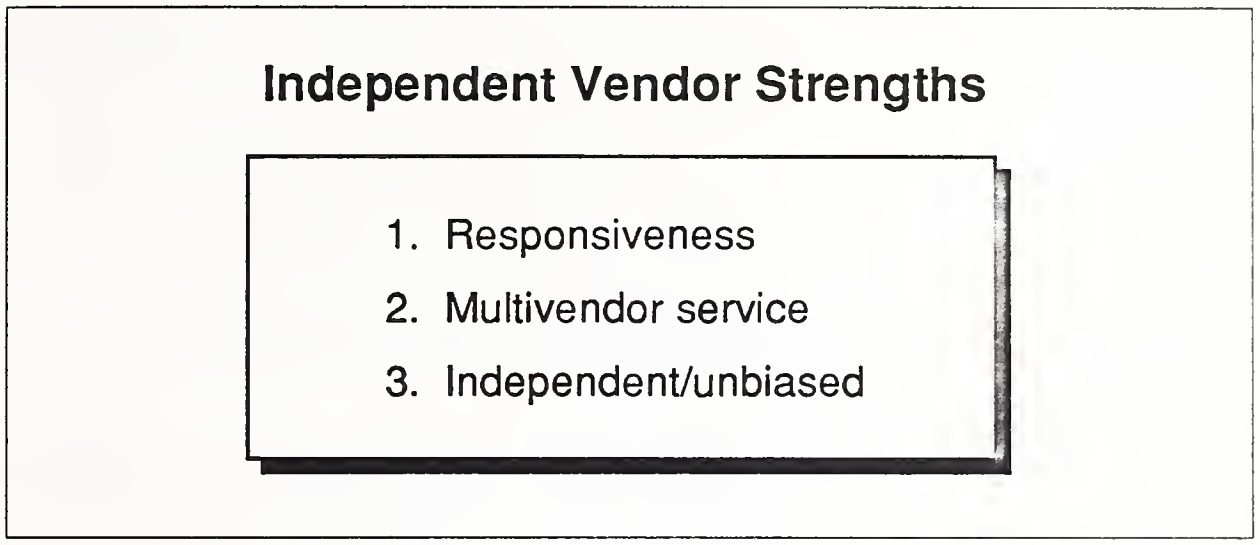
The number of users expressing the availability of single-source service as a reason has decreased over the last two years. The most likely reason for this reduction is the introduction of multivendor/single-source maintenance by the equipment vendors. This introduction suggests that the independent-vendor single-source capability has lost a degree of competitive advantage.

2. Independent Vendor Strengths

Exhibit II-15 lists the strengths of independent vendors claimed by users. These strengths provide an indication of why users decide to contract with independent maintenance companies.

The responsiveness of independent vendors in developing a service package to meet the needs of users is often a reason why users opt for this type of service. Responsiveness in providing flexible and customised service packages to meet the needs of specific users, especially in areas where the equipment vendor is prepared to provide only a standard service offering, is appreciated by users.

EXHIBIT II-15



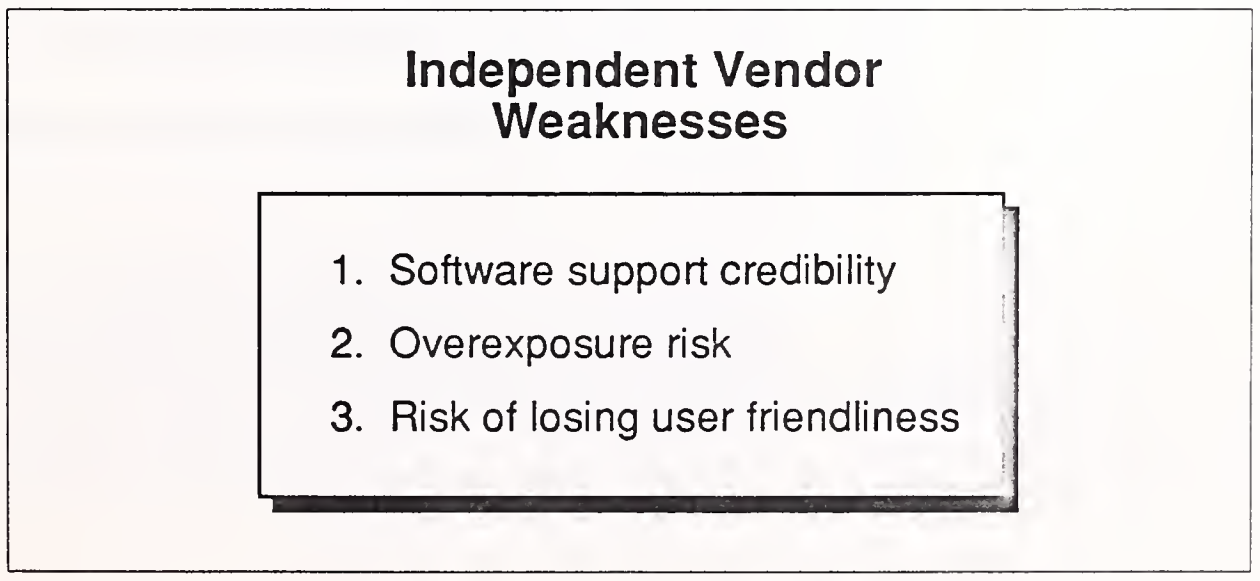
Provision of true multivendor service is a second reason why users opt for independent maintenance. Users claim that equipment vendors do not offer true multivendor service. This is especially so in environments where the installed equipment is in some way unique, which often results in the equipment vendor's declining the opportunity to service the equipment. Although INPUT previously commented that independent-vendor single-source maintenance may have lost a degree of competitive edge, it is also likely that in specific circumstances the competitive edge may be retained. Retention of an advantage by independent vendors could be the case in circumstances where the equipment vendor uses subcontract resources that would be viewed by users as a palliative.

The ability of independent vendors to provide independent and unbiased advice is valued by users, particularly advice on new installations or replacement equipment. In these situations, users felt that the equipment vendors were too heavily biased towards their own products.

3. Independent Vendor Weaknesses

Exhibit II-16 lists the independent vendor weaknesses that were identified by users. In addition to those listed, a significant proportion of users interviewed claimed that they had not experienced any serious weaknesses in the independent service of their computer equipment.

EXHIBIT II-16



Although the users interviewed were of the opinion that independent vendors could support systems software, the issue of credibility was raised. The conclusion that INPUT draws from these comments is that users would be prepared to contract software support to independent vendors but only after demonstration of capability and the risk factors had been minimised. A majority of users were of the opinion that software support can be provided only by the equipment vendor. Of the user sample, 15% claimed that the system software was supported by the independent maintenance vendor.

Users feel that one weakness of the independent vendors was the risk of overexposure. This risk was a consequence of users' having the opinion that independent vendors are vulnerable to spreading resources too thinly over a wide range of equipment and geography.

The large independent maintenance companies that have emerged over the last three years are considered by users to run the risk of losing the image of the local friendly service company. Users expressed concern that as a consequence of increased size, the larger independent companies would develop a level of bureaucratic inertia close to that of the equipment vendors, thus reducing the benefits that contributed to the advantage of independent maintenance.

4. Independent Vendor Future Service Challenges

Illustrated in Exhibit II-17 are the key challenges that independent vendors believe are necessary to overcome in order to ensure continued long-term growth and success for the companies.

EXHIBIT II-17

Independent Vendor Future Service Challenges

1. Total service challenges
2. Cooperatives and partnerships
3. Market measurable service

The major challenge raised by independent vendors was the need to develop a total service orientation. This challenge was assessed by vendors in three key areas.

- The need to extend the range of offered services to include a wider range of equipment vendors' products and the service of networks

- Add new services to the existing portfolio. For example, 35% of vendors interviewed are planning to introduce disaster recovery services and 30% to provide consultancy services.

- One area of vulnerability for independent vendors is the lack of capability to provide a comprehensive range of supporting services for systems software. Vendors felt a solution to this problem was crucial. Eighty percent of vendors agreed that independents could support software.

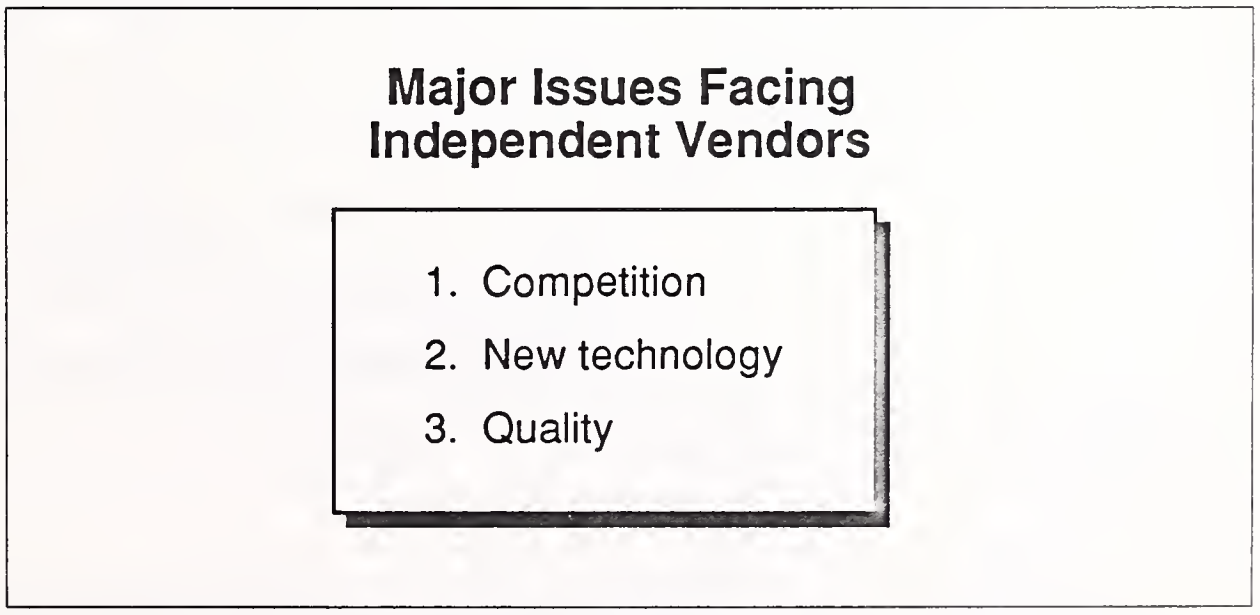
Independent vendors considered that cooperative agreements and partnerships would be a key trend as the market continues to develop, for example partnership with other independent vendors or with equipment vendors. The key challenge is not the forming of a partnership but the forming of a partnership that works to the benefit of all participants, including users.

Independent vendors said the third key challenge was the need to market measurable service. The challenge is in the mechanism by which service performance is measured. The mechanism of measurement needs to be structured very clearly in order to avoid disputes and disagreements while retaining a high degree of practicality.

5. Major Issues Facing Independent Vendors

Exhibit II-18 lists what, in the independent vendors' opinion, are the key issues that they are faced with.

EXHIBIT II-18



The issue of competition raised by independent vendors concerns price and increased competition between vendors. As the market has developed, one result has been increased competition, added to which the implementation of multivendor offerings by the equipment vendors has

intensified the competitive pressures in the market. A typical situation mentioned by one vendor was that, where a large contract is concerned, it was not unusual for four independent and three equipment vendors to be in competition.

New technology—the IBM AS 400 was quoted as an example—is claimed by independent vendors to be causing difficulties for independents. The problems that arise are connected with the complexity and interrelation between equipment modules, making fault diagnosis imprecise. The issue also relates to reduced profit margins from new-technology equipment that has a lower box price and hence promotes user expectation of lower servicing cost and the investment in new service tools required.

Against this background of increased competition, new technology and its attendant problems, vendors are concerned with the need to provide quality service. Independent vendors have recognised that the primary user need is quality rather than minimum-cost service. Vendors claim that there is still pressure on pricing.

E

The Future of Independent Maintenance

1. Independent Vendor Five-Year Strategies

Vendor primary strategies for growth are summarised in Exhibit II-19. The strategies listed in this exhibit are the five-year strategies quoted by the leading independent vendors in Western Europe.

EXHIBIT II-19

Independent Vendor Five-Year Strategies

- 40% concentrating on diversification
- 50% pursuing acquisition growth
- 70% pursuing market specialisation

Strategies indicate that:

- Forty percent of the independent vendors claim to be concentrating on diversification into other services and other product areas rather than concentrating on equipment maintenance.

- A further 40% of independent vendors claim to be concentrating on a combined strategy of equipment maintenance and diversification.

- The remaining 20% claim that they will concentrate on equipment maintenance.

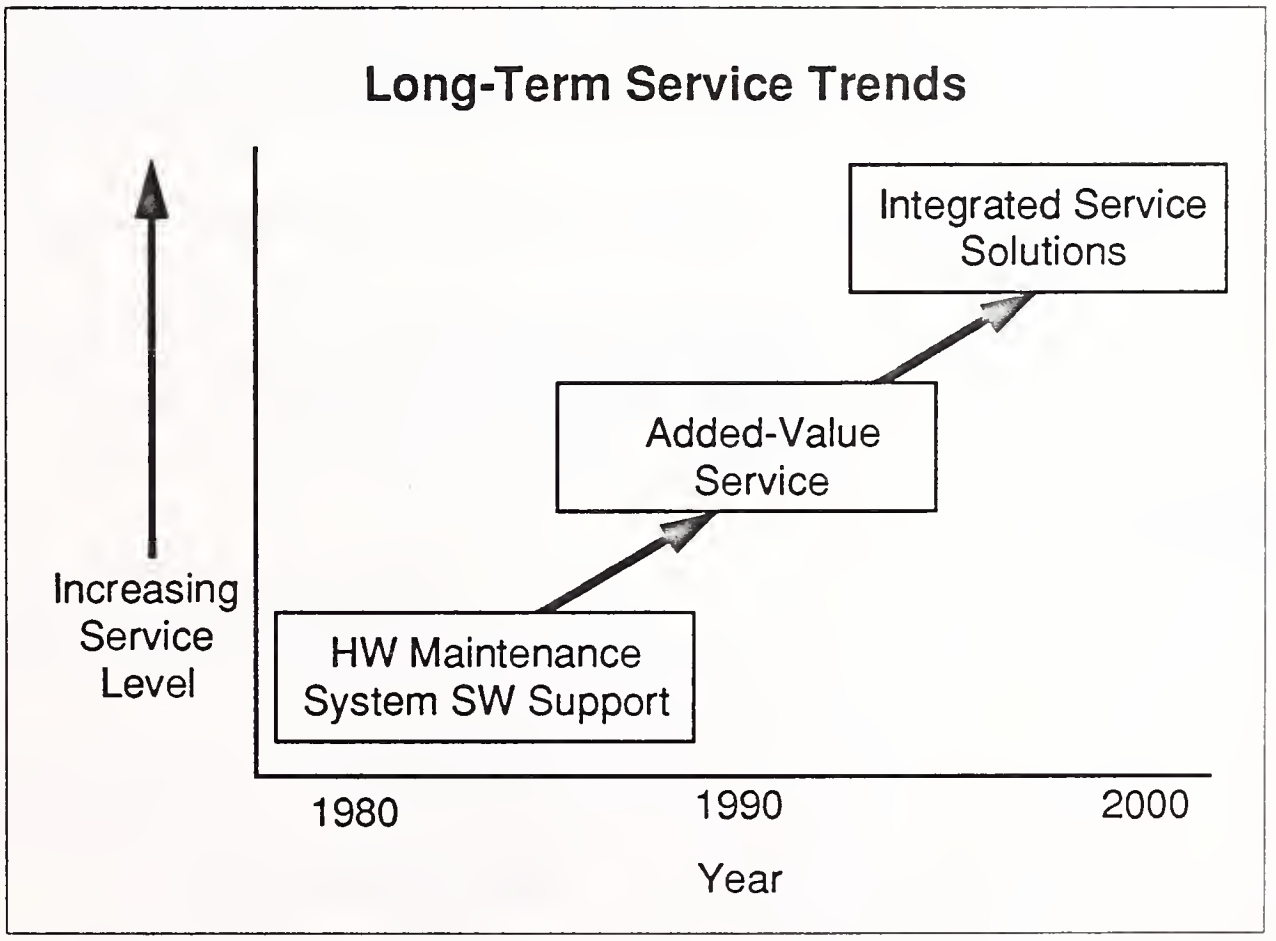
Growth strategies by independent vendors indicate that 50% will concentrate on a strategy of growth by acquisition; the remainder claim to be relying on organic growth.

Strategies related to market specialisation indicate that, of the 70% of independent vendors claiming to be pursuing a strategy of market specialisation, 10% concentrate on niche markets and 60% on a combined strategy of niche markets plus industry sector specialisation. The remaining independent vendors are pursuing a policy of cross-industry marketing.

2. Long-Term Service Trends

Exhibit II-20 presents INPUT's view of the pattern of trends in customer service from 1980 to 2000.

EXHIBIT II-20



Before 1987 the emphasis of customer service activities was on the provision of equipment maintenance and systems software support. As the growth of customer service revenues started to slow around 1987, equipment vendors commenced activities aimed at identifying alternate sources of revenue in an attempt to address the issue of declining growth.

Areas where the equipment vendors identified potential sources of additional revenue can be generically grouped under the classification of professional services—for example, environmental services and consultancy.

These additional services have been termed by vendors the added-value services.

Independent vendors' primary activity has been on equipment maintenance, with less emphasis on added-value services. One of the reasons for this emphasis was the lack of software support capability, a lack that has restricted the activities of the independent vendors.

INPUT considers that the current trend of added-value services will evolve into the provision of integrated service solutions by the equipment vendors. This trend will be stimulated by a user need for total solution service as the relative importance of equipment declines rapidly during the latter half of the 1990s.

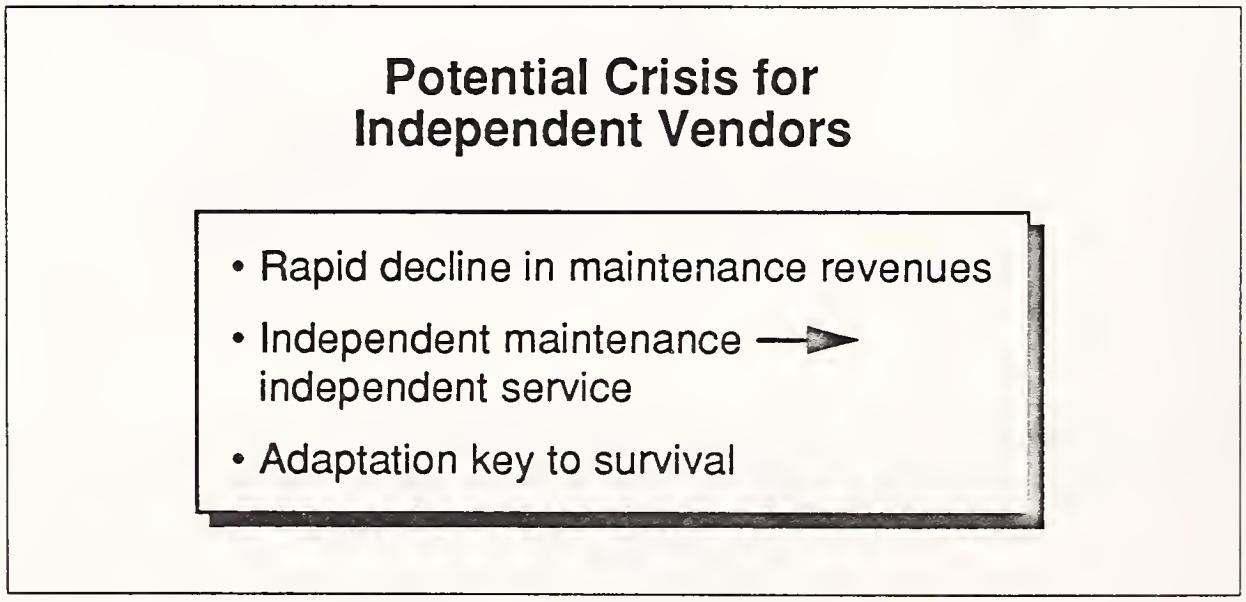
This trend towards total solution service raises two doubts over the future of independent maintenance companies:

- Their ability to develop software support capability
- Because of the criticality of software support as part of an integrated service solution, the ability to adapt to this change in market needs

3. Potential Crisis for Independent Vendors

The likely result of the trend towards integrated services solutions is highlighted in Exhibit II-21. In summary, the trend towards integrated service solutions heralds a potential crisis for independent maintenance companies during the latter half of the 1990s.

EXHIBIT II-21



INPUT offers the following view of the likely results of this trend:

- During the latter half of the 1990s, independent maintenance revenues will be subject to a rapid decline as equipment maintenance ceases to be an important element of service.

- The independent sector of the market will continue to exist and experience relatively high growth. However, long-term growth of the independent sector is a consequence of independent maintenance's evolving into independent service.

- For independent maintenance companies to survive this evolution in service trends, they will need to undergo a metamorphosis to become independent service companies.

The major question is whether the independent maintenance companies can achieve this change and which ones will be successful. Most likely the companies that achieve successful transitions are those that are supported by a parent group with the skills to assist the independent maintenance subsidiary.

For independent maintenance companies, adaptation is the key. Companies that fail to adapt will likely become fourth-party maintenance companies, cease operations, or be acquired.

Market Opportunities for Independent Maintenance in Western Europe, 1990-1995

Market Opportunities for Independent Maintenance in Western Europe, 1990-1995

A

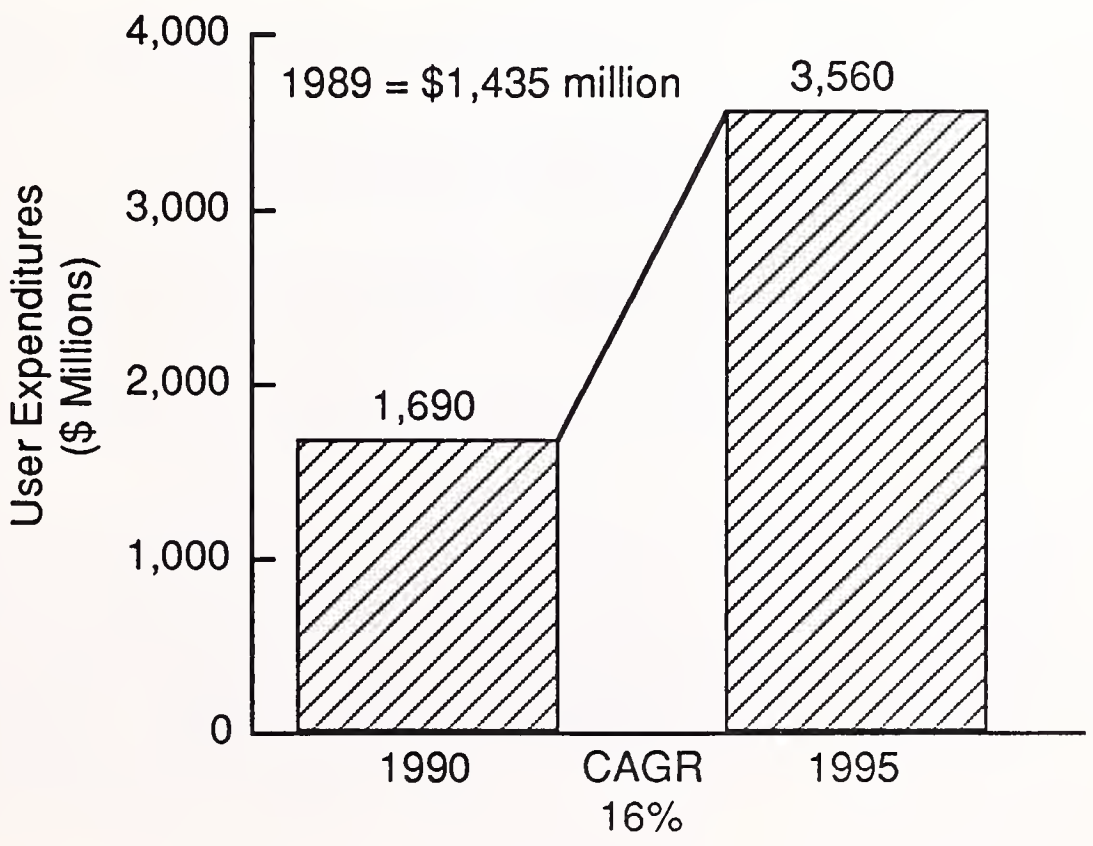
The Independent Maintenance Market, 1990-1995

1. Market Growth, 1990-1995

INPUT's forecast for the growth of independent maintenance in Western Europe for the period 1990 to 1995 is illustrated in Exhibit III-1.

EXHIBIT III-1

Western European Independent Maintenance Market Growth, 1990-1995



Note: Numbers rounded

This growth forecast is inclusive of three sectors of the independent maintenance market as defined by INPUT. The sectors are defined by vendor categories and are as follows:

- Independent maintenance vendors
- Dealers and distributors
- Equipment vendors performing multivendor equipment maintenance

The opportunities for independent maintenance are related to the relatively high growth forecast for this sector of the market—16% CAGR over the period 1990 to 1995. In order to place these opportunities into perspective:

- INPUT forecasts that the overall customer service market in Western Europe will have an 8% CAGR over the same time period. Comparison of this growth rate with that of independent maintenance indicates that the independent maintenance sector of the market will grow at twice the rate of the overall customer services market.
- Independent maintenance is essentially an equipment maintenance activity. INPUT forecasts that the equipment maintenance sector of the overall customer services market in Western Europe will grow at an approximately 4% CAGR over the period 1990 to 1995. Independent maintenance is growing at a rate four times the growth of the overall equipment maintenance market.

The independent maintenance sector is therefore set to capture an increasing share of the customer services market over the next five years.

2. Market Growth Factors

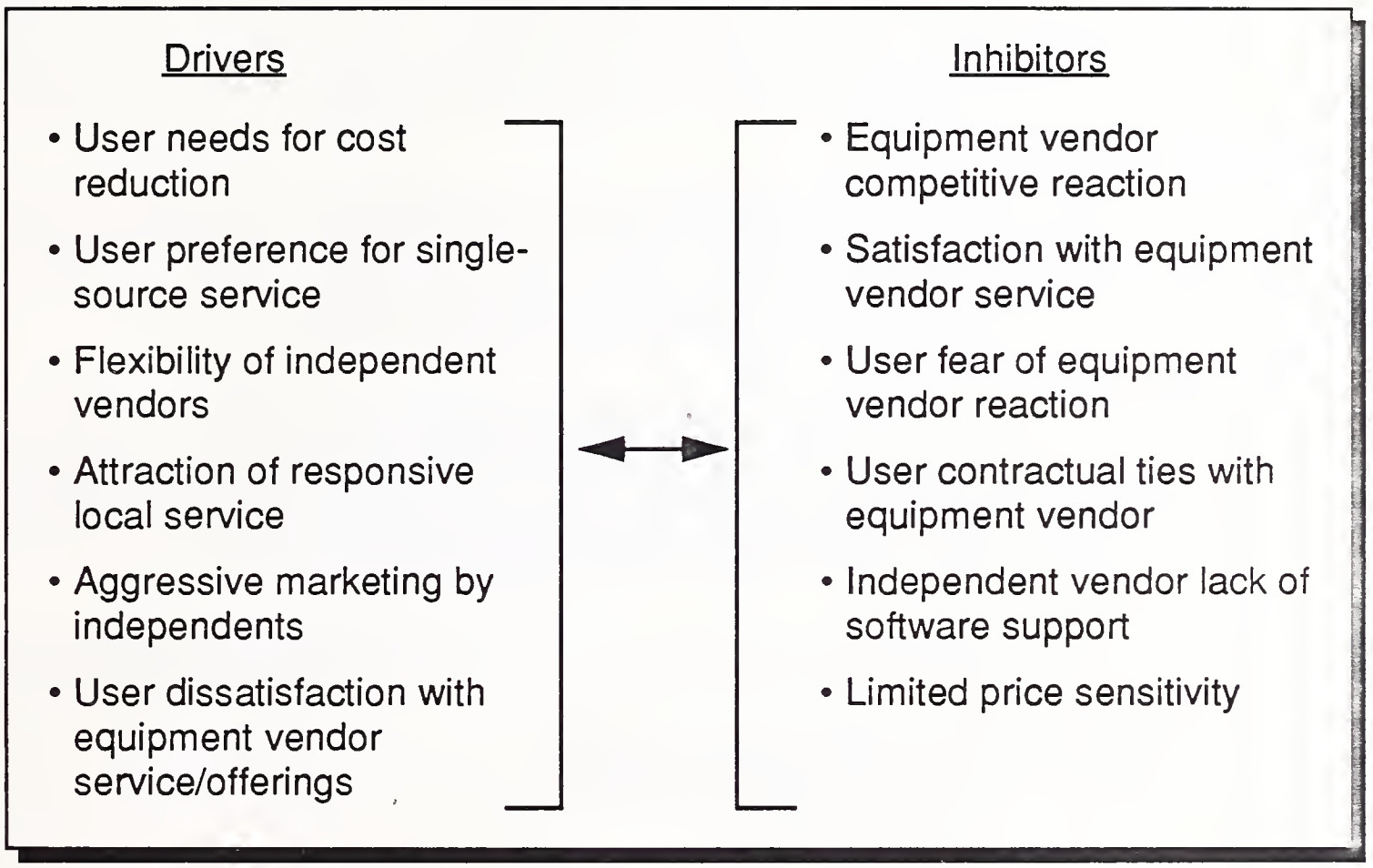
Exhibit III-2 lists the factors that, in INPUT's opinion, are influencing the growth of independent maintenance in Western Europe.

The primary factors driving the growth of independent maintenance are:

- The user need for cost reduction
- The ability of independent vendors to provide a local service
- The flexible approach to service adopted by independent vendors and the quality of service provided

EXHIBIT III-2

Independent Maintenance Market Growth Factors



With continuing pressure being applied, by user senior management, to reduce the cost of running the companies' computer systems, the independent maintenance companies are well positioned to take advantage of this situation. Invariably the independent maintenance companies tend to have lower cost overheads than the equipment vendors and are consequently able to offer competitive prices. Competitive pricing, together with an aggressive marketing approach, has been instrumental in the success of the independent maintenance companies.

The ability and willingness of independent maintenance companies to provide a local service has been a contributor to the success of such vendors. Users that are located away from the main centres of industry and commerce claim that the availability of local service has enabled the independent vendors to improve on the responsiveness and response time performance of the equipment vendors. Local service also retains an image of being more user friendly.

Users claim that one major advantage of independent maintenance vendors is their flexible approach to providing service. The independent vendors are seen to be sufficiently flexible to provide a level of service that is heavily customised to meet the needs of individual users.

Although the level of service provided by independent maintenance vendors is claimed by users to either match or improve upon that provided by the equipment vendors, the provision of flexible and local service adds a further dimension and enhances the quality image.

INPUT research indicates that almost 80% of users prefer all maintenance on the computer site to be the responsibility of one service vendor. Additionally, almost 95% of these users would prefer for this service to be provided by one of their equipment vendors.

Although equipment vendors have been slow to respond to user needs for single-source service, the independent vendors have been able to take advantage of these needs. However, the competitive advantage gained by the independents is now being eroded to a degree as the equipment vendors implement single-source service strategies.

The three major factors that are inhibiting the growth of independent maintenance are:

- Limited user price sensitivity
- The lack of credible systems software support capability from independent vendors
- A fear among the user community of possible equipment vendor reaction

The primary success of independent vendors is claimed by users to be the ability to provide equipment maintenance at lower cost than the equipment vendors. Although INPUT research data indicate that the percentage of users that are price sensitive is increasing, currently only 25% of users fall within this category. User price sensitivity, or the lack of it, is considered by INPUT to provide a constraint on the growth of independent maintenance, even though the activities of the independent vendors are not necessarily restricted to this sector of the market.

One of the key factors limiting the growth of independent maintenance is the independent vendors' lack of systems software support capability. The users interviewed by INPUT did express opinions that the independent vendors could provide a software support capability and that there was a credibility issue. Credibility was a major issue and was highlighted by a minority of users who felt that only the equipment vendor could provide effective support of the systems software.

One fear expressed by users is that, in the event of their contracting equipment maintenance to an independent vendor, the equipment vendor could react in some way that may prejudice the provision of service to other parts of the system. This fear relates to users who continue to use equipment vendor service and to a degree is a concern that software support prices could increase as a result of contracting equipment maintenance to independent vendors. Other examples include a user fear that equipment vendor responsiveness could be reduced.

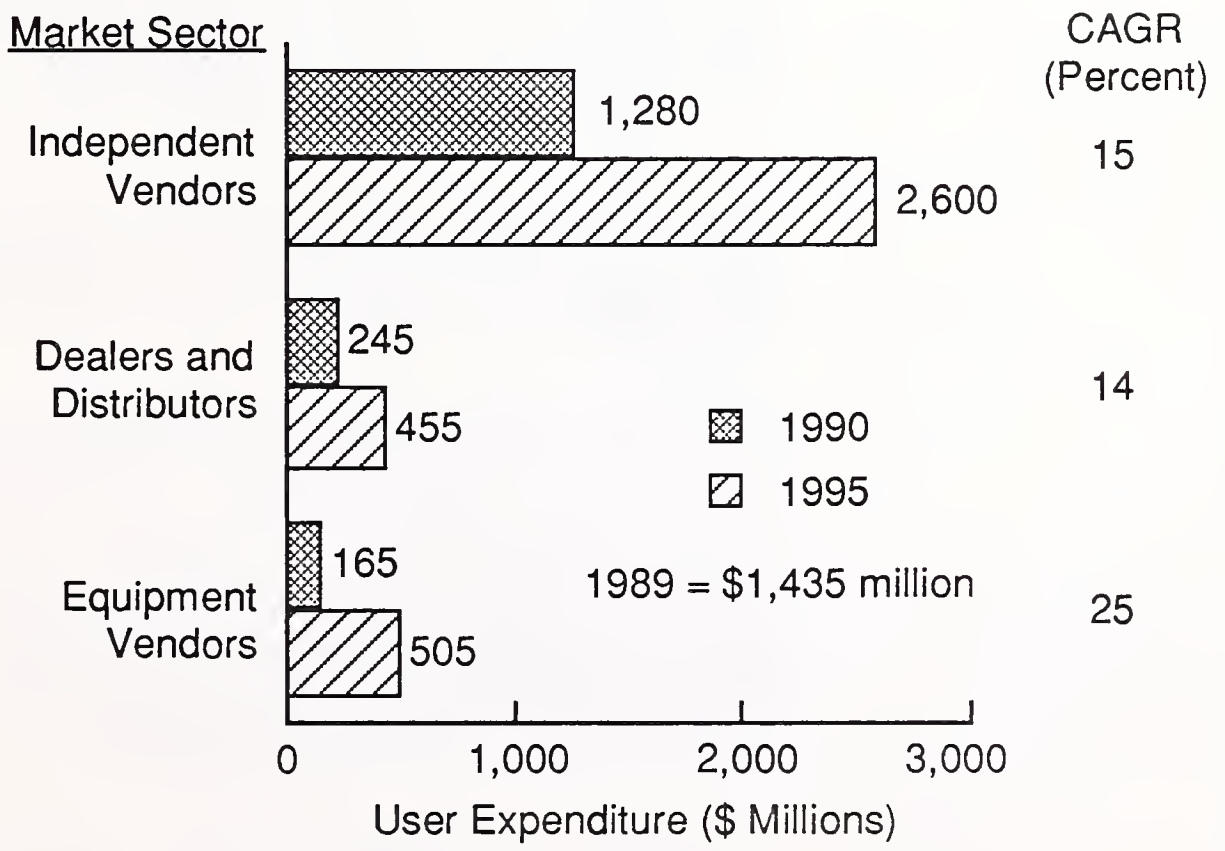
Independent vendors' commenting on the competitive reaction of the equipment vendors suggested that price discounting by the equipment vendors and their more competitive position of pricing was starting to take effect. Independent vendors claim to be feeling the pressure of equipment vendors' competitive pricing.

3. Market Forecast, 1990-1995

Exhibit III-3 provides details of INPUT's forecast for the size and growth of the individual sectors of the independent maintenance market in Western Europe.

EXHIBIT III-3

Western European Independent Maintenance Market Forecast, 1990-1995



Note: Numbers rounded

Independent vendors dominate the independent maintenance market with an indicated market share of about 75% in 1990. Although the sector occupied by the equipment vendors is forecast to experience a higher growth rate, the market share of the independent vendors will fall only slightly to about 73% by 1995.

In the last two years the equipment vendors have entered the independent maintenance market with multivendor service offerings. By taking this course of action, the equipment vendors have declared an interest to compete with the independents. This action has two objectives: firstly, to recover business lost to independents and limit further growth of this sector and secondly, as a response to user needs. However, a view expressed by the independent vendors was that the sole objective of the equipment vendors was account protection forced on them by the success of the independents. The equipment vendors' sector of the market is forecast by INPUT to grow at around 25% over the period 1990 to 1995 and, as a result of this high growth, their market share is projected to increase from about 10% in 1990 to approximately 15% by 1995. This high growth rate will do little, however, to reduce the dominant position of the independent vendors.

Although there is a trend for equipment vendors to increasingly use dealer/distributor channels at the PC/small-systems end of the market, the dealers and distributors are unlikely to experience parallel growth of maintenance revenues. The major reason is the high reliability of the equipment. INPUT estimates that over 60% of PCs are sold without a formal service agreement as a result of user perception of high reliability. Therefore, the dealer and distributor market share is estimated to remain relatively constant over the next five years.

4. Country Markets, 1990-1995

INPUT's forecasts for the growth of independent maintenance in the individual country markets that make up Western Europe are listed in Exhibit III-4.

The most developed market for independent maintenance in Western Europe is in the United Kingdom. The development of this market is in part due to user acceptance of independent maintenance as an alternative to maintenance provided by the equipment vendors, but also a consequence of the U.K.'s being the first market outside the U.S. in which independent maintenance was introduced. The U.K. share of the independent maintenance market is forecast to remain relatively constant over the period 1990-1995, at about 35%.

EXHIBIT III-4

Western European Country Market Forecast, 1990-1995

Country	U.S. Dollars Millions				
	1989	1990	Growth 1989-1990 (Percent)	1995	Growth 1990-1995 (Percent)
Austria	22	28	27	75	22
Belgium	40	48	20	110	18
France	290	345	19	740	16
Italy	125	145	16	315	17
Netherlands	102	120	18	240	15
Spain	60	80	33	275	28
Sweden	56	62	11	95	9
U.K.	485	570	18	1,180	16
West Germany	155	182	17	365	15
Rest of Europe	100	110	10	165	9
Total	1,435	1,690	18	3,560	16

Note: Numbers rounded

INPUT estimates that the fastest growing market in Western Europe for independent maintenance is the market in Spain, forecast to grow at 28% CAGR between 1990 and 1995. The growth of independent maintenance in Spain is mainly due to two factors. Spain is the fastest growing market in Western Europe for computer products, which will influence the growth of equipment maintenance. Also, the independent maintenance companies are adopting an aggressive marketing position in a newly developing market.

One of the least developed independent maintenance markets in Western Europe is the market in West Germany. Computer users in West Germany have adopted a very conservative attitude to independent maintenance, preferring mostly to take a safe position and continue with equipment vendor service. Although the market for, and installed base of, computer systems is larger than that in the U.K., INPUT estimates that there are only three independent vendors in West Germany with revenues over $5 million. This figure compares with the U.K., where there are in the region of 15 independent vendors with greater than $5 million revenue.

Discussions with independent vendors suggested that user resistance to independent maintenance in West Germany is shrinking. However, as yet there is no evidence to support any significant growth as a result.

The country markets in France, Italy, the U.K. and West Germany account for about 75% of user expenditures for independent maintenance in Western Europe. This figure indicates the dominant size of the markets in these four countries compared with the other country markets.

B
Market Structure

1. Market Hierarchy

Exhibit III-5 provides a ranking of the leading independent maintenance companies in Western Europe by market share and revenue.

Granada Computer Services retains overall market leadership and would appear to be unchallengeable as market leader. In 1989 Granada increased its market share to about 18% from 15% in 1988. Total revenues of Granada increased by over 60% between 1988 and 1989.

There are two new companies among the leading five independent maintenance companies in 1989.

- Thomainfor of France has emerged as the second largest company in Western Europe. This is primarily a consequence of acquiring the European independent maintenance business of Control Data in June 1989, an acquisition that increased Thomainfor's independent maintenance revenue by about $35 million. Prior to the acquisition, the activities of Thomainfor were limited to the French market; following the acquisition, Thomainfor had operations in seven European countries. Since June 1989 a further eight companies have been acquired by Thomainfor, although these were less significant than the acquisition of Control Data's independent maintenance business.

- A second new entrant to the leading five companies is Concept, which acquired Spectral and MIS in France. Although Concept is primarily active in the banking and financial sector of the software and service

EXHIBIT III-5

market, the company acquired two of the leading independent maintenance companies in France. For the present, the activities of these companies are limited to the French market.

Leading Independent Vendors in 1989

Company	1988 Revenues ($ Millions)	Independent Sector Market Share (Percent)
Granada	260	18.0
Thomainfor	69	5.0
Sorbus	60	4.0
Getronics	45	3.0
MIS/Spectral	40	3.0
Econocom	37	2.5
Ibimaint	29	2.0
Servicetec	27	2.0
Metroservice	24	2.0
Computeraid	23	2.0
Extel	23	2.0
CGEE	23	2.0
Telub	23	2.0
ECS	16	1.0
ACT	13	1.0
Systems Reliability	13	1.0

Note: Numbers rounded

Independent Sector 1989 = $1,435 million

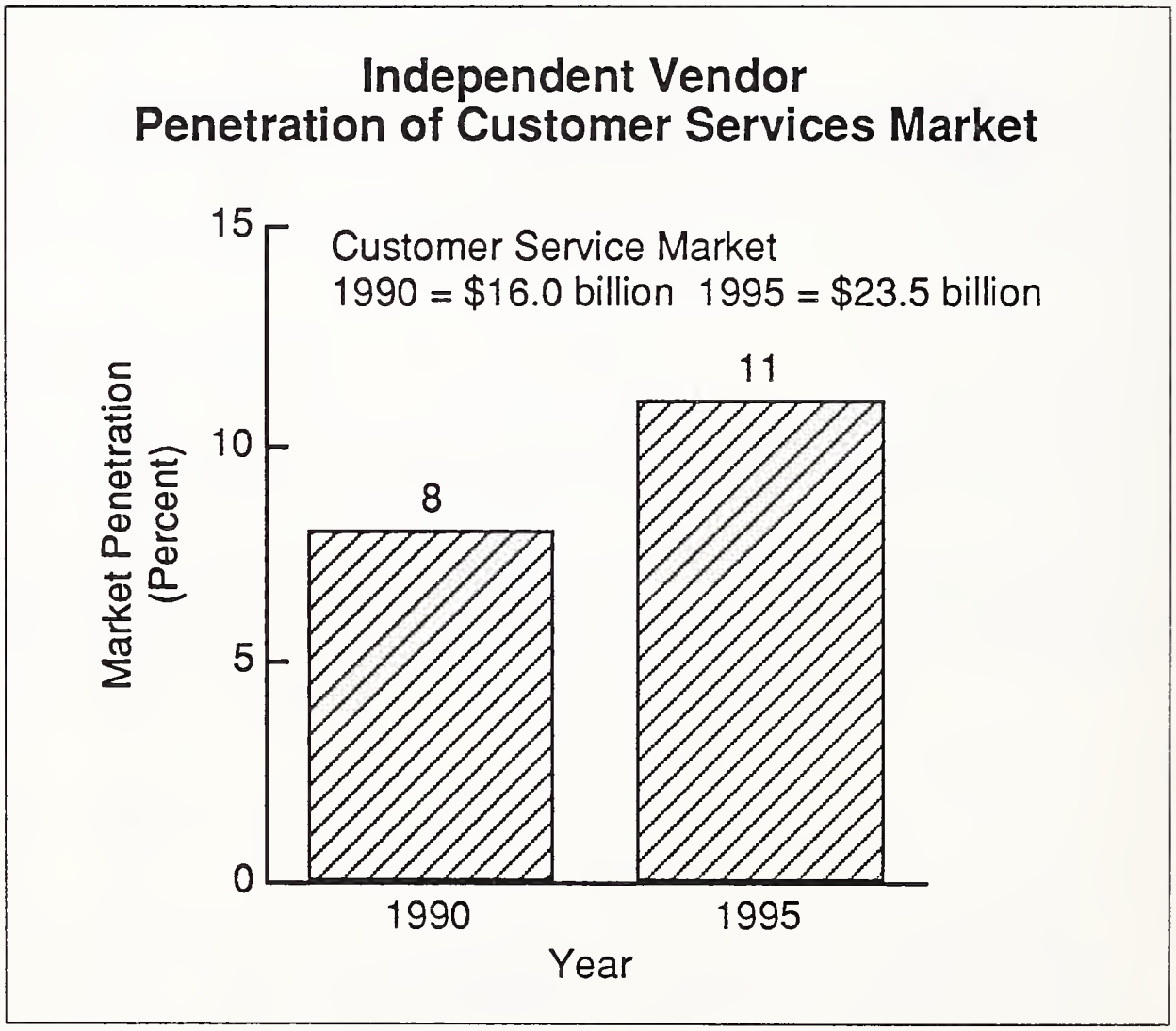
Getronics, in mid-1989, commenced operations in Spain and is forecasting very high growth for this new company.

The leading five independent vendors account for almost 35% of user expenditure for independent maintenance in Western Europe, and the leading fifteen vendors account for over 45%. The remaining market share is distributed among over 400 companies.

2. Independent Vendor Market Penetration

The extent to which independent vendors have penetrated the overall customer services market in Western Europe is illustrated in Exhibit III-6.

EXHIBIT III-6



The market penetration achieved by the independent maintenance vendors has been at the expense of the equipment vendors. Exhibit III-6 indicates a market penetration of about 8% in 1990 by independent vendors. This penetration equates to an equipment vendor revenue loss of approximately $1,250 million.

This loss of revenue by the equipment vendors is occurring at a time when the growth of the overall customer services market is slowing and the growth of the equipment maintenance market has reached stagnation. Growth of equipment maintenance is estimated by INPUT at about 4% CAGR over the period 1990 to 1995, inclusive of inflation.

The market share of the independent vendors is forecast to increase by 1995 as a result of a 15% CAGR growth forecast, compared with 8% CAGR for the customer services market. As a consequence of this growth, INPUT projects that the independent vendors will increase their market share to about 11% by 1995. This level of market share represents a revenue loss of about $2,600 million by the equipment vendors.

C

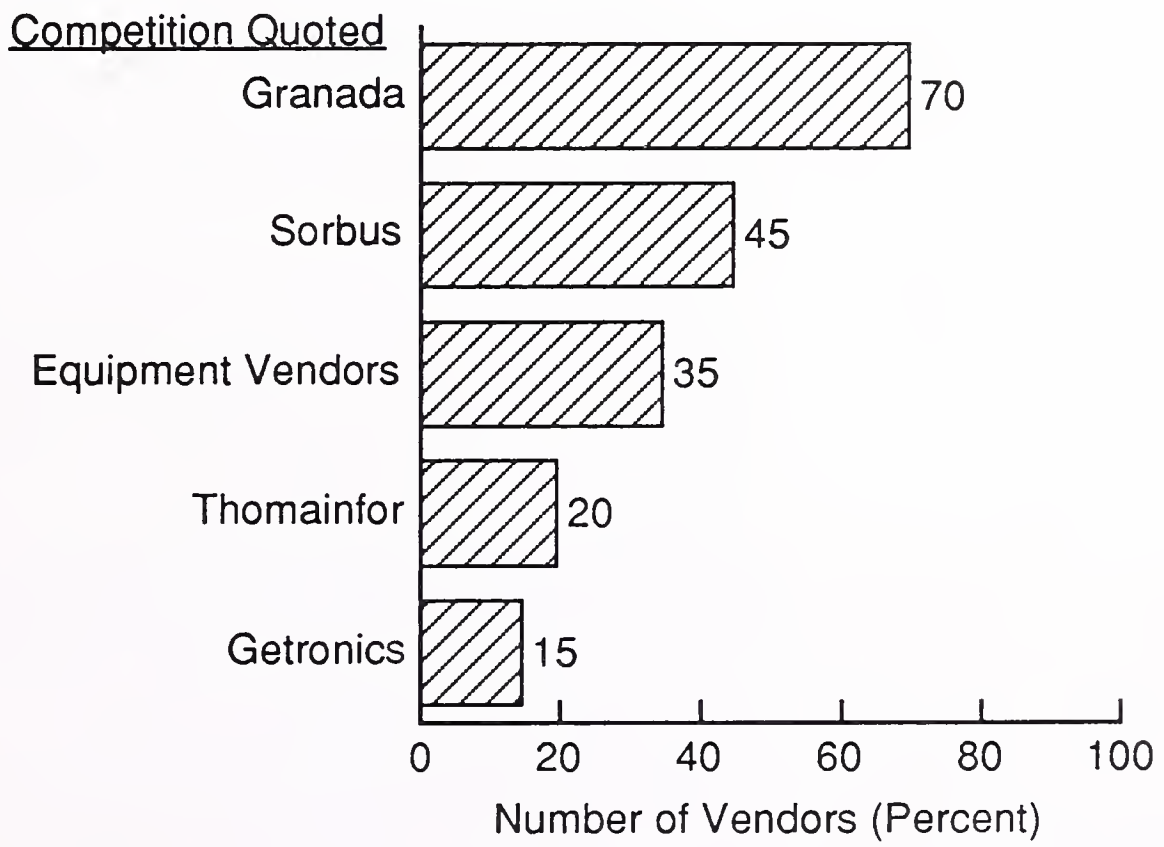
Competitive Environment

1. Competitive Profiles

Exhibit III-7 illustrates the competitive position of vendors in the independent maintenance market overall for Western Europe. This exhibit provides data on the percentage of independent vendors claiming competition from various sources.

EXHIBIT III-7

Competitive Profiles



Note: Numbers rounded.
Multiple responses allowed.

Sample Size: 30

That Granada is the most frequently quoted source of competition is a consequence of the dominant position that Granada has in the market. It is almost four times larger than its nearest competitor, Thomainfor. Granada now employs almost 3,000 staff in its independent maintenance operations, which cover nine European country markets. The company also retains a high-profile image aided by regular mentions in the trade press and a dedicated sales force of almost 120.

The third most frequently quoted source of competition, the equipment vendors, is indicative of the competitive attitude the equipment vendors are taking. The level of presence achieved by the equipment vendors as a source of competition indicates their serious intent to recover lost business and restrain the growth of independent vendors. INPUT estimates that about 90% of equipment vendors have, or are planning, multivendor service.

The reason why Thomainfor, the second largest independent vendor in Europe, is quoted as a source of competition by only about 20% of vendors most likely relates to the company's late entrance to the list of leading independent maintenance companies.

As the market continues to develop over the next five years, the intensity of competition is likely to increase as companies fight to retain and increase market share.

2. Equipment Vendor Reaction

The views of independent vendors on the likely reaction of equipment vendors to the success of independent maintenance are listed in Exhibit III-8.

Independent vendors expressed the most concern over the likely competitive response from the equipment vendors. The independent vendors claim that the equipment vendors are now aggressively competing on price. Aggressiveness concerns flexible positions on pricing and discounting. Equipment vendor discounts of up to 30% were claimed by independent vendors. The introduction of extended warranties and the bundling of service with the sale price of equipment was also quoted by independent vendors as a likely equipment vendor reaction.

EXHIBIT III-8

Vendor Reaction to Independents' Success

Reaction	Importance Rating
• Competitive response	10
- Pricing flexibility	
- Price discounting	
- Warranties	
- Bundling	
- Special contracts	
• Service initiatives	10
- Single-source/multivendor	
- Integrated solutions	
• Cooperative partnerships	7
• Restrictive practices	7
- Parts	
- Documentation	
- Diagnostic software	
• Acquire large independent companies	3

Sample Size: 30

Introduction of multivendor maintenance by the equipment vendors was claimed by the independents to be more an instrument of account protection than a response to user needs. Data suggest that as a result of equipment vendor multivendor service, the independents have lost a degree of competitive edge. Also, independent vendors are concerned that the equipment vendors will use their software support capability to leverage new service initiatives that, together with professional services, can be formulated to provide integrated service solutions. The ability of the independent vendors to match these solution-oriented service offerings is doubtful in INPUT's opinion.

Independent vendors believe that there will be a trend of cooperative partnerships with the equipment vendors. One factor that could stimulate this trend is the need for equipment vendors to subcontract in order to provide full multivendor service. A second factor is the need for independent companies to gain access to systems software support capability, which is essentially the domain of the equipment vendors.

Some independent vendors are concerned that the equipment vendors will introduce restrictive practices to constrain their activities—for example, restricting the availability of documentation, spare parts and diagnostics. However immoral or illegal this practice may be, issues of this type take time to resolve and independent vendors believe that such time provides equipment vendors with a competitive advantage.

3. Acquisition and Change

Exhibit III-9 lists the major acquisitions and changes that have occurred in the last year.

In total, 25 acquisitions are listed in Exhibit III-9, a figure that is slightly reduced from the previous year. Of more consequence is that the significance of the acquisitions was at a lower level, in that they mostly involved the acquisition of small companies.

There were, however, major acquisitions.

- In June 1989, Thomainfor acquired the European independent maintenance business of Control Data.
- Apricot Computers acquired DDT and Information Technology (ITL) in the U.K. This acquisition included the field service organisation of ITL.
- As a result of financial problems at Ferranti, the computer maintenance business of that company was acquired by the relatively unknown company Servicetec. The purchase by the much smaller Servicetec was made possible by access to and support of venture capital companies.
- The most recent acquisition is of Extel by MBS in May 1990.

EXHIBIT III-9

1989/1990 Acquisition and Change Activity

Company	Activity	Country
Thomainfor	Acquired: • SOPAA • Matra Data Systems • Control Data TPM business • APH • Tekserv • Tekserv • Datacom • GEMC • AWITEX	 France France Europe-wide Austria France Belgium Austria France West Germany
Nixdorf	Acquired 51% of Sintec	Spain
K.H. Services	Now includes DTC	Netherlands
Getronics	• Commenced operations in Spain • Acquired XTEC • Acquired 34% of Interscan Computer Services	Spain Netherlands West Germany
Eltec	• Commenced operations in France and Portugal	France Portugal
Apricot	• Acquired DDT • Acquired ITL Service business merged as ACT	U.K. U.K.

EXHIBIT III-9 (con't)

1989/1990 Acquisition and Change Activity

Company	Activity	Country
Systems Reliability	Acquired: • Southeast Computers • Orisis • GST Computers • Aquix • Minority share in Optim	 U.K. U.K. U.K. U.K. U.K.
Metroservice	• Acquired Profinfor	France
Granada	• Acquired Uniserv • Acquired David Computer Services	West Germany Netherlands
Servicetec	• Acquired maintenance business of Ferranti Computers	U.K.
MBS	• Acquired Extel	U.K.
Ferrari	• Acquired Pericom	U.K.

INPUT considers that the level of significant acquisitions is now reducing as the availability of companies to acquire reduces. There will likely continue to be acquisitions of smaller companies, but the situation would now appear to have reached a position of relative stability as the leading companies have become established.

D

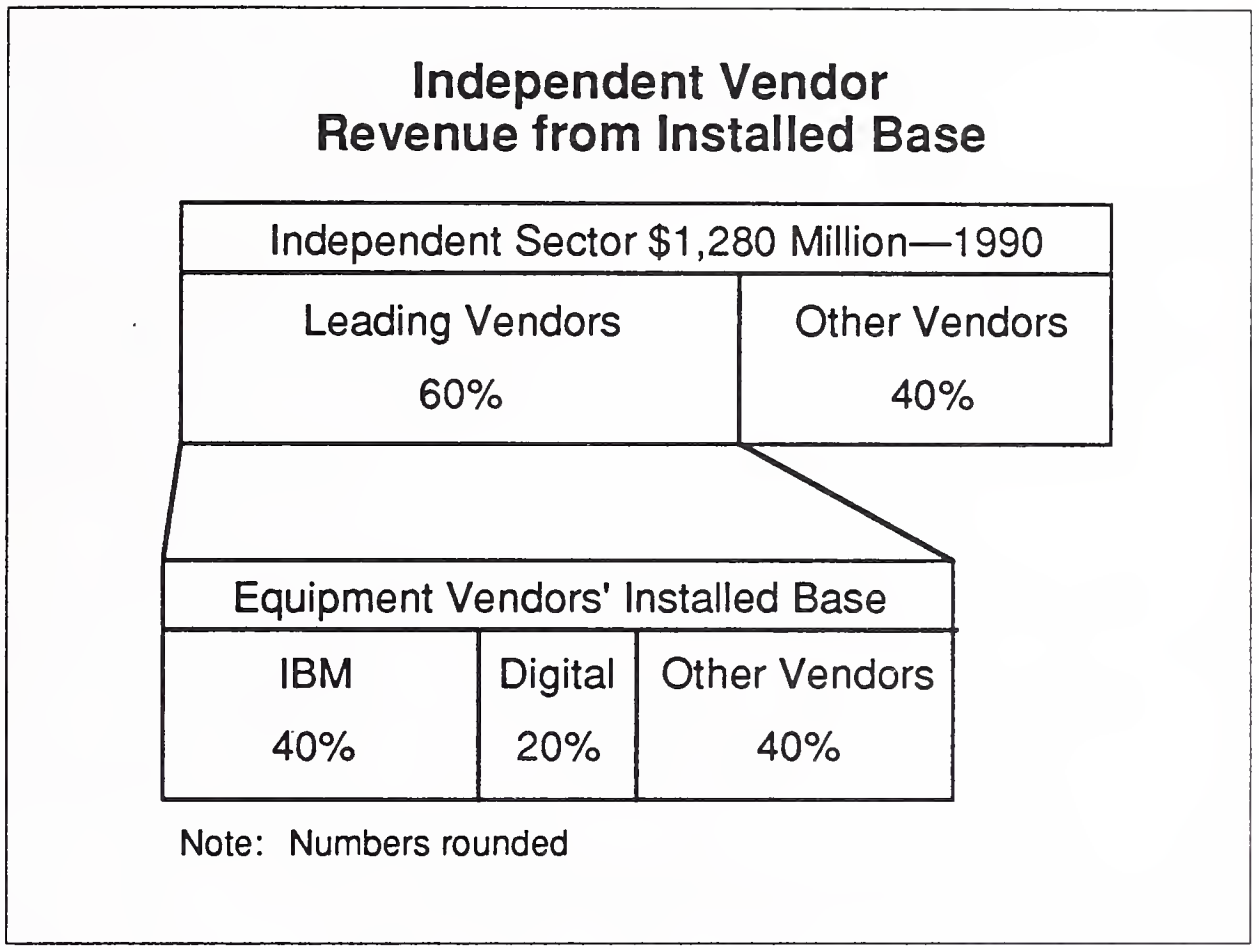
Independent Vendor Revenue Streams

1. Installed Base

Exhibit III-10 highlights the primary sources of independent maintenance vendor revenue from the equipment vendors' installed bases throughout Western Europe.

The independent vendor sector of the independent maintenance market is estimated by INPUT to be about $1,260 in 1990. In this market INPUT estimates that about 60% of independent vendor revenues are derived from the installed base of IBM and Digital equipment. This percentage indicates that these two vendors will lose a combined revenue of over $750 million to the independent vendors in 1990.

EXHIBIT III-10



As a result of the independent vendors' obtaining 40% of their revenues from the IBM installed base, this figure equates to a loss of more than $500 million in equipment maintenance revenues by IBM and its dealers. The equipment maintenance revenues of IBM are estimated by INPUT to be in the region of $2.7 billion in 1990, indicating that the penetration by independent vendors of the IBM equipment maintenance market is approaching 16%.

Digital is losing about $250 million of equipment maintenance revenues to the independent maintenance vendors. This loss of revenue equates to over 20% penetration by independent vendors of the Digital equipment maintenance market, which is estimated by INPUT at about $950 million in 1990.

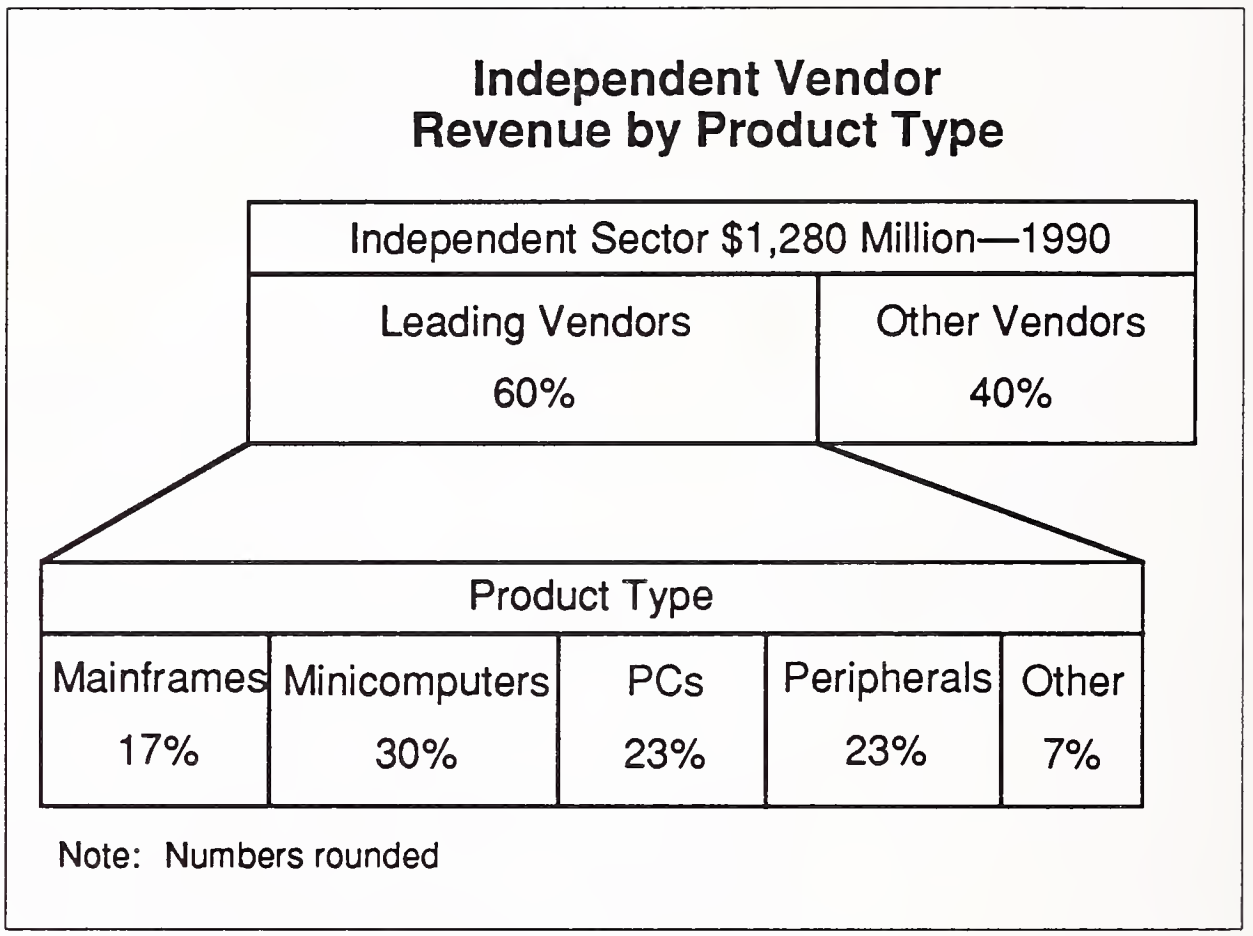
Figures for IBM and Digital include independent vendor revenues from older and second-user equipment.

Penetration of other equipment vendors' markets is relatively low in comparison with that of IBM and Digital. The remaining 40% of independent vendor revenues are spread across the markets of over 100 equipment vendors.

2. Product Range

INPUT estimates of the independent vendor revenues derived from the various product sectors of the market are illustrated in Exhibit III-11.

EXHIBIT III-11



The major source of independent revenue is the PC to midrange sector, including peripherals, with over 70% of revenues originating in this sector of the market. The sector of the market in which independent vendors have been both most active and successful is minicomputers; about 30% of independent vendor revenues derive from this sector.

Independent vendor activity in the mainframe sector of the market is more limited. About 17% of revenues are derived from this sector. In general it is the larger, more established independent companies that have established a base of users in the mainframe sector—for example, Granada, through the acquisition of long-established companies such as DPCE and CFM, Econocom and Sorbus.

The more recent entrants into the leading company rankings—for example, Thomainfor—are tending to concentrate their activities in the midrange market.

3. Industry Sector

Independent vendor revenue derived from a number of industry sectors is illustrated in Exhibit III-12.

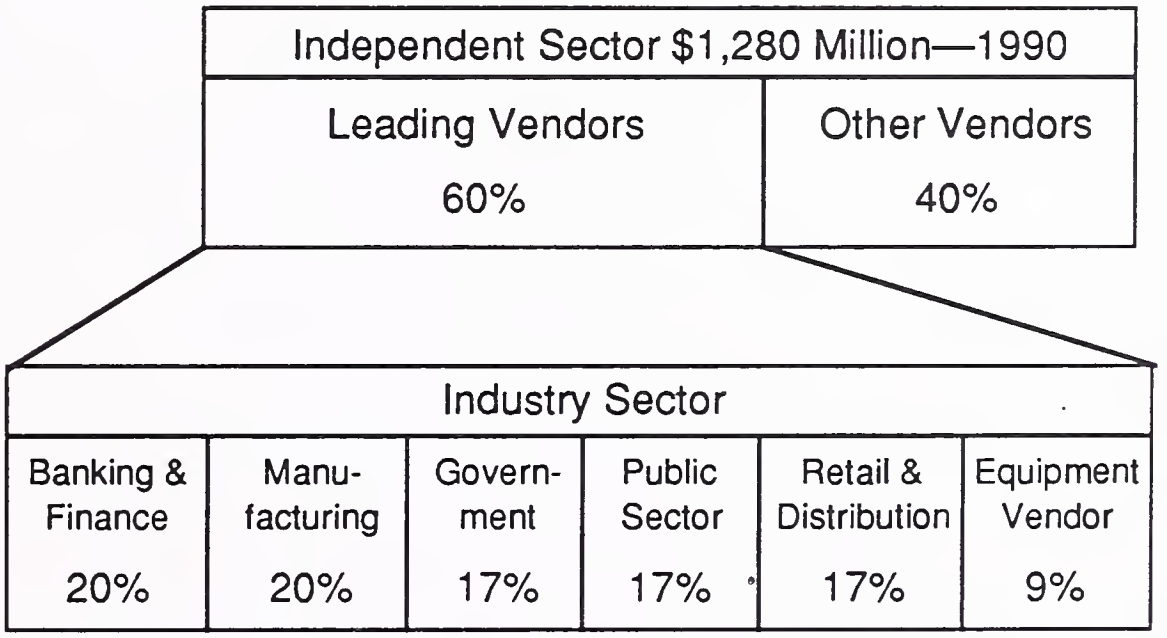
The major characteristic illustrated by Exhibit III-12 is that although the relative size of the industry sector markets varies (depending on the sector), all industry sectors provide a similar proportion of independent vendor revenues. There is little industry sector specialisation by the independent vendors as a whole.

However, within this overall consistency there are some individual companies that specialise in specific industry sectors. For example, both Sintec and Eltec in Spain specialise in the banking and financial services market, whereas Thyssen and Econocom Belgium specialise in the manufacturing sector.

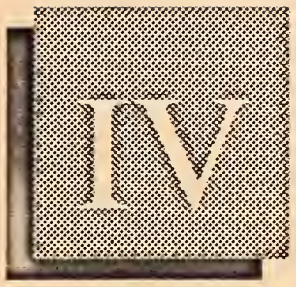
The least significant source of revenue indicated in Exhibit III-12 is that derived from the equipment vendors. Although INPUT estimates that less than 10% of independent vendors' revenues are derived from this sector, that figure confirms that the independents and the equipment vendors are starting to work together in cooperative agreements.

EXHIBIT III-12

Independent Vendor Revenue by Industry Sector



Note: Numbers rounded



The Future Development of Independent Maintenance

IV

The Future Development of Independent Maintenance

A Vendor Development

1. Vendor Strategies

During the course of interviews, independent vendors were questioned about the key five-year strategies of their companies. A consensus of vendor strategies is illustrated graphically by Exhibit IV-1.

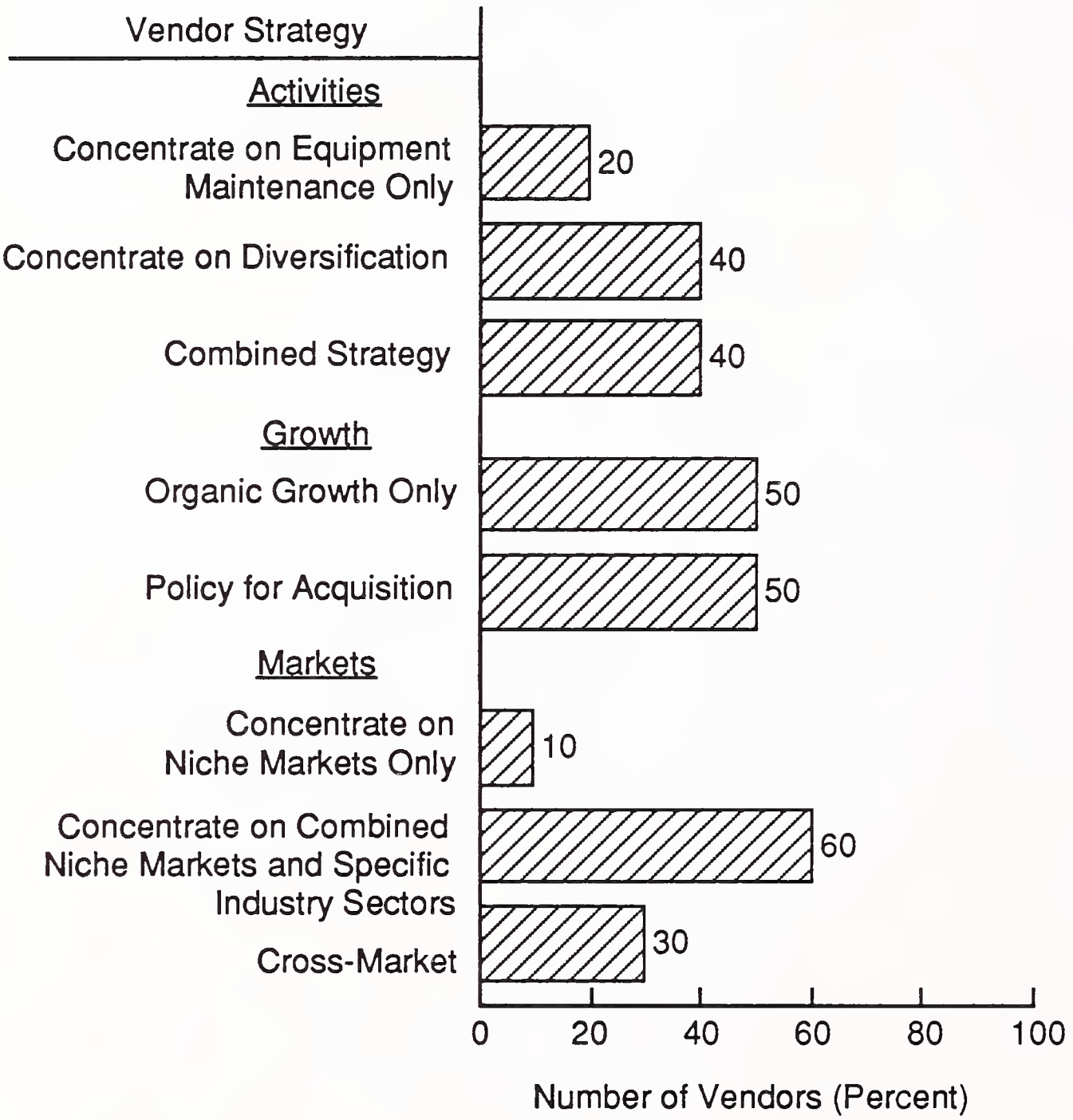
Strategies related to the activities of the independent maintenance companies indicate that about 80% of the leading independent vendors are concentrating on diversification. This diversification includes extending existing services, the addition of new services and diversification into related areas (including sales activities). The 80% of vendors implementing this strategy is equally divided into vendors that are combining a strategy of diversification together with concentrating on their current equipment maintenance activities, and vendors that are concentrating mainly on diversification.

The remaining 20% of vendors claim to be concentrating solely on their existing equipment maintenance activities. INPUT contends that such concentration is a narrow strategy that needs to change with changing market conditions. Otherwise, long-term company prospects may diminish.

On the subject of strategies for growth, the independent vendors were equally divided into those with an intent to pursue a policy of growth by acquisition and those that claimed to be following a policy of organic growth only. Although acquisition opportunities continue to exist, the probability of major acquisitions appears unlikely as the majority of the major independent companies are now well established and have reached a position of relative stability. Future acquisition activities are likely to be at a much lower level than those of recent years.

EXHIBIT IV-1

Leading Independent Vendor Strategies



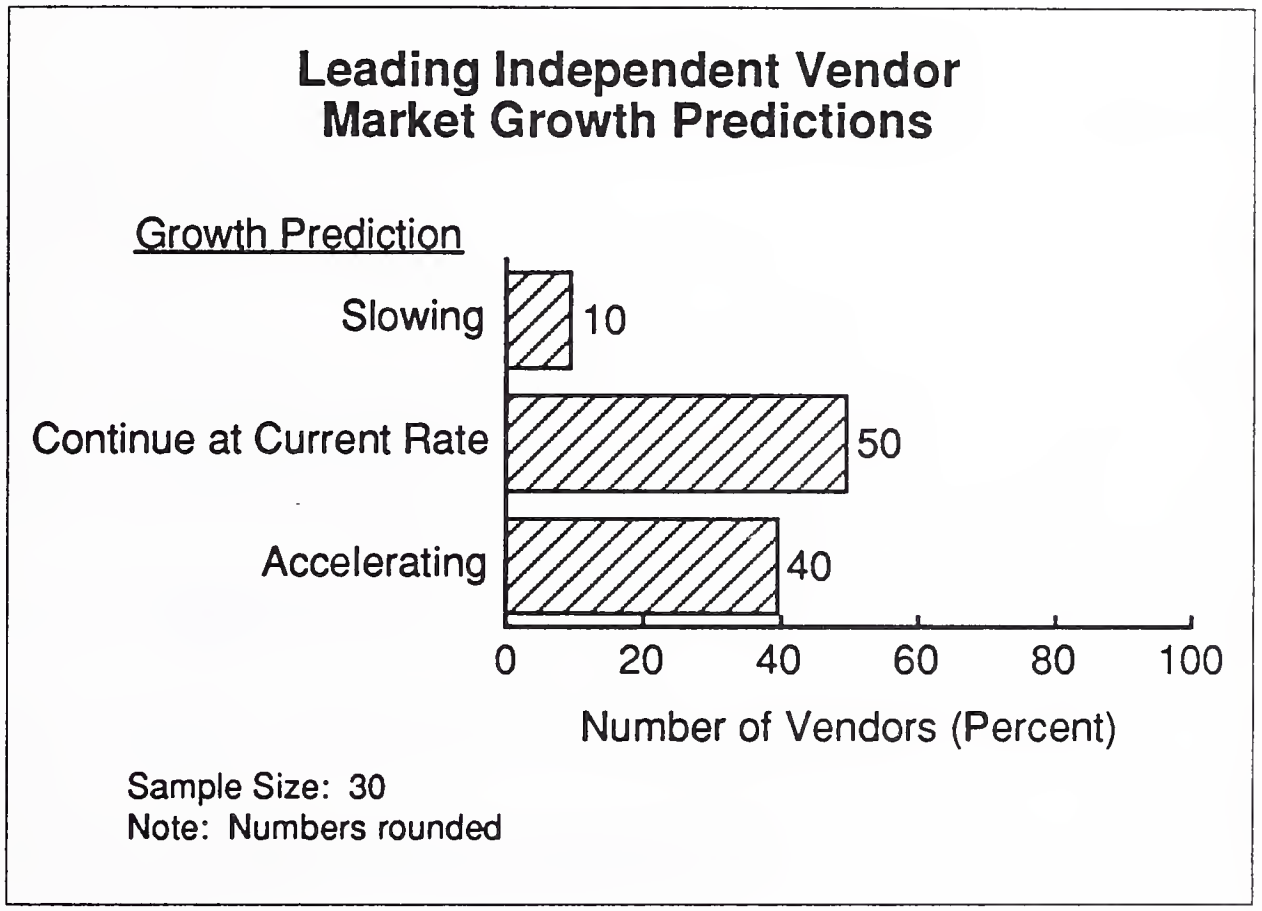
Sample Size: 30
Note: Numbers rounded

Strategies relating to market specialisation indicate that a significant majority of independent companies—60%—intend to concentrate on a combined policy of marketing in niche markets and specific industry sectors. Only 10% of vendors claim to be concentrating specifically on niche markets. Other data collected indicate that across the spectrum of leading independent vendors there is little specialisation in specific industry sectors. All sectors appear to provide similar revenue contributions.

2. Vendor Growth Predictions

Exhibit IV-2 illustrates the independent vendors' view of future growth of the independent sector of the market.

EXHIBIT IV-2



In overall terms, the independent vendors feel optimistic about the continued growth of the independent market sector. About 90% of the vendors interviewed believed that market growth would either continue at the current rate or would accelerate; only 10% of vendors believed the market would slow.

The 50% of independent vendors that believed growth would continue at the current rate were, in INPUT's opinion, accurate. INPUT forecasts that growth of the independent maintenance market over the period 1990 to 1995 will remain relatively constant at about 16%, a similar growth rate to that achieved over the last three years.

3. Cooperative Partnerships

During the course of interviews with independent vendors, a significant majority of the vendors suggested that cooperative partnerships would become a trend in the independent sector of the market. The types of partnership agreements mentioned by independent vendors ranged from those between independent companies to agreements between independent vendors and equipment vendors.

However, during discussions INPUT discovered that a formal partnership agreement between a number of independent vendors has already been made. The key elements of the agreement are outlined in Exhibit IV-3. The partnership has been named EUROSERV and will provide pan-European service as a means of competing with the large pan-European companies without recourse to mergers or acquisitions of the companies involved.

EXHIBIT IV-3

The companies involved in this partnership are:

- ATM, covering the U.K.
- Telub, covering Scandinavia
- Telub Bitronic, covering West Germany
- Spectral/MIS, covering France
- SS&S, covering Austria
- KH Services, covering the Benelux region

The companies involved are currently searching for suitable partners in Spain and Italy, companies that are financially strong and have a reputation for delivering quality service.

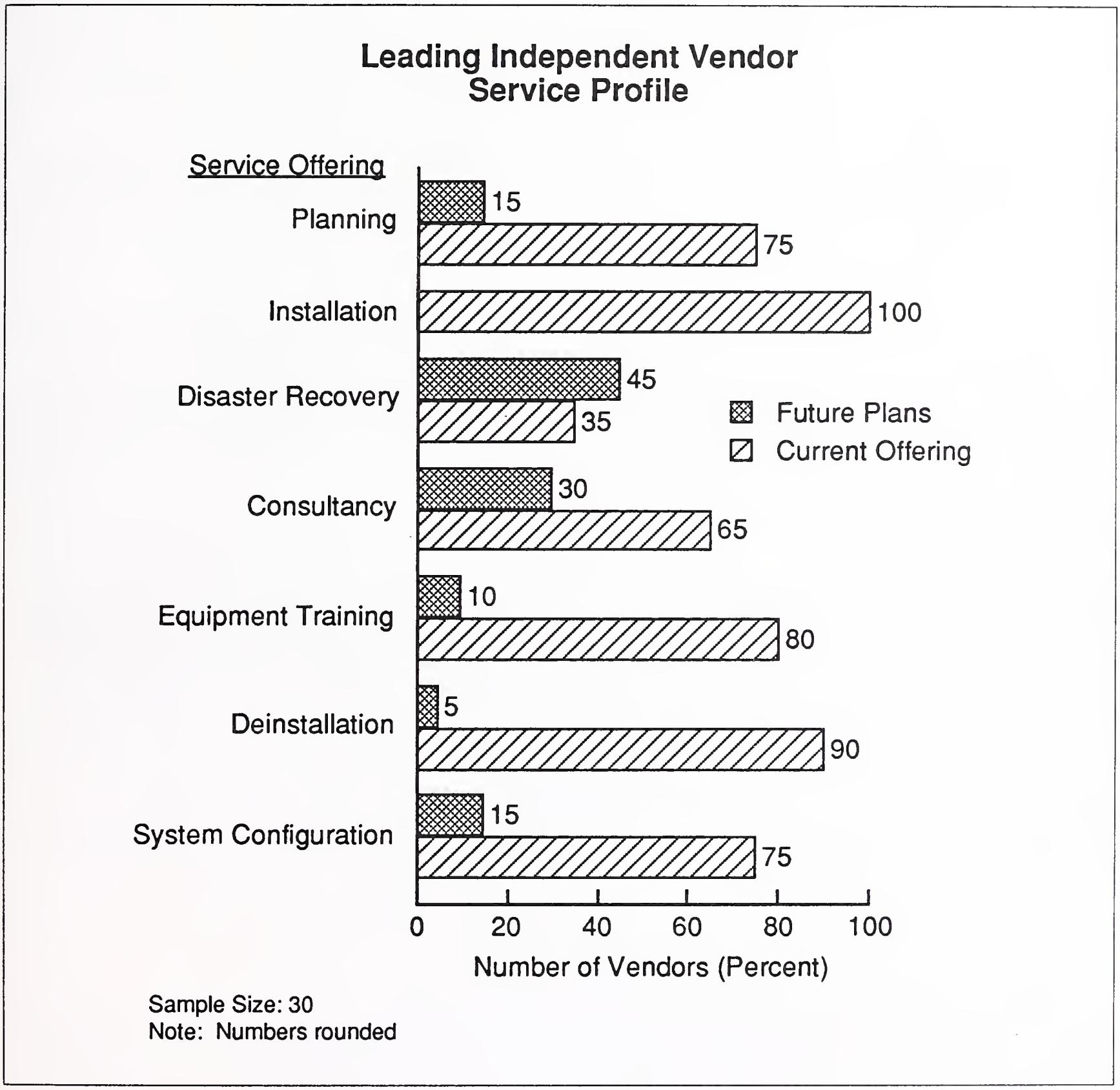
B

Service Product Development

1. Diversification Plans

Exhibit IV-4 illustrates the actions being taken by independent vendors to extend the range of services provided.

EXHIBIT IV-4



The degree of service coverage currently claimed by the independent vendors is relatively high in some areas in terms of the percentage of leading vendors that offer the services. These services, which are claimed to be provided by more than 75% of the leading vendors, are:

- Systems and maintenance planning
- Installation/deinstallation
- Equipment training
- System configuration

Services that are attracting the most interest from independent vendors as future service offerings include consultancy, with 30% of the leading independent vendors planning to provide this service. However, the service that is attracting the interest of the highest percentage of independent vendors as a potential future offering is disaster recovery services. Previous research by INPUT has indicated that this service sector is heavily dominated by the independent companies, not specifically independent maintenance companies. In 1988, INPUT estimated that independents had about 95% market share and, although there has been some activity by the equipment vendors (specifically IBM, Unisys, NCR and ICL), this activity has been too recent to significantly affect the independents' market share.

Exhibit IV-5 provides data related to diversification by the independent vendors into non-service-related activities. Although some vendors are planning diversification into these areas, the data indicate that these activities are at a relatively low level, suggesting that diversification into non-service-related activities does not rate very highly in the independent vendors' future plans.

EXHIBIT IV-5

Leading Independent Vendor Diversification

Diversification Activity	Number of Vendors (Percent)	
	Current	Planned
Equipment sales	40	0
Application software sales	10	20
Computer supplies sales	45	10

Sample size: 30

2. Future Directions

During the course of interviews, leading independent vendors were asked to indicate what changes the independent maintenance companies need to implement in the next five years to ensure the long-term viability of the company. Exhibit IV-6 lists a consensus of independent vendor opinions. The importance ratings have been adjusted by INPUT using a suitable weighting factor.

EXHIBIT IV-6

Independent Vendor Need for Future Direction

Reaction	Importance Rating (Scale 0-10)
• Total service orientation	10
- Extend range	
- New services	
- Software support	
- Network services	
• Cooperatives and partnerships	7
- With equipment vendors	
- Other independents	
• Market measureable service	5
- Quality	
- Restore time	
- System up-time	
• More structured approach	3
- Profitability	
- Critical size	
- New investment	
• Systems operations (FM)	2

Sample Size: 30

The most popular opinion expressed by the independent vendors was the need to develop a total service orientation. This orientation encompassed an extended range of services and the provision of new services but, more importantly, indicated a recognition of the need to develop a credible software support capability and awareness of the opportunities provided by network services. These opinions indicate that about 70% of the leading independent vendors have an awareness of the likely trend towards integrated service solutions.

Independent vendors expressed an opinion that there was a need for more cooperation between companies. Cooperation included partnership agreements not only with other independent vendors but also with the equipment vendors. Cooperative agreements between independent vendors have already commenced—for example the EUROSERV agreement. There is also evidence of the existence of agreements between independents and equipment vendors. INPUT estimates that the leading independent vendors obtain almost 10% of revenues from activities carried out on behalf of the equipment vendors.

About 20% of the leading independent vendors offered an opinion that there was a need to market measurable service. The concept discussed involved implementing a mechanism by which the quality of service, system restore time and system up-time could be accurately measured and used to demonstrate the value of service to the user. This type of approach to service needs to be carefully documented to avoid disputes and disagreements. However, as a marketing tool it could be quite powerful, the contracted price being decided by mutually agreed performance. If performance is not achieved, the user obtains a discount and, in the event that performance is exceeded, it may well be that some users would be prepared to pay a premium.

Some independent vendors consider that the independent companies need to implement a more structured and mature approach to their businesses. About 15% of vendors believe that independent companies need to review their business operations to concentrate on profit rather than revenue. These two quantities have always been mutually exclusive. Also, companies need to develop critical mass in order that profit and size can provide the necessary funds for investment in the servicing of new technology products and new service offerings. In brief, these vendors were suggesting that the independent maintenance market has now developed and the next phase is for the independent companies to mature.

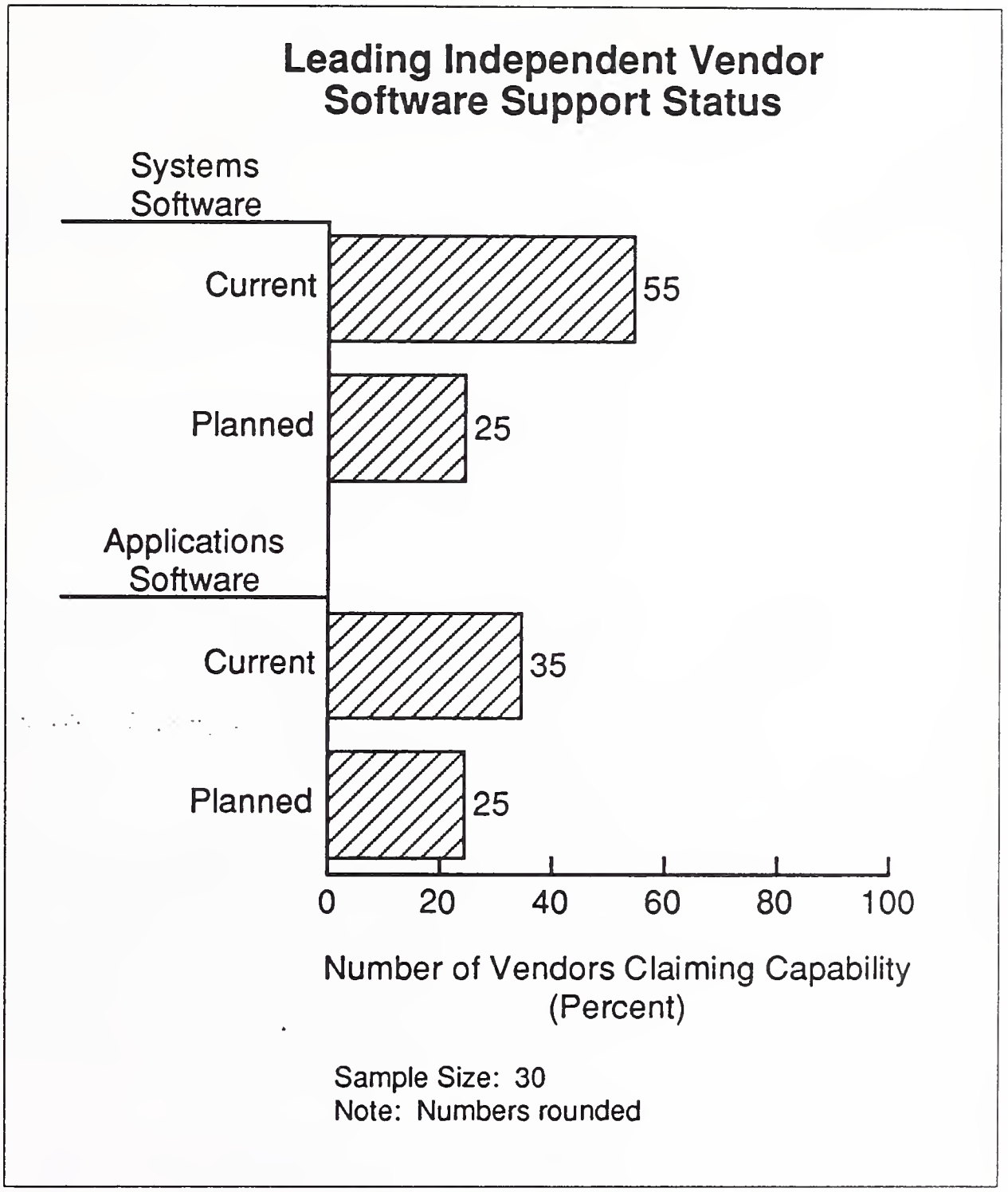
C

Software Support from the Independent Vendor

1. Independent Software Support Status

Data contained in Exhibit IV-7 provide an indication of the current status of the software support capability of the independent vendors. The data contained within this exhibit are based on an assessment of answers to questions related to current services offered and those the independent vendors plan to offer in the future.

EXHIBIT IV-7



The data indicate that a significant proportion (80%) of independent vendors currently provide systems software support or plan to introduce such support as a future service. Although the vendors claiming to provide a systems software support capability tend towards the smaller-systems/PC sector, this tendency is not a general characteristic. It is, however, a trend that independent companies that are subsidiaries, and thus have software support available from the parent group, tend to concentrate on equipment maintenance.

A much lower proportion of independent vendors claims the capability to support applications software. The vendors' approach to this area of support suggests a degree of uncertainty. Nonetheless, over 50% of vendors claim to either currently provide or plan to introduce applications support. The type of applications support provided by independent

vendors is, by the nature of the market, heavily biased towards universal or standardised applications—for example, PC and networking applications—and also tends towards providing an advisory or consultancy service rather than "hands-on."

As for the support of systems software, companies that are subsidiaries of larger companies with software support are tending not to include applications support in their future plans.

2. Independent Vendors Can Support Software

During the course of interviews, independent vendors were asked whether the independent companies could develop an effective software support capability that is effective in terms of providing an alternative to the support provided by the software vendor. Answers to these questions are illustrated by Exhibit IV-8.

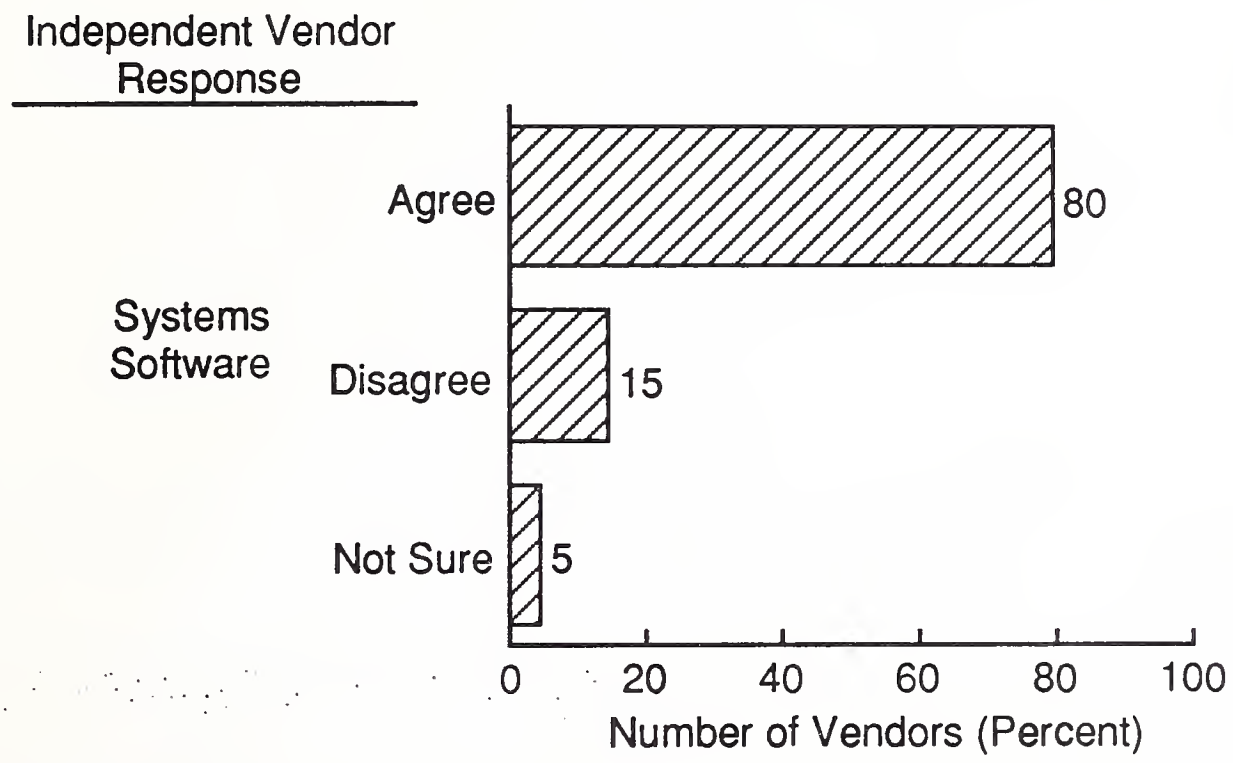
Data relating to systems software support are in agreement with data relating to current or planned activities, as illustrated in Exhibit IV-7. The agreement concerns about 80% of independent vendors either currently offering or planning systems software support. Eighty percent of those vendors agree that independent maintenance companies can develop an effective systems software support capability.

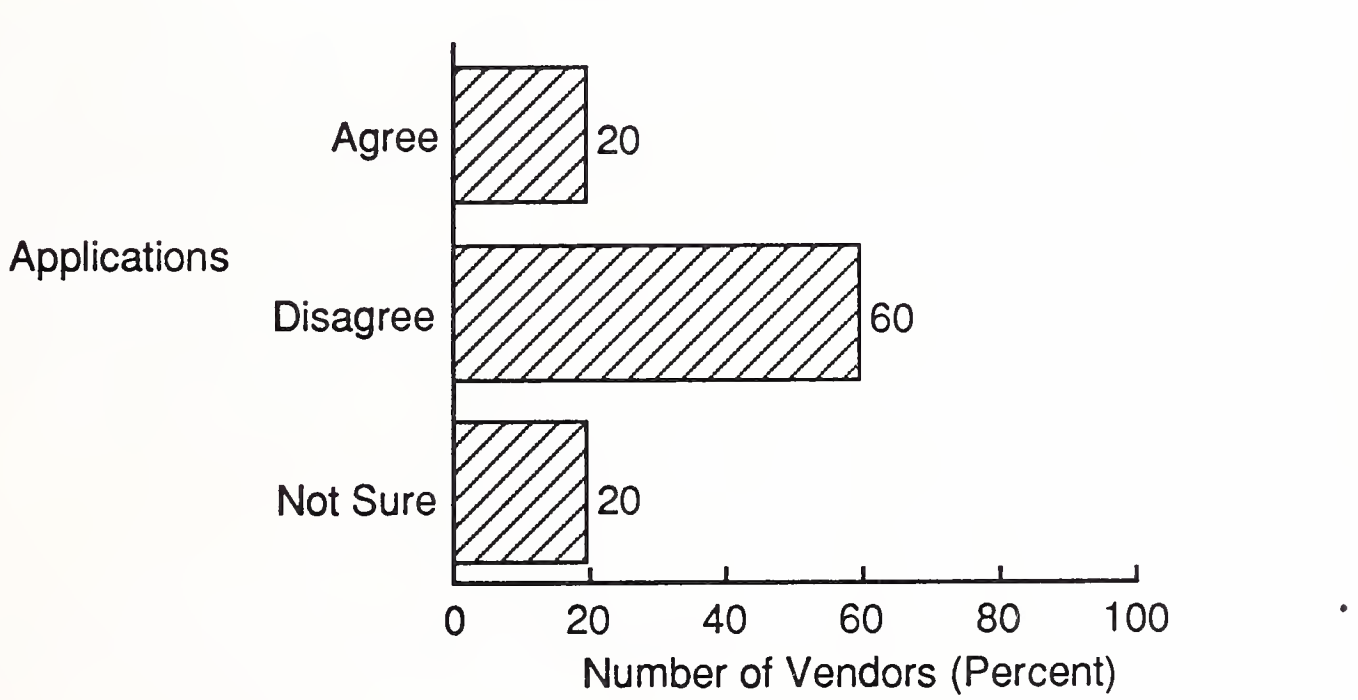
Although a high proportion of independent vendors are optimistic that an effective level of systems software support can be achieved, the mechanism for achieving this capability is less certain. This uncertainty is uncovered by vendor comments suggesting partnerships and cooperative agreements with software vendors as a possible solution. As indicated by the data, the independent vendors recognise a need and the opportunities available, but the methodology tends to remain tentative.

Independent vendor opinions on their ability to provide an effective applications support capability are not only uncertain but also confused. For example, over 50% of independent vendors claim to currently offer or plan applications support, but only 20% of those vendors agree that the independent can provide an effective support capability. INPUT's interpretation of the data is that the independent vendors are relatively confident in their ability to provide limited and specifically focussed applications support, but that independent vendors retain doubts related to the general support of applications.

EXHIBIT IV-8

Independent Vendors Can Support Software



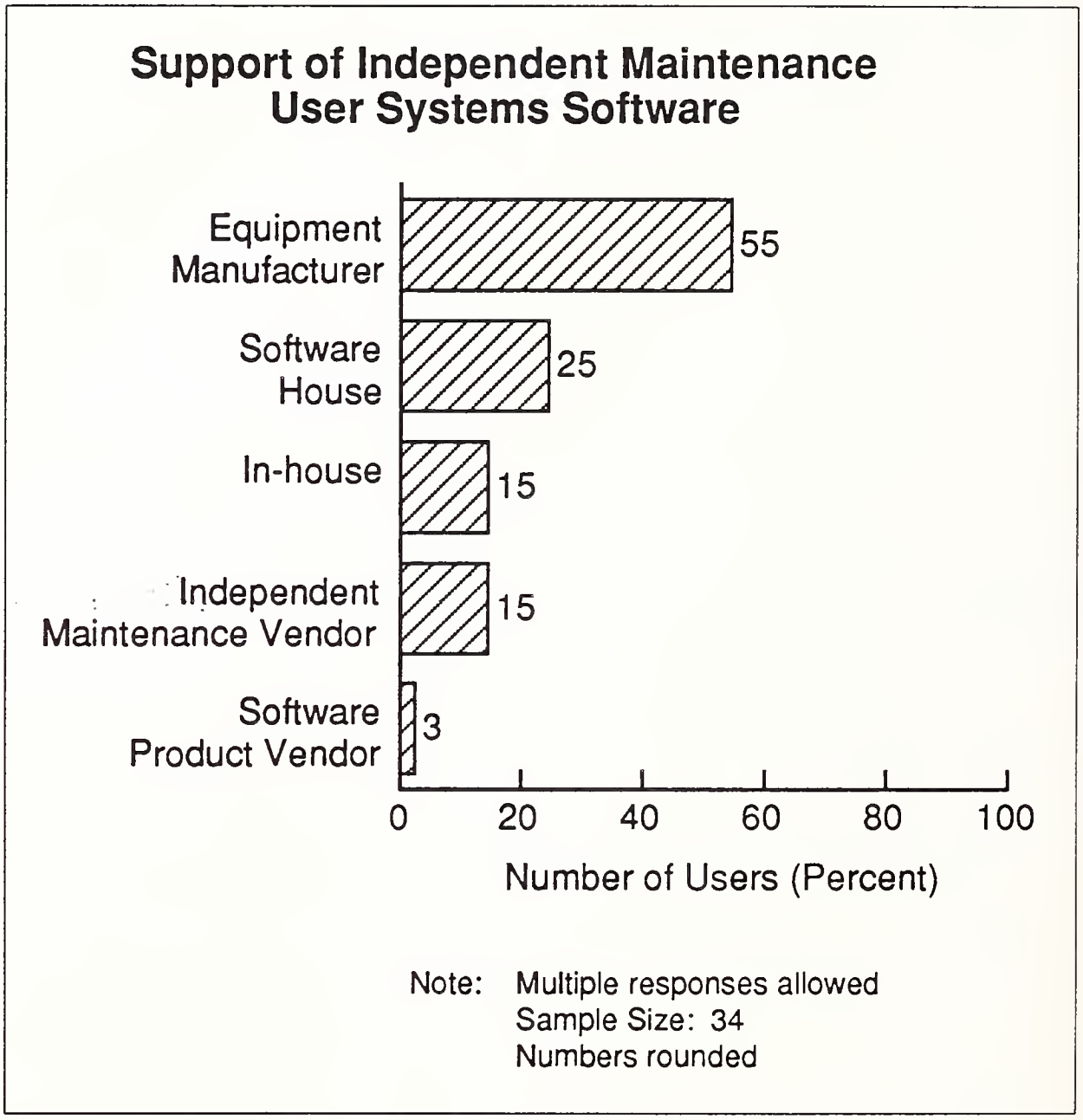


Sample Size: 30
Note: Numbers rounded

3. Support of Independent Maintenance Users' Software

Analysis of the sample of users, in terms of which vendors support the users' software, is provided by Exhibit IV-9.

EXHIBIT IV-9



Comparison of the data contained in Exhibit IV-9, which relate to 34 users of independent maintenance, with data extracted from INPUT's 1989 overall survey of 1,625 computer users (primarily users of equipment vendor maintenance) indicates the following differences:

- Within the sample of independent maintenance users, the proportion of users whose systems software is supported by the equipment vendor is lower. About 55% of independent maintenance users' software is supported by the equipment vendor, compared with around 70% overall.

- The proportion of users whose system software is supported by third parties is higher. For example, about 40% of independent maintenance users claim that some level of software support is provided by third parties, compared with 25% overall.

Within the sample of independent maintenance users, about 15% claimed that some level of software support is provided by the independent maintenance vendor.

It is not possible to draw definite conclusions from these comparisons. However, INPUT offers two possible explanations:

- Users of independent maintenance may develop a more open attitude to independent service vendors. This openness could be due to successful experiences of independent maintenance.
- Users that contract with independent maintainence companies may have a preference to be more independent of, and hence less reliant on, their equipment vendors.

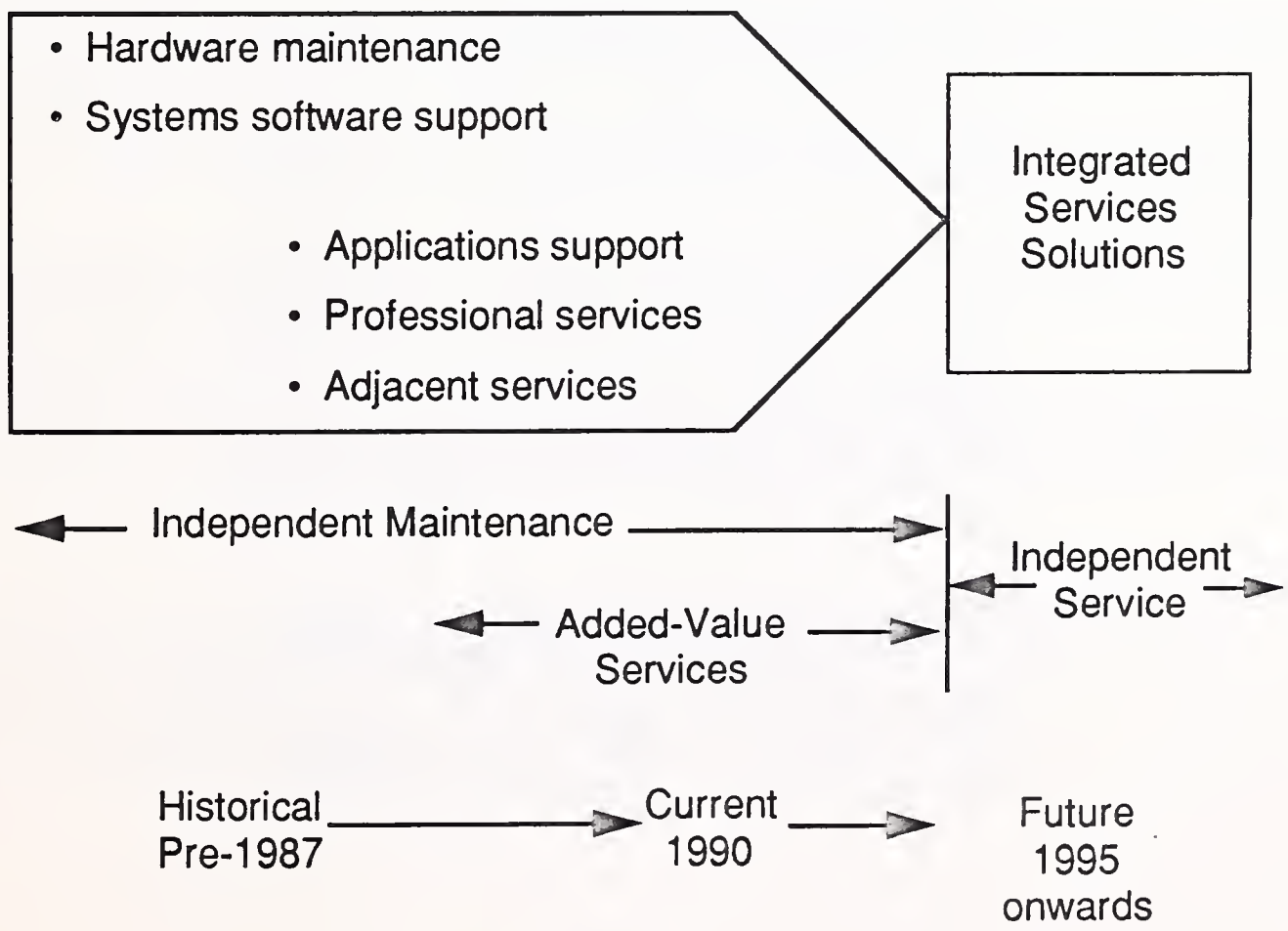
D
Long-Term Trends

1. Future Service Development

Exhibit IV-10 presents INPUT's view of the future evolution of customer service within the information services industry, an evolution that may signify a long-term crisis for independent maintenance companies.

EXHIBIT IV-10

Future Service Trends



Prior to 1987, customer services vendors were primarily providers of equipment maintenance and systems software support, with equipment maintenance being the primary source of revenue. Other services were available on an informal basis, but these services were more often provided free of charge to support the sales activity. In 1987 the growth of equipment maintenance revenues started to decline as a consequence of market competition, falling equipment costs and increased equipment reliability. Due to the dominance of maintenance as a source of revenue, customer service revenue growth also started to decline.

As product prices continued to fall in the latter half of the 1980s, as did profit margins on maintenance, customer services organisations were pressured to become more cost-effective. As a result of this trend, resources providing previously free additional services could no longer be funded by companies. Over the last three years, customer services organisations, in a search for additional revenue opportunities to supplement decline in maintenance growth, formalised and enhanced these additional services to provide a chargeable range of service offerings to users. These services became identified as value-added services.

Part of the reason for declining maintenance revenues and profit has been the success of independent maintenance companies in increasing their market shares. INPUT forecasts this pattern to continue through the period 1990 to 1995.

However, market conditions are changing due to the increasing reliability of equipment and consequent reduction in the importance of and requirement for equipment maintenance. Changing market conditions are also due to the increased emphasis on non-maintenance services. As a result of these changing market conditions, equipment maintenance will, in future, reduce significantly as a source of income to service vendors and likely cease to be the primary source of service revenues.

The period 1990 to 1995 will likely see increasing emphasis on added-value services and the following period will likely involve an evolution into the provision of integrated service solutions. The provision of integrated service solutions implies that service will be offered in packaged form comprising a mix of maintenance, software support, professional services and adjacent services such as disaster recovery and systems operations.

The likely impact of this evolution for independent maintenance vendors, as a consequence of reduced importance of equipment maintenance, signals a potential crisis for independent maintenance companies. Companies that fail to recognise this evolution or to implement contingency plans will likely see a rapid decline in revenues.

Independent maintenance companies that cannot adapt to the challenges of the second half of the 1990s will either be acquired by other companies, become fourth-party maintenance companies, or even cease operations.

Independent companies will continue to exist and enjoy good growth opportunities, but independent maintenance will evolve to become independent service. Doubts exist over the ability of the independent maintenance companies to undergo the required metamorphosis from independent maintenance to independent service.

Companies that are most likely to adapt to this change are those supported by larger parent companies possessing the required skills and capability to support the evolution of their subsidiaries.

Evidence to support this evolution of the service markets is as follows:

- INPUT forecasts that the nonmaintenance service market will grow at an over 20% CAGR over the period 1990 to 1995.

- INPUT's forecast for equipment maintenance is for that market to grow at only 4% (CAGR) over the period 1990 to 1995. This figure includes inflation; therefore, the equipment maintenance market is stagnant or perhaps declining.

2. Adaptation Is the Key to Long-Term Opportunities

Exhibit IV-11 provides a model indicating the requirements for the evolution from independent maintenance to independent service.

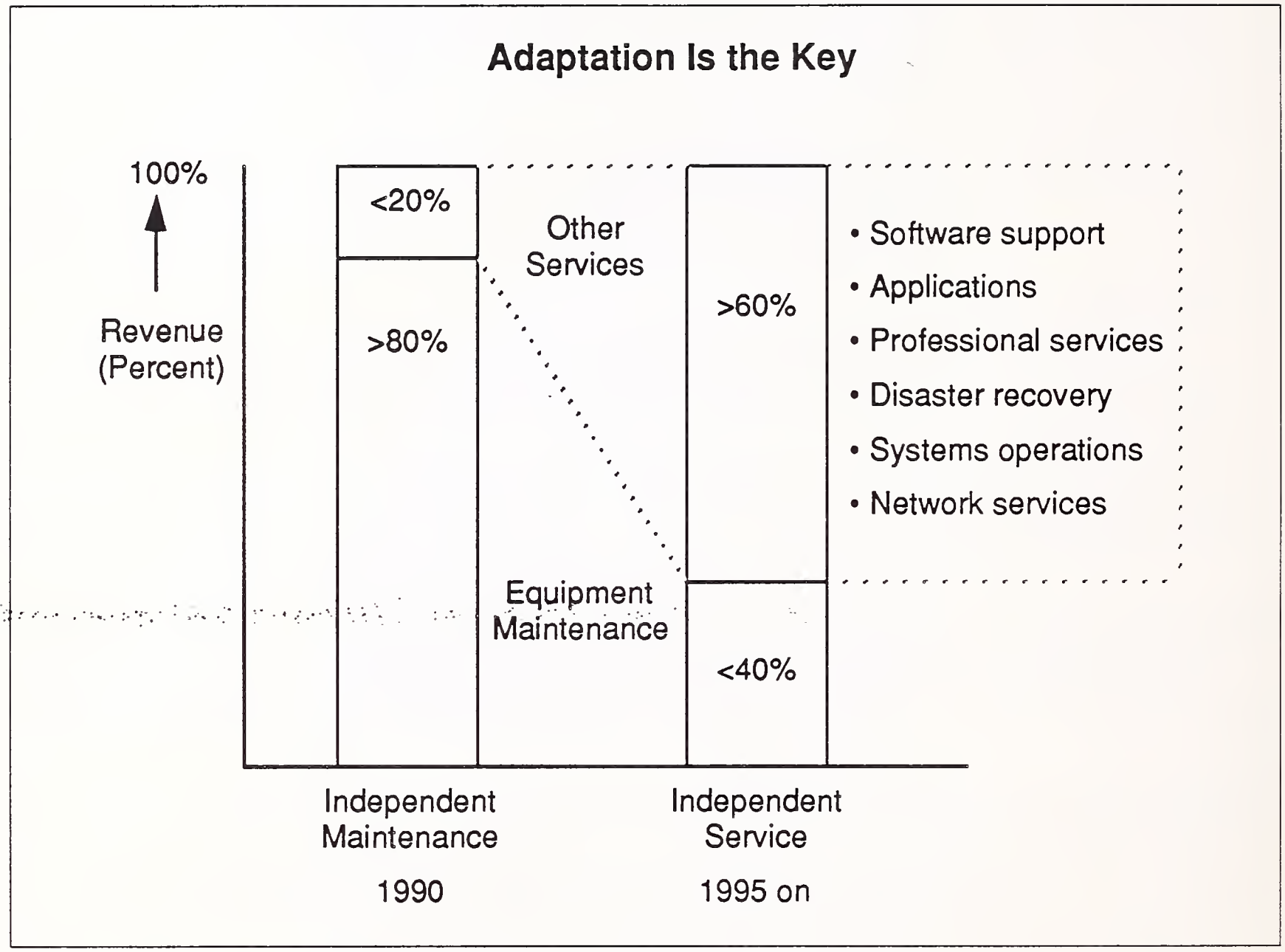
This Exhibit illustrates the revenue structure of a typical independent maintenance company in 1990. Typically independent maintenance companies gain about 80% or more of their revenues from equipment maintenance. Companies that conform to this profile include Granada, Metroservice, Eltec and Thomainfor.

In order to adapt to the change from independent maintenance to independent service, the independent companies need to achieve two structural changes.

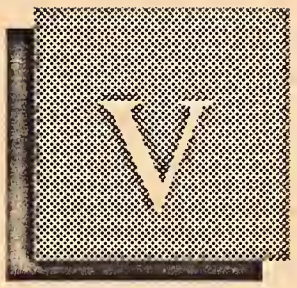
- Restructure the service capability of the company and position that capability to provide a range of nonmaintenance services.

- In restructuring, reduce the reliance on equipment maintenance revenues.

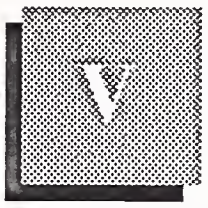
EXHIBIT IV-11



However, one major doubt exists about the ability of the independent maintenance companies to compete with the equipment vendors in providing software support. The required skills are in short supply, and acquiring software companies is very different from acquiring maintenance companies.



The Success of Independent Maintenance



The Success of Independent Maintenance

A User Migration

1. The Attraction of Reduced Costs

Exhibit V-1 contains an analysis of the user sample and provides a ranking of the reasons why users chose independent maintenance.

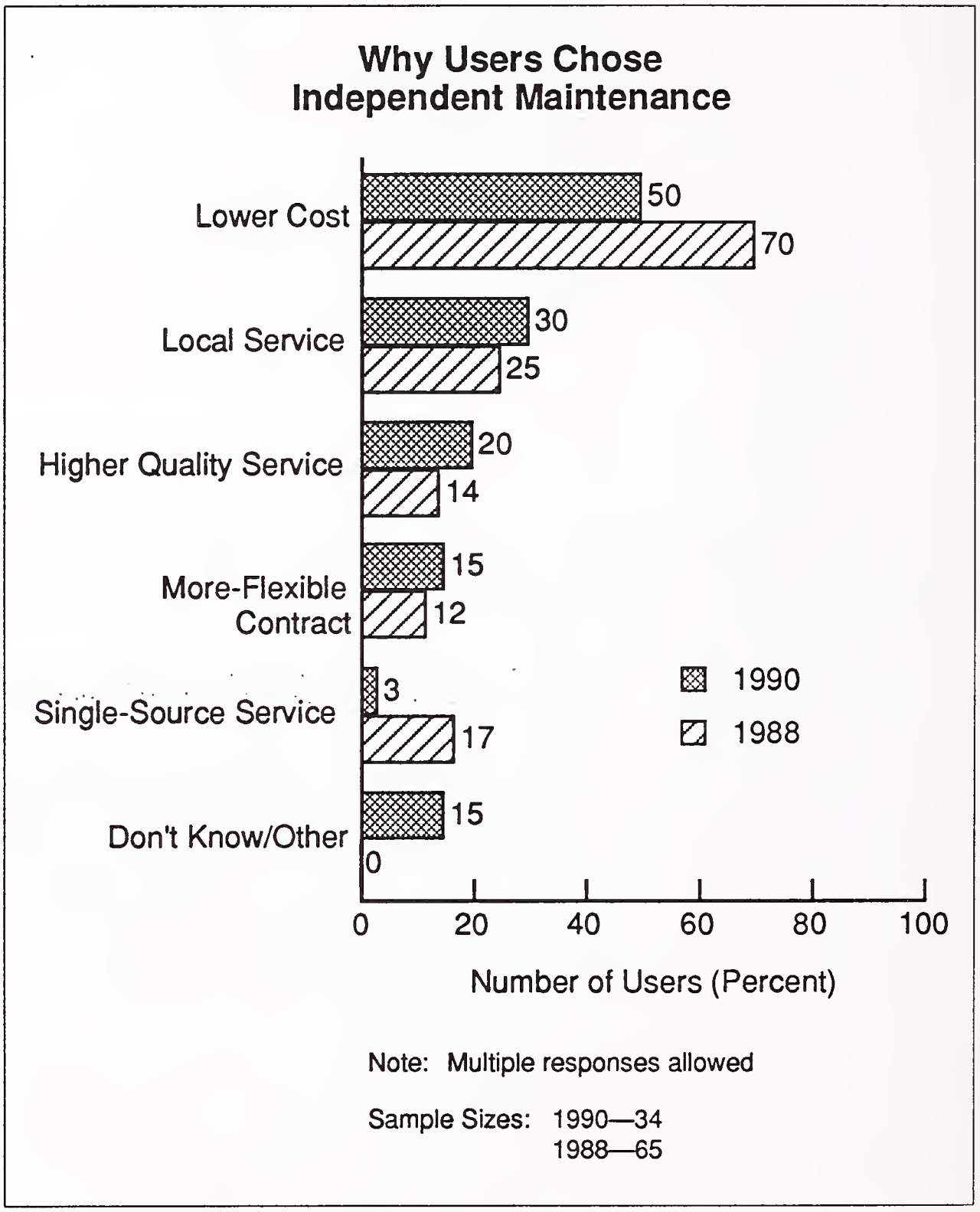
The opportunity to reduce the costs of equipment maintenance is the major reason why users decide to contract with independent maintenance vendors. However, the percentage of users claiming cost as a reason has fallen between 1988 and 1990. The steady growth rate of independent maintenance—in the region of 16% CAGR between 1987 and 1995—suggests that, although cost has declined as a reason for users' changing, users are still being converted while other reasons have increased in importance.

Examination of the data presented in Exhibit V-1 indicates that other factors influencing user choice of independent maintenance have increased in importance. Three factors are indicating this characteristic. The provision of local service, higher quality service and more flexible contracts are claimed by a higher percentage of users as reasons for choosing independent maintenance in 1990 compared with 1988.

One factor has fallen in importance as a reason for users' choosing independent maintenance—the provision of single-source service. INPUT considers that the most likely reason for this decrease in importance is related to the introduction of multivendor service by the equipment vendors. As a result of these introductions, the provision of single-source service by the independent vendors has lost a degree of competitive edge.

The most important factor revealed by the data in Exhibit V-1 is that in 1990 only 50% of users chose independent maintenance for reasons of cost.

EXHIBIT V-1



2. Equipment Vendor Recovery Opportunities

Based on data collected during interviews with independent maintenance users, INPUT was able to assess potential opportunities for equipment vendors to recover the business lost. These opportunities, together with a number of related issues, are listed in Exhibit V-2.

Opportunities available to equipment vendors to recover business lost to independent maintenance companies are limited. Four potential opportunities have been identified.

EXHIBIT V-2

Limited Opportunities for Equipment Vendor Recovery

- Business recovery opportunities
  - Equipment replacement time
  - Match independents' pricing
  - Provide true multivendor service
  - Match independents' responsiveness
- Software support not a problem
- Cost pressure on some sectors
  - User interest high
  - Doubts over vendor intent

- The time when equipment is due for replacement is the most likely opportunity for equipment vendors to recover lost business. When the new equipment is installed, it is covered by the equipment vendor's warranty, usually for twelve months. During this time, the equipment vendor has the opportunity to demonstrate service capability and recover user confidence. However, once the warranty period has expired, the user will most likely be competing with the independent vendor for the ongoing service contract. A follow-on contract being awarded to the equipment vendor is not automatic. The vendor will be expected to demonstrate a capability of matching the independent vendor's service capability.

- Matching the independent vendor's pricing is often a difficult issue for the equipment vendor to address, especially as the equipment vendors' overheads are likely to be higher. The probability that the independent vendor is already providing lower cost service suggests that the equipment vendor would be required to offer a substantial discount. Profitability considerations may indicate that the equipment vendor is unable to compete.

- Some users are doubtful about the ability of some equipment vendors to provide true multivendor service. This doubt is especially serious in cases where the installed equipment is slightly different or nonstandard, and in some instances equipment vendors declined responsibility for such equipment. Users see independent vendors as more flexible and

able to adapt to multivendor environments. Also, independent vendors tend to provide multivendor service using their own resources, whereas the equipment vendors tend to subcontract maintenance of other vendors' equipment. The result is that some users tend to view equipment vendor multivendor service as a palliative.

- Users claimed that equipment vendors need to improve their responsiveness—not only response time performance but also their responsiveness to user needs. Users indicate that independent vendors tend to be very flexible and responsive to user needs in providing the type and level of service required. Independent vendors are seen to be able to adapt to user needs and provide flexible service customised to meet the needs of individual users. Equipment vendors are seen by users to be more inclined to promote standard service offerings.

Independent maintenance users claimed that their use of independent maintenance had not resulted in any problems related to software support. Data collected by INPUT indicate that a lower percentage of independent maintenance users rely on the equipment vendor for systems software support. The sample of users interviewed indicated that about 55% retained equipment vendor support for their system software. This figure compares with around 70%, which is the overall average calculated from INPUT's 1989 survey of 1,625 computer users in Western Europe.

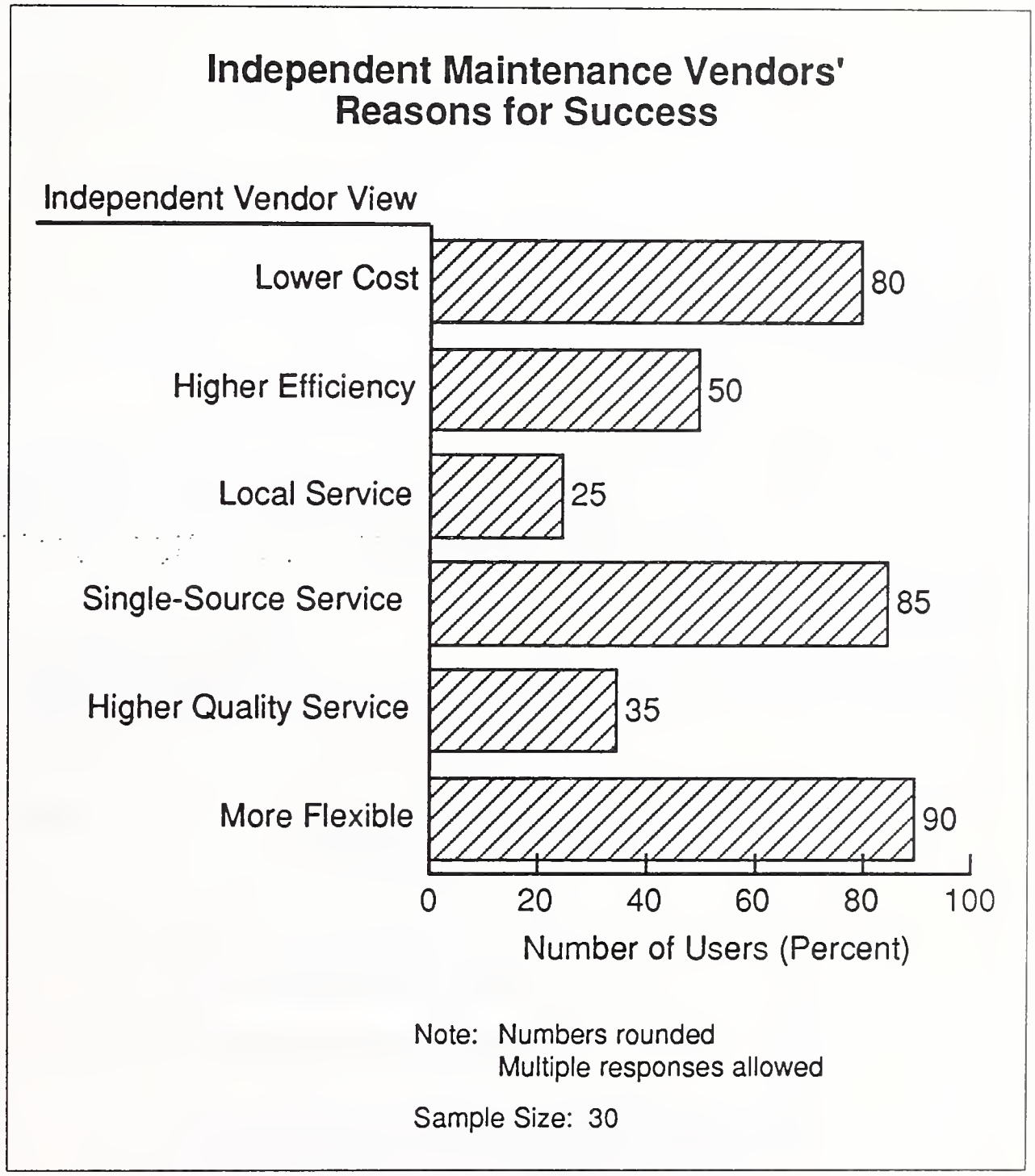
Some users are being subject to senior management pressures to reduce the cost of computer maintenance, particularly users in the government/public utility and education sectors. This trend is forcing users to seek sources of maintenance other than those provided by the equipment vendors. One example of this trend was provided by a university in Spain. Prior to contracting with an independent maintenance vendor, the university had only sufficient budget to provide contracted maintenance on 15% of computer equipment. By contracting with an independent vendor the university was able to cover the total base of installed equipment with a maintenance contract. A further example is provided in the U.K., where the Central Computer and Telecommunications Agency (CCTA), a government advisory body, has issued a policy document advocating the benefits of single-source maintenance and recommending that government departments offer computer maintenance for competitive tendors. If implemented, this policy could open more government sites to independent vendors and could signal the start of an industry trend.

Although users of independent maintenance expressed relatively high levels of interest in equipment vendor multivendor service offerings, they also expressed a cynical view of the equipment vendors' intent to provide the level and flexibility of service required. Respondent users tend to believe that independent maintenance is a long-term (3 to 5 years) solution to their needs.

3. Independent Vendor Recipe for Success

Exhibit V-3 illustrates of the reasons why independent vendors believe they are successful in competing against the equipment vendors.

EXHIBIT V-3



Primary reasons claimed by independent vendors for their success are the ability to provide:

- Lower-cost service
- Single-source service
- More-flexible service

In provision of these services the independent vendors are comparing themselves with the equipment vendors. There is also a degree of conflict between the reasons claimed by the independent vendors and those

claimed by the users of independent maintenance. The conflict suggests that the independent vendors have misread the market. This conflict concerns the relative importance of multivendor service. From the user viewpoint the provision of multivendor service is not an important reason for choosing independent maintenance. Most likely the independent vendors have failed to recognise the loss of competitive edge following the introduction of multivendor service by the equipment vendors.

Also from the users' point of view, the provision of local service rates as the second most important reason why users chose independent maintenance. The independent vendors appear not to rate this aspect of their service capability very highly compared with other aspects.

B

Independent Vendor Market Response

1. Marketing Successes

a. User Advantages

Exhibit V-4 lists the independent vendor strengths that were identified by users of independent maintenance. These strengths have been listed in order of importance.

EXHIBIT V-4

Independent Vendor Strengths

1. Responsiveness to user needs
2. Provision of multivendor service
3. Availability of independent and unbiased advice
4. Provision of quality service and professionalism

The major strength of independent maintenance identified by users was responsiveness. Responsiveness means understanding user needs and structuring a flexible and customised service offering to meet the needs of specific users. This aspect of independent vendor service was compared favourably by users with the approach adopted by the equipment vendors, which are biased towards more standardised service offerings.

In-depth interviews with users indicated that the provision of multivendor service was rated higher in importance than was revealed by other data. This discrepancy may, however, be a slight distortion due to indications by users during in-depth interviews that a proportion of

unique or slightly nonstandard equipment was installed on those sites. Users intimated that the equipment vendors do not provide true multivendor service, particularly where the installed equipment is in some way unique. Users claim that situations of this type result in the equipment vendor's declining to provide service for slightly nonstandard equipment. Users claimed that independent vendors were prepared to accommodate this type of situation and it may be that the independent vendor multivendor offering remains competitive in this sort of environment.

Users rated the ability and willingness of independent vendors to provide independent and unbiased advice quite highly as a strength. This aspect of the independent vendors' ability refers to advice on new installations or replacement equipment. Users believed the equipment vendors are too heavily biased towards their own products.

Users also claimed that the degree of professionalism displayed by independent vendors and the ability to provide quality service were important. INPUT contends that in judging service quality, the users were expressing an opinion related to value for money.

b. Aggressive Sales Profile

Exhibit V-5 identifies the key characteristics of the sales profile that has been adopted by the independent vendors.

EXHIBIT V-5

Independent Vendors' Sales Profile

- 61/2% of headcount in sales
- $1.2 M revenue per sales head
- $ 74 K revenue per employee

The success of independent maintenance in Western Europe has been due to a large degree to the aggressive approach adopted by independent vendors to the dedicated sales and marketing of their equipment maintenance services. The dedication factor extends to the fact that the sales staff of the independent vendors is also dedicated to the exclusive sale of equipment maintenance. This approach compares to the approach of the equipment vendors, in which sales of service have historically been a secondary task to the sale of computer products.

That the sales activity of the independent vendors is highly geared can be demonstrated by a comparison with IBM. The equipment maintenance revenues of IBM in 1990 are estimated by INPUT to be in the region of $2,700 million. Assuming a similar profile of $1.2 million per sales head, IBM would be required to have almost 2,300 sales staff in Western Europe dedicated to the sale of equipment maintenance.

Examples of the profiles adopted by market leaders is provided by the following:

- Granada employs 117 sales staff in Western Europe and achieves $2.2 million revenue per head.

- Thomainfor employs 65 sales staff in Western Europe and achieves $1.1 million revenue per head.

2. Marketing Challenges

a. User Reluctance

Exhibit V-6 lists the major challenges that independent vendors believe they must address in order to continue expanding their businesses.

EXHIBIT V-6

Independent Vendor Major Challenges

- 50% believe:
  - Users satisfied with equipment vendor service
  - Lack of software support
  - User contractual ties with equipment vendor
  - User fear of equipment vendor response
- 25% believe equipment vendor has perceived service advantage

About 50% of independent vendors believe that the major challenge facing them is a need to change the attitude of users toward independent maintenance. The items listed in Exhibit V-6 indicate that independent vendors still believe there is an issue related to the credibility of independent maintenance as a viable alternative to equipment vendor service. Although independent maintenance has been successful, this success has

resulted in a penetration of the customer services market of just 8%. Ninety-two percent of users have not yet been converted by the independent vendors.

INPUT considers that the major factor limiting credibility of independent maintenance is the lack of effective system software support capability. Even though users of independent maintenance claim that their moving to independent maintenance has not created any problems in obtaining software support, data indicate that these users tend to be less reliant on the equipment vendors for this service. Nevertheless, these users also commented on the credibility of independent vendor software support.

Additionally, about 40% of independent vendors claim that users are unaware of the availability or benefits of independent maintenance. INPUT considers that this figure is an overstatement by the independent vendors. Research conducted by INPUT in 1988 indicated that this figure was under 10% in a sample of almost 1,400 users surveyed throughout Western Europe.

b. Independent Vendor Weaknesses

The weaknesses of independent vendors identified by users are listed in Exhibit V-7. In addition to the weaknesses listed in Exhibit V-7, a significant proportion of users interviewed claimed that they had not experienced any serious weakness in the independent vendors' servicing of their computer equipment.

EXHIBIT V-7

Independent Vendor Weaknesses

1. Software support credibility factor
2. Risk of overexposure
3. Larger companies run risk of losing user friendliness
4. Lack of intimate product knowledge

The credibility of independent vendors' software support was the major weakness identified by users. Although most users expressed the opinion that the independent vendors could support systems software, they also felt that the credibility of this support was a key issue. The conclusion that INPUT draws from these comments is that although independent maintenance users would be prepared to contract software support to the independent vendor, they would do so only after any risk factors had been minimised and the support capability successfully demonstrated.

A further weakness of independent maintenance identified by users was the risk of independent vendors' being overexposed. Users believed the independent vendors are vulnerable to having resources spread too thinly—too thinly in terms of the wide range of equipment maintained and the wide geographic area that some independent vendors attempt to cover.

One user concern is that as large independent companies are established, they will lose the image of being a local friendly company. Users expressed the opinion that as the independent companies grow in size, will develop a sluggishness due to increased bureaucratic inertia and lose the competitive edge they once retained by being more responsive than equipment vendors.

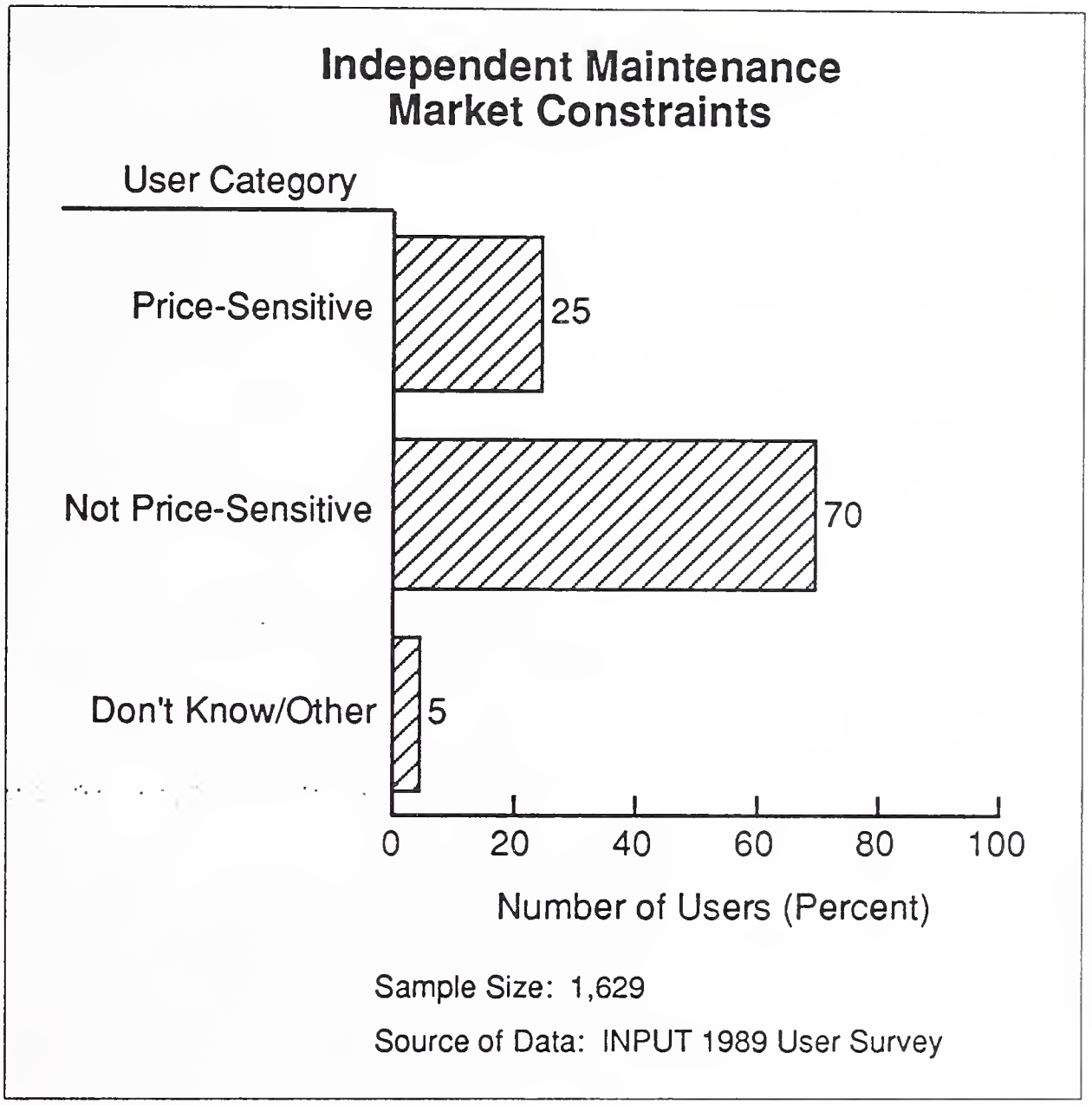
Although users expressed satisfaction with independent vendor service, a minority claimed that the independent vendors lacked the intimate product knowledge of the equipment manufacturers. This lack of knowledge could be considered a negative aspect of independent vendor service when the vendor must define more-subtle equipment faults and resolve complex compatibility problems.

c. Market Constraints

Exhibit V-8 illustrates one constraining factor that may limit the degree of market penetration for independent vendors.

INPUT user research in 1989, which involved the interviewing of 1,625 computer users throughout Western Europe, indicated that about 25% of users are sensitive to the cost of equipment maintenance. The proportion of users in the price-sensitive category is increasing. For example, the percentage of users categorised as price-sensitive has increased from 20% in 1988 to 25% in 1989. The activities of independent maintenance companies may not be restricted to the price-sensitive portion of the market. Fifty percent of users who contract with independent maintenance companies do so primarily on the basis of cost. Therefore, one result of limited user price sensitivity could be a restriction on independent vendor market penetration.

EXHIBIT V-8



d. Key Issues Facing Independent Vendors

Exhibit V-9 lists the independent vendors' opinions of the key issues vendors face.

The major issue raised by vendors was competition—competition related to price and competition between vendors. One consequence of a market's becoming relatively well developed is an increase in the intensity of competition. The independent vendors are being subjected to competitive pressure from a number of directions:

- The implementation of multivendor service offerings by the equipment vendors has resulted in the independents' losing a degree of competitive advantage.

- Equipment vendors are adopting a more flexible approach to pricing and are also, claim the independent vendors, offering substantial price discounts. Discounts as high as 30% were quoted.

- Competition between vendors is becoming more intense as the battle for market share develops. One example quoted by an independent vendor was the typical tendering process for a large contract, in which up to four independents and three equipment vendors compete.

EXHIBIT V-9

Key Issues Raised by Independent Vendors

Issue	Importance Rating
• Competition	10
- Pricing	
- From other vendors	
• New technology	7
- Difficulty in diagnosing faults	
- Reduced profit margins	
- Investment	
• Need for quality service	5
• Small vendor credibility	3
• Acquisition activity now past its peak	3

Sample size: 30

The AS 400 was quoted as an example of how new technology is causing problems for independent vendors. Problems arise due to the complexity and interrelation between equipment subassemblies—the diagnosis of faults becomes imprecise.

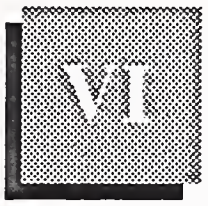
The falling cost of computer equipment is promoting an expectation among users that service cost will also decrease substantially. Reduced service prices as a result of falling product prices and because of competitive pressures are claimed by independent vendors to be reducing profit margins. Reduced profit margins are also a consequence of the investment required to provide the service tools to repair new-technology equipment. The escalating cost of spare parts for equipment that is heavily modularised also impacts profitability due to the level of investment required. The Field Replaceable Unit (FRU) level of service parts is becoming more and more complex and hence more costly.

Independent vendors have recognised the user need for quality service and claim that there is increasing conflict between competitive pricing and the quality of service provided. This conflict matches a similar situation that INPUT identified in 1989 when studying the major quality issues concerning equipment vendors in Western Europe. In this study, INPUT identified an equipment vendor conflict in which 55% of equipment vendors consider that the price users are prepared to pay restricts the quality of service that can be delivered, or will do so if there is any further pressure on pricing.

Smaller independent vendors claim that there is a credibility issue involved when they are compared with the larger pan-European companies.

The fact that some independent vendors believe that acquisition activity has passed its peak was raised as an issue. This issue seems to focus on the lack of significant acquisition targets, therefore forcing vendors to concentrate on a combination of organic growth and the acquisition of smaller companies.

Western European Country Market Forecasts



Western European Country Market Forecasts

This section of the report contains INPUT's forecast for the growth of independent maintenance in eight major country markets in Western Europe over the period 1990-1995.

- Exhibits VI-1 and VI-2 provide forecasts for the Belgian market and list the leading independent maintenance vendors in Belgium.
- Exhibits VI-3 and VI-4 provide forecasts for the French market and list the leading independent maintenance vendors in France.
- Exhibits VI-5 and VI-6 provide forecasts for the Italian market and list the leading independent maintenance vendors in Italy.
- Exhibits VI-7 and VI-8 provide forecasts for the Dutch market and list the leading independent maintenance vendors in the Netherlands.
- Exhibits VI-9 and VI-10 provide forecasts for the Spanish market and list the leading independent maintenance vendors in Spain.
- Exhibits VI-11 and VI-12 provide forecasts for the Swedish market and list the leading independent maintenance vendors in Sweden.
- Exhibits VI-13 and VI-14 provide forecasts for the market in the United Kingdom and list the leading independent maintenance vendors in the U.K.
- Exhibits VI-15 and VI-16 provide forecasts for the West German market and list the leading independent maintenance vendors in West Germany.

These forecasts are presented for three market sectors in each country and, as is INPUT's standard practice, include an allowance for inflation. The three market sectors are:

- Independent maintenance vendors
- Dealers and distributors
- Equipment vendors

EXHIBIT VI-1

Independent Maintenance Market Forecast—Belgium

	BF Millions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	1,230	1,450	1,715	1,985	2,265	2,500	2,900	15
Dealers and Distributors	240	275	310	355	405	460	530	14
Equipment Vendors	75	110	190	300	450	670	770	48
Total	1,545	1,835	2,215	2,640	3,120	3,630	4,200	18
Annual Growth (%)	N/A	20	20	19	18	16	16	N/A

Note: Numbers are rounded.

EXHIBIT VI-2

Leading Independent Vendors in Belgium Ranked by 1989 Revenues

Company	1989 Revenues (BF Millions)	1990 Forecast Revenues (BF Millions)	Number of Engineers	Number of Service Centres	Number of Sales Personnel
Granada	385	-	70	2	6
Econocom	359	487	45	5	25
Getronics	225	300	56	4	5
Thyssen	101	122	11	1	3

EXHIBIT VI-3

Independent Maintenance Market Forecast—France

	FF Millions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	1,550	1,830	2,150	2,500	2,880	3,310	3,840	16
Dealers and Distributors	180	200	220	240	270	300	330	11
Equipment Vendors	75	100	130	170	225	310	380	30
Total	1,805	2,130	2,500	2,910	3,375	3,920	4,550	16
Annual Growth (%)	N/A	18	17	16	15	15	16	N/A

Note: Numbers are rounded.

EXHIBIT VI-4

Leading Independent Vendors in France Ranked by 1989 Revenues

Company	1989 Revenues	1990 Forecast Revenues	Number of Engineers	Number of Service Centres	Number of Sales Personnel
	FF Millions				
Thomainfor	350	520	665	60	45
Spectral/MIS		280	220	60	-
Granada	180	-	152	25	22
Metroservice	160	-	201	24	-
CGEE	150	165	250	29	30

EXHIBIT VI-5

Independent Maintenance Market Forecast—Italy

	LIRA Billions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	117	135	155	180	205	230	270	15
Dealers and Distributors	45	55	65	75	90	105	115	16
Equipment Vendors	3	5	8	15	25	40	45	55
Total	165	195	228	270	320	375	430	17
Annual Growth (%)	N/A	18	18	18	18	17	16	N/A

Note: Numbers are rounded.

EXHIBIT VI-6

Leading Independent Vendors in Italy Ranked by 1989 Revenues

Company	1989 Revenues	1990 Forecast Revenues	Number of Engineers	Number of Service Centres	Number of Sales Personnel
	LIRA Billions				
IBIMAINT	41	48	300	30	100
Ciesse	14	16	96	16	32
Sorbus	11.6	-	75	10	-
Granada	7.1	-	31	4	4

EXHIBIT VI-7

Independent Maintenance Market Forecast—Netherlands

	DFl Millions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	195	225	260	295	335	380	430	14
Dealers and Distributors	15	17	19	21	25	27	30	12
Equipment Vendors	2	3	6	11	20	35	40	70
Total	212	245	285	327	380	442	500	15
Annual Growth (%)	N/A	17	16	16	16	15	13	N/A

Note: Numbers are rounded.

EXHIBIT VI-8

Leading Independent Vendors in the Netherlands Ranked by 1989 Revenues

Company	1989 Revenues (DFl Millions)	1990 Forecast Revenues (DFl Millions)	Number of Engineers	Number of Service Centres	Number of Sales Personnel
Getronics	88	110	430	8	12
Granada	26	-	85	1	7
K.H. Services	25	30	100	4	10
Thyssen	14.2	16.4	43	1	4
Econocom	13	15	58	5	Use Agents

EXHIBIT VI-9

Independent Maintenance Market Forecast—Spain

	PTA Millions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	4,950	6,435	8,235	10,540	13,280	16,460	20,800	26
Dealers and Distributors	800	945	1,105	1,295	1,515	1,770	2,000	17
Equipment Vendors	1,350	1,960	2,840	3,975	5,165	6,770	8,450	35
Total	7,100	9,340	12,180	15,810	19,960	25,000	31,250	28
Annual Growth (%)	N/A	32	30	30	26	25	25	N/A

Note: Numbers are rounded.

EXHIBIT VI-10

Leading Independent Vendors in Spain Ranked by 1989 Revenues

Company	1989 Revenues	1990 Forecast Revenues	Number of Engineers	Number of Service Centres	Number of Sales Personnel
	PTA Millions				
Eltec	1,500	2,500	229	27	10
Sintec	1,200	1,500	110	30	4
Granada	965	-	68	12	4
IPM	260	-	40	2	-
Cero	220	260	21	4	-

EXHIBIT VI-11

Independent Maintenance Market Forecast—Sweden

	SK Millions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	250	275	300	320	340	355	380	7
Dealers and Distributors	100	110	122	132	145	160	170	10
Equipment Vendors	-	5	8	13	20	30	40	60
Total	350	390	430	465	505	545	590	9
Annual Growth (%)	N/A	11	11	9	8	8	8	N/A

Note: Numbers are rounded.

EXHIBIT VI-12

Leading Independent Vendors in Sweden Ranked by 1989 Revenues

Company	1989 Revenues	1990 Forecast Revenues	Number of Engineers	Number of Service Centres	Number of Sales Personnel
	SK Millions				
Telub	100	120	130	18	20
3C	70	-	100	29	-
Granada	20	-	17	3	2

EXHIBIT VI-13

Independent Maintenance Market Forecast—United Kingdom

	£ Millions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	235	275	325	380	440	500	570	16
Dealers and Distributors	20	22	25	30	35	40	45	15
Equipment Vendors	55	65	75	90	105	120	135	17
Total	310	362	425	500	580	660	750	16
Annual Growth (%)	N/A	18	17	17	16	14	14	N/A

Note: Numbers are rounded.

EXHIBIT VI-14

Leading Independent Vendors in the United Kingdom Ranked by 1989 Revenues

Company	1989 Revenues (£ Millions)	1990 Forecast Revenues (£ Millions)	Number of Engineers	Number of Service Centres	Number of Sales Personnel
Granada	110	-	1,416	35	55
Computeraid	14	19	280	12	15
Sorbus	13.5	-	200	7	-
Servicetec	13	15	180	11	10
Extel	13	-	150	12	20

EXHIBIT VI-15

Independent Maintenance Market Forecast—West Germany

	DM Millions							
	1989	1990	1991	1992	1993	1994	1995	CAGR % 1990-1995
Independent Maintenance Vendors	150	177	208	242	276	310	365	16
Dealers and Distributors	125	143	162	183	206	237	257	13
Equipment Vendors	8	10	12	15	18	23	28	25
Total	283	330	382	440	500	570	650	15
Annual Growth (%)	N/A	17	16	15	14	14	14	N/A

Note: Numbers are rounded.

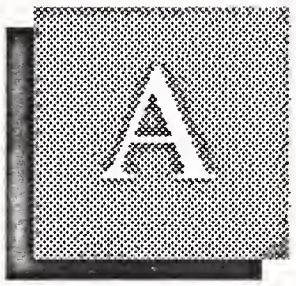
EXHIBIT VI-16

Leading Independent Vendors in West Germany Ranked by 1989 Revenues

Company	1989 Revenues	1990 Forecast Revenues	Number of Engineers	Number of Service Centres	Number of Sales Personnel
	DM Millions				
Granada	29	-	110	23	16
Sorbus	19.1	-	90	16	-
Econocom	8.1	10	55	10	5
Telub Bitronic*	8	10	56	7	3
Multitech	7	7	30	11	2

* Includes FPM revenues

Appendixes



Profiles of Belgian Independent Vendors

COMPANY PROFILE

ECONOCOM SERVICES

Belgium
Brixton Laan 22-24
1930 Zaventem
Country Code (32) Area Code (2)
Number: 720 9820

Company Information

Number of service centres:	5
Number of employees in maintenance:	105
Number of engineers:	45
- Field engineers:	41
- Bench engineers:	4
Number of sales personnel:	25

Revenues derived from maintenance

- 1989 Revenues:	BF 352.00 million
- 1990 Forecast:	BF 487.00 million

Total revenues

- 1989 Revenues:	*BF 3.00 billion
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	IBM 43XX to 309X
Minicomputers:	IBM S36, S38, AS400
Business PCs:	IBM, Compaq, Toshiba, Apple, NEC, HP, Epson and all compatibles
Peripherals:	IBM and all compatibles
Other:	IBM Series 1, 8600

Notes: * Total for Europe

N/A = Not available

COMPANY PROFILE

GETRONICS SERVICE

Belgium
Research Park Zellik
Pontbeeklaan, 43
1730 Asse-Zellik (Brussels)
Country Code (32) Area Code (2)
Number: 467 1783

Company Information

Number of service centres:	4
Number of employees in maintenance:	70
Number of engineers:	56
- Field engineers:	30
- Bench engineers:	26
Number of sales personnel:	5

Revenues derived from maintenance

- 1989 Revenues:	BF 220 million
- 1990 Forecast:	BF 295 million

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	IBM S3X, AS400, Digital MicroVax, MAI, Wang OIS/VS
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other:	Data communications equipment Network services

COMPANY PROFILE

GRANADA COMPUTER SERVICES (BELGIUM) N.V./SA

Belgium
Hoge Wei 16
B 1930 Zaventem
Country Code (32) Area Code (2)
Number: 721 4893

Company Information

Number of service centres:	2
Number of employees in maintenance:	89
Number of engineers:	70
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel	6

Revenues derived from maintenance

- 1989 Revenues:	BF 385 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers

COMPANY PROFILE

THYSSEN FIELD SERVICE

Belgium
Kesteelstraat 194
B 9360 Buggenhout
Country Code (32) Area Code (52)
Number: 330160

Company Information

Number of service centres:	1
Number of employees in maintenance:	18
Number of engineers:	11
- Field engineers:	9
- Bench engineers:	2
Number of sales personnel	3

Revenues derived from maintenance

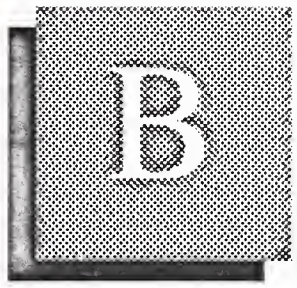
- 1989 Revenues:	BF 101 million
- 1990 Forecast:	BF 122 million

Total revenues

- 1989 Revenues:	BF 122 million
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	As for the Netherlands
Minicomputers:	As for the Netherlands
Business PCs:	As for the Netherlands
Peripherals:	As for the Netherlands
Other Equipment:	As for the Netherlands



Profiles of French Independent Vendors

COMPANY PROFILE

CGEE (ATEMI)

France
11 Bis Avenue Gabriel Peri
BP 64
78360 Montesson
Country Code (33) Area Code (1)
Number: 34 80 89 98

Company Information

Number of service centres:	29
Number of employees in maintenance:	280
Number of engineers:	250
- Field engineers:	200
- Bench engineers:	50
Number of sales personnel	30

Revenues derived from maintenance

- 1989 Revenues:	FF 150 million
- 1990 Forecast:	FF 165 million

Total revenues

- 1989 Revenues:	FF 13.6 billion
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	All major manufacturers

N/A = Not available

COMPANY PROFILE

CSEE
France
8 Avenue du Parana
91120 Les Ulis
Country Code (33) Area Code (1)
Number: 69 07 08 80

Company Information

Number of service centres:	14
Number of employees in maintenance:	140
Number of engineers:	120
- Field engineers:	100
- Bench engineers:	20
Number of sales personnel	N/A

Revenues derived from maintenance

- 1989 Revenues:	FF 75 million
- 1990 Forecast:	FF 80 million

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Other Equipment: EFTPOS terminals, ATMs—Ingenico, Crouzet, ESD, CSEE, ACD—Resean Coralis, Credicam—Petif—Saphir

Note: Main activity is maintenance of banking equipment and EFTPOS terminals due to the interests of the mother company in this sector.

COMPANY PROFILE

DPM—ALPHADIS

France
6 Avenue Léon Harmel
92168 Anthony Cedex
Country Code (33) Area Code (1)
Number: 40 96 15 15

Company Information

Number of service centres:	11
Number of employees in maintenance:	50
Number of engineers:	32
- Field engineers:	N/A
- Bench engineers:	N/A

Revenues derived from maintenance

- 1989 Revenues:	FF 39 million
- 1990 Forecast:	FF 75 million

Type of equipment maintained

Mainframes:	IBM 43XX
Minicomputers:	IBM S34, S36, S38, Bull DPS 6, DPS 4
Business PCs:	IBM, Apple, Toshiba
Peripherals:	Telex, ITT, Memorex, STC
Other Equipment:	IBM, Memorex, Bull

COMPANY PROFILE

ECONOCOM FRANCE

France
52 Avenue du Vieux Chemin de St. Denis
92390 Villeneuve-La-Garenne
Country Code (33) Area Code (1)
Number: 47 94 96 07

Company Information

Number of service centres:	19
Number of employees in maintenance:	96
Number of engineers:	70
- Field engineers:	53
- Bench engineers:	17
Number of sales personnel:	11

Revenues derived from maintenance

- 1989 Revenues:	FF 45 million
- 1990 Forecast:	FF 70 million

Total revenues

- 1989 Revenues:	FF 45 million
- 1990 Forecast:	FF 70 million

Type of equipment maintained

Mainframes:	IBM 43XX to 308X
Minicomputers:	IBM S34, S36, S38, AS400
Business PCs:	IBM, Apple, Compaq, Toshiba and other compatibles
Peripherals:	IPL, EMC^2, Idea, Printronix, Genicom, Kyocera, HP, Epson, Fujitsu

COMPANY PROFILE

GRANADA COMPUTER SERVICES SA

France
50/64 Avenue Francois Arago
92000 Nanterre
Country Code (33) Area Code (1)
Number: 47 60 47 60

Company Information

Number of service centres:	25
Number of employees in maintenance:	290
Number of engineers:	152
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel	22

Revenues derived from maintenance

- 1989 Revenues:	FF 180 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	All major manufacturers

Note: France is also the headquarters of Granada Southern Europe operations.

COMPANY PROFILE

METROSERVICE

France
77-101 Ave du Vieux Chemin St. Denis
BP 102
92232 Gennevilliers Cedex
Country Code (33) Area Code (1)
Number: 47 85 55 55

Company Information

Number of service centres:	24
Number of employees in maintenance:	N/A
Number of engineers:	201
- Field engineers:	140
- Bench engineers:	32
Number of sales personnel	N/A
Revenues derived from maintenance	
- 1989 Revenues:	FF 160 million
- 1990 Forecast:	N/A
Total revenues	
- 1989 Revenues:	FF 160 million
- 1990 Forecast:	N/A

Type of equipment maintained

Business PCs:	All major manufacturers
Peripherals:	All major manufacturers

COMPANY PROFILE

RECOGNITION SA DIVISION MDS

France
197 Rue de Bercy
Tour Gamma B
75582 Paris Cedex 12
Country Code (33) Area Code (1)
Number: 40 04 55 55

Company Information

Number of service centres:	3
Number of employees in maintenance:	N/A
Number of engineers:	110
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel	N/A

Revenues derived from maintenance

- 1989 Revenues:	FF 2.0 million
- 1990 Forecast:	FF 2.5 million

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Convergent Technology
Business PCs:	Convergent Technology, Victor, Normarel
Peripherals:	Convergent Technology, Bull, NEC, Kyocera, MAC Data, 3270-compatible screens and printers

Note: Started independent maintenance operations in October 1988. Main business is selling equipment and the maintenance of these products.

COMPANY PROFILE

SORBUS FRANCE

France
Rue Jules Saulnier
93200 St. Denis
Paris
Country Code (33) Area Code (1)
Number: 48 09 23 23

Company Information

Number of service centres:	12
Number of employees in maintenance:	185
Number of engineers:	150
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel	N/A
Revenues derived from maintenance	
- 1989 Revenues:	FF 110 million
- 1990 Forecast:	N/A
Total revenues	
- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Wide range of equipment, from PC to mainframe.

COMPANY PROFILE

SPECTRAL MIS

France
17 Boulevard Ney
75018 Paris
Country Code (33) Area Code (1)
Number: 40 38 36 34

Company Information

Number of service centres:	60
Number of employees in maintenance:	485
Number of engineers:	220
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	FF 234 million
- 1990 Forecast:	FF 280 million

Total revenues

- 1989 Revenues:	FF 2,298 million
- 1990 Forecast:	FF 2,750 million

Type of equipment maintained

Mainframes:	IBM, Bull
Minicomputers:	IBM, Bull, Altos, Pertec
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	EFTPOS and ATM terminals

Note: Total revenues refer to the parent company Groupe Concept SA which acquired Spectral and MIS in early 1989.

COMPANY PROFILE

TASQ
France
6 Rue des Coutures
Z.I. Sud
77200 Torcy
Country Code (33) Area Code (1)
Number: 60 17 38 25

Company Information

Number of service centres:	20
Number of employees in maintenance:	N/A
Number of engineers:	90
- Field engineers:	81
- Bench engineers:	9
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	FF 65 million
- 1990 Forecast:	FF 90 million

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Bull, Mini 6, DPS 6, Northern Telecom, Stena
Business PCs:	Bull, SMT, IBM and compatibles
Other Equipment:	LANs, ATMs

COMPANY PROFILE

THOMAINFOR

France
8 Rue Grange Dame Rose
78140 Vélizy-Villacoublay
Country Code (33) Area Code (1)
Number: 30 70 77 00

Company Information

Number of service centres:	90
Number of employees in maintenance:	1,004
Number of engineers:	950
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	60

Revenues derived from maintenance

- 1989 Revenues:	FF 450 million
- 1990 Forecast:	FF 870 million

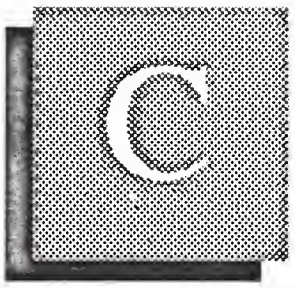
Total revenues

- 1989 Revenues:	FF 450 million
- 1990 Forecast:	FF 870 million

Type of equipment maintained

Mainframes:	IBM, Digital, Bull
Minicomputers:	IBM, Digital, Bull, Norskdata, Sun, HP/Apollo, Prime, FPS, AT&T, MAI, Wang, Datapoint
Business PCs:	All IBM compatibles
Peripherals:	All major manufacturers
Other Equipment:	Check reader/sorters (BTI) Sintra Computers

Note: Due to the multiplicity of acquisitions in the second half of 1989, it is not possible to split Thomainfor data by country. These data refer to total Western Europe.



Profiles of Italian Independent Vendors

COMPANY PROFILE

CIESSE CONTROL SYSTEM SPA

Italy
Via Venezia 67/G
35129 Padova
Country Code (39) Area Code (49)
Number: 807 14477

Company Information

Number of service centres:	16
Number of employees in maintenance:	190
Number of engineers:	96
- Field engineers:	80
- Bench engineers:	16
Number of sales personnel:	32

Revenues derived from maintenance

- 1989 Revenues:	Lira 14 billion
- 1990 Forecast:	Lira 16 billion

Total Revenues

- 1989 Revenues:	Lira 38 billion
- 1990 Forecast:	Lira 50 billion

Type of equipment maintained

Mainframes:	IBM 4381
Minicomputers:	IBM S34, S36, S38
Business PCs:	IBM
Peripherals:	IBM, Decision Data, Honeywell

Note: 100% owned by Olivetti.

COMPANY PROFILE

ECONOCOM MANUTENZIONE

Italy
Via Carducci 43
20099 - Sesto S. Giovanni
Milano
Country Code (39) Area Code (2)
Number: 2622 0041

Company Information

Number of service centres:	3
Number of employees in maintenance:	60
Number of engineers:	
- Field engineers:	40
- Bench engineers:	N/A
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1988 Revenues:	Lira 6.5 billion
- 1989 Forecast:	N/A

Total Revenues

- 1988 Revenues:	Lira 170 billion (approx.)
- 1989 Forecast:	N/A

Type of equipment maintained

Mainframes:	IBM 3033, 4381, 4341
Minicomputers:	IBM S34, S38, Series 1, AS400
Peripherals:	IBM PS/2
Other Equipment:	All IBM peripherals

N/A = Not available

COMPANY PROFILE

GRANADA COMPUTER SERVICE SPA

Italy
Via Quaranta 29
20141 Milan
Country Code (39) Area Code (2)
Number: 55 21 08 31

Company Information

Number of service centres:	4
Number of employees in maintenance:	52
Number of engineers:	31
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	4

Revenues derived from maintenance

- 1989 Revenues:	Lira 7.1 billion
- 1990 Forecast:	N/A

Total Revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers

COMPANY PROFILE

IBIMAINT

Italy
Milanofiori
Palazzo E/4
Milan
Country Code (39) Area Code (2)
Number: 8224

Company Information

Number of service centres:	30
Number of employees in maintenance:	350
Number of engineers:	300
- Field engineers:	280
- Bench engineers:	20
Number of sales personnel:	100

Revenues derived from maintenance

- 1989 Revenues:	Lira 41 billion
- 1990 Forecast:	Lira 48 billion

Total Revenues

- 1989 Revenues:	Lira 108 billion
- 1990 Forecast:	Lira 130 billion

Type of equipment maintained

Minicomputers:	IBM, Digital, Bull
Business PCs:	IBM and all compatibles
Peripherals:	All manufacturers

Note: Ibimaint is 100% owned by Olivetti.

COMPANY PROFILE

SORBUS

Italy
Centro Direzionale
Milanofiori
Strada 7 Palazzo T3
Rozzano-Milano 20089
Country Code (39) Area Code (2)
Number: 822 701

Company Information

Number of service centres:	10
Number of employees in maintenance:	100
Number of engineers:	75
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel	N/A

Revenues derived from maintenance

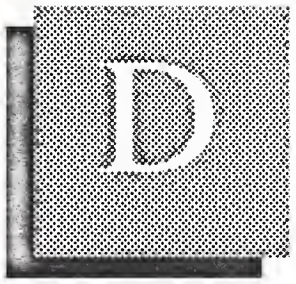
- 1989 Revenues:	Lira 11.6 billion
- 1990 Forecast:	N/A

Total Revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Wide range of equipment, from PC to mainframe.



Profiles of Dutch Independent Vendors

COMPANY PROFILE

CIRCLE INFORMATION SYSTEMS

Netherlands
Gallileilaan 35
3584 BC Utrecht
Country Code (31) Area Code (30)
Number: 333 414

Company Information

Number of service centres:	5
Number of employees in maintenance:	25
Number of engineers:	21
- Field engineers:	21
- Bench engineers:	N/A
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	DFl 4.0 million
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Digital MicroVax
Business PCs:	Philips, IBM, Tulip, Olivetti
Peripherals:	Printers and disk drives

Note: This company is 100% owned by Philips.

N/A = Not available

COMPANY PROFILE

ECONOCOM SERVICES

Netherlands
Paasheuvelweg 10
1105 B.H.
Amsterdam 20
Country Code (31) Area Code (20)
Number: 563 3333

Company Information

Number of service centres:	5
Number of employees in maintenance:	95
Number of engineers:	58
- Field engineers:	40
- Bench engineers:	18
Number of sales personnel:	Use agents

Revenues derived from maintenance

- 1989 Revenues:	DFl 13 million
- 1990 Forecast:	DFl 15 million

Total Revenues

- 1989 Revenues:	DFl 10.0 million
- 1990 Forecast:	DFl 12.0 million

Type of equipment maintained

Minicomputers:	IBM S34, S36, S38, AS400
Business PCs:	IBM, Compaq, Zenith, Toshiba, Olivetti, NEC
Peripherals:	Centroniçs, Printronix, Lynk, Memorex

COMPANY PROFILE

GETRONICS SERVICE

Netherlands
Donauweg 10
1043 AJ Amsterdam
Country Code (31) Area Code (20)
Number: 586 1420

Company Information

Number of service centres:	8
Number of employees in maintenance:	590
Number of engineers:	430
- Field engineers:	220
- Bench engineers:	210
Number of sales personnel:	12

Revenues derived from maintenance

- 1989 Revenues:	DFl 88 million
- 1990 Forecast:	DFl 110 million

Total Revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	IBM 3X, AS400, Digital MicroVax, MAI, Wang OIS/VS, Altos, ARIX, Micro Five, NCR Tower
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	Data communications equipment Network services

COMPANY PROFILE

GRANADA COMPUTER SERVICES (Nederland) BV

Netherlands
Postbus 149
3454 ZJ De Meern
Country Code (31) Area Code (3406)
Number: 92211

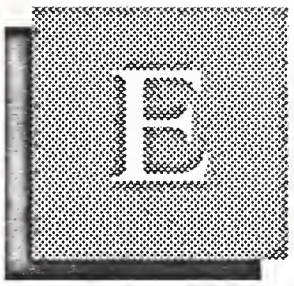
Company Information

Number of service centres:	1
Number of employees in maintenance:	134
Number of engineers:	85
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel	7
Revenues derived from maintenance	
- 1989 Revenues:	DFl 26 million
- 1990 Forecast:	N/A
Total Revenues	
- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	All major manufacturers

Note: The Netherlands is also the headquarters of Granada Northern Europe operations.



Profiles of Spanish Independent Vendors

COMPANY PROFILE

K.H. SERVICES

Netherlands
1 Energieweg
NL 2627 AP Delft
P.O. Box 5080
NL 2600 GB Delft
Country Code (31) Area Code (15)
Number: 609999

Company Information

Number of service centres:	4
Number of employees in maintenance:	140
Number of engineers:	100
- Field engineers:	60
- Bench engineers:	40
Number of sales personnel:	10

Revenues derived from maintenance

- 1989 Revenues:	DFl 25 million
- 1990 Forecast:	DFl 30 million

Total Revenues

- 1989 Revenues:	*DFl 2.7 billion
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Digital 7XX, MicroVax II and III, 3500, Pertec, Quantel
Business PCs	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	CAD/CAM, plotters

Notes: - Name change; company was DTC Service.
* Part of the International-Müller Group, whose total revenues are quoted.
- Independent maintenance revenues include a small proportion from Belgium.

COMPANY PROFILE

THYSSEN FIELD SERVICE

Netherlands
Postbus 670
3900 Veenendaal
Country Code (31) Area Code (8385)
Number: 35111

Company Information

Number of service centres:	1
Number of employees in maintenance:	62
Number of engineers:	43
- Field engineers:	27
- Bench engineers:	16
Number of sales personnel:	4

Revenues derived from maintenance

- 1989 Revenues:	DFl 14.2 million
- 1990 Forecast:	DFl 16.4 million

Total Revenues

- 1989 Revenues:	DFl 21.0 million
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Digital PDP and VAX (except for 8XX and 9XX)
Business PCs	Compaq, Apple, Olivetti
Peripherals:	Wyse, CDC, Fujitsu, Exabyte, Kennedy, Cipher, Mannesmann
Other Equipment:	Industrial equipment and compatible (i.e., Emmulex, Fujitsu, Maxtor, Clearpoint, System Industries, Dilog) Software maintenance on Digital

COMPANY PROFILE

CERO MANTENIMIENTOS

Spain
Aragoneses, 7A
28100 Alcobendas
Madrid
Country Code (34) Area Code (1)
Number: 663 8352

Company Information

Number of service centres:	4
Number of employees in maintenance:	32
Number of engineers:	21
- Field engineers:	19
- Bench engineers:	2
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	Pta 220 million
- 1990 Forecast:	Pta 260 million

Total revenues

- 1989 Revenues:	N/A
- 1990 Revenues:	N/A

Type of equipment maintained

Mainframes:	IBM 43XX
Minicomputers:	IBM S34, S36, S38, AS400
Business PCs:	Various
Peripherals:	IBM for Systems 43XX, 3X and AS400; compatibles

N/A = Not available

COMPANY PROFILE

ELTEC

Spain
Calle Caspe 144-146
08013 Barcelona
Country Code (34) Area Code (3)
Number: 212 5800

Company Information

Number of service centres:	27
Number of employees in maintenance:	310
Number of engineers:	229
- Field engineers:	180
- Bench engineers:	27
Number of sales personnel	10

Revenues derived from maintenance

- 1989 Revenues:	Pta 1,500 million
- 1990 Forecast:	Pta 2,500 million

Total revenues

- 1989 Revenues:	Pta 1,500 million
- 1990 Revenues:	Pta 2,500 million

Type of equipment maintained

Minicomputers:	DEC VAX 7XX, MicroVax, PDP IBM S34, S36, S38
Business PCs:	IBM, Olivetti, Unisys, Tandon, Apple, Compaq, Bull, Epson, Groupil
Peripherals:	CITOH, AST, NCR, Facit, HP, Nixdorf, Epson, NEC, Olivetti

Note: ELTEC SA (France) and LUMA SA (Portugal) are new companies launched in January 1990.

Total number of engineers includes system support staff.

COMPANY PROFILE

GEMÁTICA

Spain
Buenaventura Muñoz No 31
08018 Barcelona
Country Code (34) Area Code (3)
Number: 485 1017

Company Information

Number of service centres:	4
Number of employees in maintenance:	25
Number of engineers:	18
- Field engineers:	12
- Bench engineers:	6
Number of sales personnel	2

Revenues derived from maintenance

- 1989 Revenues:	Pta 170 million
- 1990 Forecast:	Pta 340 million

Total revenues

- 1989 Revenues:	N/A
- 1990 Revenues:	N/A

Type of equipment maintained

Minicomputers:	IBM S3X, Digital MicroVax
Business PCs:	IBM and compatibles
Peripherals:	IBM and compatibles

Note: Company is owned by Getronics and commenced operations in May 1989

COMPANY PROFILE

GRANADA COMPUTER SERVICES SA

Spain
Plaza Pablo Ruiz Picasso
30 Planta
28020 Madrid Torre Picasso
Country Code (34) Area Code (1)
Number: 597 2164

Company Information

Number of service centres:	12
Number of employees in maintenance:	89
Number of engineers:	68
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel	4

Revenues derived from maintenance

- 1989 Revenues:	Pta 965 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Revenues:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	All major manufacturers

COMPANY PROFILE

SINTEC

Spain
Parque Technologico de Madrid
Torres Quevedo
28760 Tres Cantos
Madrid
Country Code (34) Area Code (1)
Number: 803 1819

Company Information

Number of service centres:	30
Number of employees in maintenance:	150
Number of engineers:	110
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	4

Revenues derived from maintenance

- 1989 Revenues:	Pta 1,200 million
- 1990 Forecast:	Pta 1,500 million

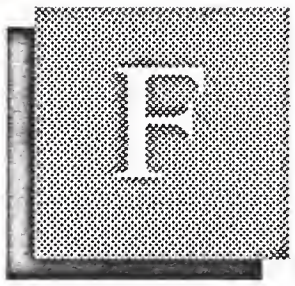
Total revenues

- 1989 Revenues:	Pta 1,200 million
- 1990 Revenues:	Pta 1,500 million

Type of equipment maintained

Minicomputers:	Philips, Nixdorf, Olivetti
Business PCs:	IBM PC-XT, AT
Peripherals:	IBM

Note: - Nixdorf now owns 51% of Sintec.
- Company concentrates on the banking and financial sector.



Profiles of Swedish Independent Vendors

COMPANY PROFILE

GRANADA COMPUTER SERVICES AB

Sweden
Upplagsvagen 1-3
S-11743 Stockholm
Country Code (46) Area Code (8)
Number: 726 1990

Company Information

Number of service centres:	3
Number of employees in maintenance:	24
Number of engineers:	17
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	2

Revenues derived from maintenance

- 1989 Revenues:	SK 20 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	All major manufacturers

N/A = Not available

COMPANY PROFILE

TELUB SERVICE AB

Sweden
Box 278
35105 Växjö
Country Code (46) Area Code (470)
Number: 717000

Company Information

Number of service centres:	18
Number of employees:	180
Number of engineers:	130
- Field engineers:	100
- Bench engineers:	30
Number of sales personnel	20

Revenues derived from maintenance

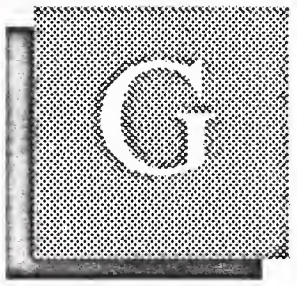
- 1989 Revenues:	SK 100 million
- 1990 Forecast:	SK 120 million

Total revenues

- 1989 Revenues:	SK 117 million
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Digital, IBM, Data General, CMC, MBF
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers



Profiles of United Kingdom Independent Vendors

COMPANY PROFILE

ACT
United Kingdom
1 Demuth Way
Oldbury
West Midlands B69 4LT
Country Code (44) Area Code (21)
Number: 541 1234

Company Information

Number of service centres:	18
Number of employees in maintenance:	717
Number of engineers:	400
- Field engineers:	275
- Bench engineers:	125
Number of sales personnel:	20

Revenues derived from maintenance

- 1989 Revenues:	£8.0 million
- 1990 Forecast:	£14.0 million

Total revenues

- 1989 Revenues:	£2.8 million
- 1990 Forecast:	£37.0 million

Type of equipment maintained

Minicomputers:	DEC, Sequent, Motorola, Sequoia, Momentum
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	EPOS and retail systems

Note: ACT is part of Apricot Computer. In April 1989 ACT acquired DDT and in November 1989, as a consequence of the acquisition of ITL, the maintenance business of ITL merged with ACT.

N/A = Not available

COMPANY PROFILE

ADVANCED TECHNOLOGY MAINTENANCE LTD.

United Kingdom
21 Bristol Road
Metropolitan Centre
Greenford
Middx UB6 8UP
Country Code (44) Area Code (81)
Number: 578 9222

Company Information

Number of service centres:	10
Number of employees in maintenance:	150
Number of engineers:	75
- Field engineers:	59
- Bench engineers:	16
Number of sales personnel:	N/A
Revenues derived from maintenance	
- 1989 Revenues:	£4.4 million
- 1990 Forecast:	N/A
Total revenues	
- 1989 Revenues:	*£7.0 million
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Digital PDP, MicroVax II
Business PCs:	IBM, Compaq, Amstrad, Toshiba and all major manufacturers
Peripherals:	Dataproducts, DEC, Ricoh, Canon, HP, all major manufacturers
Other Equipment:	Networks—Novell, 3Com

* Includes fourth-party maintenance revenues.

COMPANY PROFILE

COMPUTER REPAIR CENTRES LTD.

United Kingdom
17 Thame Park Road
Thame
Oxon OX9 3XD
Country Code (44) Area Code (844)
Number: 261900

Company Information

Number of service centres:	6
Number of employees in maintenance:	105
Number of engineers:	57
- Field engineers:	32
- Bench engineers:	25
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	£2.1 million
- 1990 Forecast:	£2.5 million

Total revenues

- 1989 Revenues:	£3.7 million
- 1990 Forecast:	£4.4 million

Type of equipment maintained

Peripherals:	Maxtor, Quantum, Rodime, Archive, NEC
Other Equipment:	Motorola, Epoch, Perq, Opus

Notes: Company provides field and workshop repair facilities for manufacturers, OEMs and end users.

COMPANY PROFILE

CREST PERIPHERAL SERVICES

United Kingdom
Webbs Court
8 Holmes Court
Early
Reading RG6 2BH
Country Code (44) Area Code (734)
Number: 660124

Company Information

Number of service centres:	1
Number of employees in maintenance:	12
Number of engineers:	8
- Field engineers:	2
- Bench engineers:	6
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	£400 thousand
- 1990 Forecast:	£500 thousand

Total revenues

- 1989 Revenues:	£400 thousand
- 1990 Forecast:	£500 thousand

Type of equipment maintained

Peripherals: Tape-based peripherals—Pertec, Cipher, Kennedy, Pertec disks

Note: Partial independent maintenance/FPM company

COMPANY PROFILE

DATA LOGIC

United Kingdom
Queens House East
Greenhill Way
Harrow
Middx HA1 1YR
Country Code (44) Area Code (081)
Number: 863 0383

Company Information

Number of service centres:	7
Number of employees in maintenance:	210
Number of engineers:	130
- Field engineers:	105
- Bench engineers:	25
Number of sales personnel:	7

Revenues derived from maintenance

- 1989 Revenues:	£7.5 million
- 1990 Forecast:	£8.3 million

Total revenues

- 1989 Revenues:	£45.0 million
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	IBM S34, S36, S38, Digital PDP
Business PCs:	IBM 6150, IBM, all other major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	Communications equipment, Modems, MUXs, etc.

COMPANY PROFILE

DCM SERVICES LTD.

United Kingdom
Shire Park
Welwyn Garden City
Hertfordshire AL7 1LB
Country Code (44) Area Code (707)
Number: 372166

Company Information

Number of service centres:	7
Number of employees in maintenance:	130
Number of engineers:	100
- Field engineers:	85
- Bench engineers:	15
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	£2.5 million
- 1990 Forecast:	£4.5 million

Total revenues

- 1989 Revenues:	£6.0 million
- 1990 Forecast:	£8.5 million

Type of equipment maintained

Business PCs:	IBM and compatibles
Peripherals:	Networks—Novell, token ring

Note: Formerly Dataserve Ltd.

COMPANY PROFILE

DIGITAL COMPUTER SERVICES LTD.

United Kingdom
Network House
Oxford Road
Denham, Uxbridge
Middx UB9 4DN
Country Code (44) Area Code (895)
Number: 74141

Company Information

Number of service centres:	5
Number of employees in maintenance:	111
Number of engineers:	86
- Field engineers:	71
- Bench engineers:	15
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	£6.0 million
- 1990 Forecast:	£7.0 million

Total revenues

- 1989 Revenues:	£6.0 million
- 1990 Forecast:	£7.0 million

Type of equipment maintained

Mainframes:	Digital VAX 8000 Series
Minicomputers:	Digital PDP—U-Bus & Q-Bus, IBM S34, S36, Wang VS
Business PCs:	Digital, IBM, Apple, Wang, Compaq, NEC, Tandon, Wyse, Olivetti, Zenith, Apricot, Future
Peripherals:	Epsom, Mannesmann, Printronix, HP Laserjet, Digital, Dataproducts, Dataprinter, Pericom, Wyse
Other Equipment:	Comms—Bridge, Racal, Miracle, Dowty, Case

COMPANY PROFILE

EXTEL INFORMATION TECHNOLOGY

United Kingdom
298 Regents Park Road
Finchley
London N3 2LZ
Country Code (44) Area Code (81)
Number: 346 0200

Company Information

Number of service centres:	12
Number of employees in maintenance:	250
Number of engineers:	150
- Field engineers:	130
- Bench engineers:	20
Number of sales personnel:	20

Revenues derived from maintenance

- 1989 Revenues:	£14 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	ICL 2900, 2903, 2904, ME 29
Minicomputers:	IBM S34, S36, S38, AS400, DMS Hinet, ICL DRS 20, DRS 300
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	Communications—EQPT X.25, Multiplexers, modems, LAN, WAN

Note: In May 1990 MBS announced it was acquiring Extel.

COMPANY PROFILE

FERRARI HOLDINGS PLC
(Ferrari Technical Services)

United Kingdom
Ferrari House
Church Road
Egham Surrey TW20 9LB
Country Code (44) Area Code (784)
Number: 421511

Company Information

Number of service centres:	2
Number of employees in maintenance:	230
Number of engineers:	150
- Field engineers:	120
- Bench engineers:	30
Number of sales personnel:	N/A
Revenues derived from maintenance	
- 1989 Revenues:	£11 million
- 1990 Forecast:	N/A
Total revenues	
- 1989 Revenues:	£60 million
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	Most major manufacturers
Business PCs:	Most major manufacturers
Peripherals:	Printers, laser printers
Other Equipment:	Network—Novell, token ring

COMPANY PROFILE

GRANADA COMPUTER SERVICES INTERNATIONAL LTD.

United Kingdom
European Headquarters
27 Broad Street
Wokingham
Berks RG11 1AU
Country Code (44) Area Code (734)
Number: 774000

Company Information

Number of service centres:	107
Number of employees in maintenance:	2,797
Number of engineers:	1,958
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	117
Revenues derived from maintenance	
- 1989 Revenues:	$260 million
- 1990 Forecast:	N/A
Total revenues	
- 1989 Revenues:	$320 million
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers; in total about 750 different brands
Minicomputers:	All major manufacturers; in total about 750 different brands
Business PCs:	All major manufacturers; in total about 750 different brands
Peripherals:	All major manufacturers; in total about 750 different brands
Other Equipment:	Networks

* Total European data

COMPANY PROFILE

GRANADA COMPUTER SERVICES (U.K.) LTD.

United Kingdom
Excell House
Wilbury Way
Trust Industrial Estate
Hitchin, Herts SG4 0VZ
Country Code (44) Area Code (462)
Number: 421511

Company Information

Number of service centres:	35
Number of employees in maintenance:	1,948
Number of engineers:	1,416
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	55

Revenues derived from maintenance

- 1989 Revenues:	£110 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	Networks

COMPANY PROFILE

ICM

United Kingdom
ICM House
Oakwell Way
Birstal
West Yorks WF7 9LU
Country Code (44) Area Code (924)
Number: 477 874

Company Information

Number of service centres:	11
Number of employees in maintenance:	105
Number of engineers:	89
- Field engineers:	80
- Bench engineers:	3
Number of sales personnel:	9

Revenues derived from maintenance	
- 1989 Revenues:	£4.0 million
- 1990 Forecast:	£6.0 million
Total revenues	
- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	Digital VAX 8650, VAX 8530
Minicomputers:	Digital VAX 7XX, DEC MicroVax II to 3800, PDP—U-bus and Q-bus, all VAX and PDP, Altos
Business PCs:	Compaq, Apricot, IBM, Olivetti, Tandon
Peripherals:	Digital, Fujitsu, Mannesmann, Genicom, Data Products, CDC, NEC, Emulex, OKI, Cipher
Other Equipment:	LANs—Ethernet Communications—CASE, Micron-Borer, Racal-Milgo

COMPANY PROFILE

NELSON COMPUTER SERVICES LTD.

United Kingdom
St. Johns Court
Bacup Road
Rawtenstall
Rossendale
Lancs BB4 7PA
Country Code (44) Area Code (706)
Number: 217 755

Company Information

Number of service centres:	4
Number of employees in maintenance:	60
Number of engineers:	24
- Field engineers:	18
- Bench engineers:	6
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1988 Revenues:	£1.1 million
- 1990 Forecast:	£1.7 million

Total revenues

- 1989 Revenues:	£2.1 million
- 1990 Forecast:	£3.0 million

Type of equipment maintained

Business PCs:	Most leading manufacturers—IBM, Compaq, Tandon, Olivetti, Amstrad, Apple, Acer, Epson, Tulip, Opus
Peripherals:	Most leading manufacturers
Other Equipment:	Networks, CAD/CAM, punched card—IBM, ICL, Univac, Kode, Decision Data Forms Handling—bursters, decollators, guillotines

COMPANY PROFILE

Q-COM MAINTENANCE

United Kingdom
Monaco House
Bristol Street
Birmingham B5 7AS
Country Code (44) Area Code (21)
Number: 622 7165

Company Information

Number of service centres:	3
Number of employees in maintenance:	25
Number of engineers:	18
- Field engineers:	14
- Bench engineers:	4
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	£350 thousand
- 1990 Forecast:	£500 thousand

Total revenues

- 1989 Revenues:	£350 thousand
- 1990 Forecast:	£500 thousand

Type of equipment maintained

Business PCs:	Most major manufacturers, including IBM, Compaq, Tandon, Schneider, Apricot, Opus
Peripherals:	Most major manufacturers, including Epson, Brother, Anadex, Star
Other Equipment:	Cambridge Colour Graphics

COMPANY PROFILE

SERVICETEC LTD.

United Kingdom
Boulton Road
Pin Green
Stevenage
Herts SG1 4QV
Country Code (44) Area Code (438)
Number: 722 922

Company Information

Number of service centres:	11
Number of employees in maintenance:	252
Number of engineers:	180
- Field engineers:	120
- Bench engineers:	60
Number of sales personnel:	10

Revenues derived from maintenance

- 1989 Revenues:	£13 million
- 1990 Forecast:	£15 million

Total revenues

- 1989 Revenues:	£13 million
- 1990 Forecast:	£15 million

Type of equipment maintained

Minicomputers:	IBM S36, Series 1, Ferranti, Argus
Business PCs:	IBM, Compaq, Olivetti, Ferranti, Apple, and other compatibles
Peripherals:	IBM, HP, Kyocera, Qume, Epson, Canon, Brother, Facit
Other Equipment:	Modems, 3270 controllers and terminals

Note: In 1989 Servicetech acquired the computer maintenance operations of Ferranti Computers

COMPANY PROFILE

SIMMONS MAGEE COMPUTERS

United Kingdom
13 York Street
Twickenham TW1 3J2
Country Code (44) Area Code (81)
Number: 891 477

Company Information

Number of service centres:	3
Number of employees in maintenance:	30
Number of engineers:	24
- Field engineers:	22
- Bench engineers:	N/A
Number of sales personnel:	2

Revenues derived from maintenance

- 1989 Revenues:	£850 thousand
- 1990 Forecast:	£2.5 million

Total revenues

- 1989 Revenues:	£17.0 million
- 1990 Forecast:	N/A

Type of equipment maintained

Minicomputers:	S36, MicroVax, Compaq Systempro
Business PCs:	Compaq, Amstrad, Tulip, Toshiba, Epson, IBM and compatibles
Peripherals:	HP, Epson, OKI, NEC, Dataproducts
Other Equipment:	Networks

Note: Primarily a dealer organisation. Total number of engineers includes system support staff.

COMPANY PROFILE

SORBUS U.K. LTD.

United Kingdom
13 Mount Road
Feltham
Middx TW13 6AR
Country Code (44) Area Code (81)
Number: 898 9631

Company Information

Number of service centres:	7
Number of employees in maintenance:	300
Number of engineers:	200
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	£13.5 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Wide range of equipment, from PC to mainframe

COMPANY PROFILE

SYSTEMS RELIABILITY PLC

United Kingdom
400 Dallow Road
Luton
Beds LU1 1R
Country Code (44) Area Code (582)
Number: 408502

Company Information

Number of service centres:	13
Number of employees in maintenance:	180
Number of engineers:	140
- Field engineers:	120
- Bench engineers:	20
Number of sales personnel:	8

Revenues derived from maintenance

- 1989 Revenues:	£8.0 million
- 1990 Forecast:	£9.5 million

Total revenues

- 1989 Revenues:	£25.0 million
- 1990 Forecast:	£30.0 million

Type of equipment maintained

Mainframes:	IBM
Minicomputers:	Altos, Alpha Micro, IMP, Roce
Business PCs:	IBM, Compaq and all leading compatibles
Peripherals:	Most printers, VDUs, plotters

COMPANY PROFILE

THORN EMI COMPUTERAID

United Kingdom
40 Invincible Road
Farnborough
Hants GU14 7UQ
Country Code (44) Area Code (252)
Number: 548888

Company Information

Number of service centres:	12
Number of employees in maintenance:	400
Number of engineers:	280
- Field engineers:	220
- Bench engineers:	40
Number of sales personnel:	15

Revenues derived from maintenance

- 1989 Revenues:	£14 million
- 1990 Forecast:	£19 million

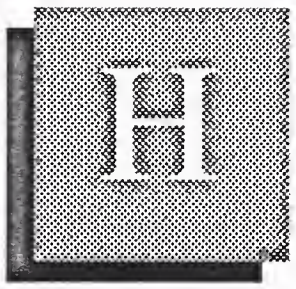
Total revenues

- 1989 Revenues:	£18 million
- 1990 Forecast:	£25 million

Type of equipment maintained

Business PCs:	IBM, Compaq, Apple, Toshiba, Dell, Future and compatibles
Peripherals:	Laser printers, matrix printers
Other Equipment:	EPOS terminals Networks—token ring, Ethernet

Note: Total number of engineers includes system support staff.



Profiles of West German Independent Vendors

COMPANY PROFILE

ECONOCOM

West Germany
Otto Hahn Strasse 123
6070 Langen
Country Code (49) Area Code (6103)
Number: 7050

Company Information

Number of service centres:	10
Number of employees in maintenance:	80
Number of engineers:	55
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	5

Revenues derived from maintenance

- 1989 Revenues:	DM 8.1 million
- 1990 Forecast:	DM 10.0 million

Total revenues

- 1989 Revenues:	DM 15.0 million
- 1990 Revenues:	DM 17.5 million

Type of equipment maintained

Mainframes:	IBM 308X
Minicomputers:	IBM S34, S36, S38, AS400
Business PCs:	IBM
Peripherals:	IBM, Centronics, Lynk

Note: Remote diagnostic support introduced in April 1989.

N/A = Not available

COMPANY PROFILE

FORUM

West Germany
Johann G. Gutenberg Strasse, 33
D-8037 Olching
Country Code (49) Area Code (8142)
Number: 28031

Company Information

Number of service centres:	3
Number of employees in maintenance:	21
Number of engineers:	14
- Field engineers:	12
- Bench engineers:	2
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	DM 3.0 million
- 1990 Forecast:	DM 3.5 million

Type of equipment maintained

Mainframes:	Digital VAX 8250, 8350
Minicomputers:	Digital VAX 7XX, MicroVax II, MicroVax 2000, 3000, PDP—Q-bus and Uni-bus
Business PCs:	IBM and IBM-compatibles
Peripherals:	Digital, Fujitsu, NEC, Maxtor, Cipher, Kennedy, Pertec, Emulex, Alphatronics
Other Equipment:	Communications—Xyplex, Emulex

COMPANY PROFILE

GRANADA COMPUTER SERVICES GmbH

West Germany
Untergasse 74
6097 Trebur-Giensheim
Country Code (49) Area Code (61)
Number: 47 2090

Company Information

Number of service centres:	23
Number of employees in maintenance:	158
Number of engineers:	110
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	16

Revenues derived from maintenance

- 1989 Revenues:	DM 29 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Revenues:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers

Notes: West Germany is also the headquarters of Granada Mid-Europe operations at AM Sudpark 31, 4040 Neus 1, Telephone (49) 2101 465392

COMPANY PROFILE

MULTITECH COMPUTER SYSTEMS

West Germany
Niederurseler Allee 8-10
D-6236 Eschborn 1
Country Code (49) Area Code (6196)
Number: 70120

Company Information

Number of service centres:	11
Number of employees in maintenance:	50
Number of engineers:	30
- Field engineers:	23
- Bench engineers:	7
Number of sales personnel:	2

Revenues derived from maintenance

- 1989 Revenues:	DM 7.0 million
- 1990 Forecast:	DM 7.0 million

Total revenues

- 1989 Revenues:	DM 10.5 million
- 1990 Revenues:	DM 10.5 million

Type of equipment maintained

Business PCs:	IBM, IBM compatibles, Tandon, Mitac
Peripherals:	Dataproducts, Printronix, Dataprinter
Other Equipment:	LANs—Novell, token ring

COMPANY PROFILE

SORBUS GmbH

West Germany
Josefinstrasse, 13
D 400 Dusseldorf
Country Code (49) Area Code (211)
Number: 139 080

Company Information

Number of service centres:	16
Number of employees in maintenance:	120
Number of engineers:	90
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	N/A

Revenues derived from maintenance

- 1989 Revenues:	DM 19.1 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Revenues:	N/A

Type of equipment maintained

Wide range of equipment, from PC to mainframe

COMPANY PROFILE

TELUB BITRONIC

West Germany
Stahlenbergerweg, 16
6000 Frankfurt am 70
Country Code (49) Area Code (69)
Number: 618056

Company Information

Number of service centres:	7
Number of employees in maintenance:	70
Number of engineers:	56
- Field engineers:	27
- Bench engineers:	29
Number of sales personnel:	3

Revenues derived from maintenance

- 1989 Revenues:	DM 8 million
- 1990 Forecast:	DM 10 million

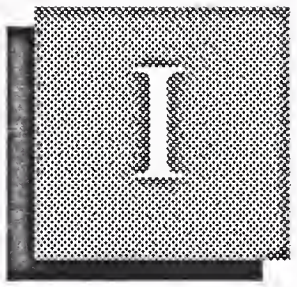
Total revenues

- 1989 Revenues:	DM 8 million
- 1990 Revenues:	DM 10 million

Type of equipment maintained

Minicomputers:	Cromenco, Convergent Technology, Datagraph, IBM
Business PCs:	Minolta, Sharp, IBM, Tandon, Victor, Panasonic
Peripherals:	AST Research, Dataproducts, Genicom, Centronics, Fujitsu

Notes: Revenue includes fourth-party maintenance revenues.



Profiles of Other European Independent Vendors

COMPANY PROFILE

SORBUS Ges. mBH

Austria
Millergasse 13
A-1060 Vienna
Country Code (43) Area Code (222)
Number: 596 1505

Company Information

Number of service centres:
Number of employees in maintenance:
Number of engineers:
- Field engineers:
- Bench engineers:

Number of sales personnel:

Revenues derived from maintenance

- 1989 Revenues:	AS 27 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:

Minicomputers:

Business PCs:

Peripherals:

Other Equipment:

Note: Sorbus' operation in Austria is a subdivision of its operation in West Germany.

N/A = Not available

COMPANY PROFILE

TELUB SERVICE A/S

Denmark
Naverland 29
DK-2600 Glostrup
Country Code (45) Area Code (42)
Number: 458844

Company Information

Number of service centres:	3
Number of employees in maintenance:	35
Number of engineers:	25
- Field engineers:	25
- Bench engineers:	N/A
Number of sales personnel:	3

Revenues derived from maintenance

- 1989 Revenues:	DK 18 million
- 1990 Forecast:	DK 20 million

Total revenues

- 1989 Revenues:	DK 18 million
- 1990 Forecast:	DK 20 million

Type of equipment maintained

Mainframes:

Minicomputers:

Business PCs:

Peripherals:

Other Equipment:

COMPANY PROFILE

COMPUTER MAINTENANCE IRELAND

Ireland
Bracken House
Bracken Road
Sandyford Industrial Estate
Dublin 18
Country Code (353) Area Code (1)
Number: 955777

Company Information

	Republic	Northern Ireland
Number of service centres:	4	1
Number of employees in maintenance:	35	33
Number of engineers:	31	29
- Field engineers:	27	25
- Bench engineers:	4	4
Number of sales personnel:	N/A	N/A
Revenues derived from maintenance		
- 1989 Revenues:	£IRL 1.9 million	£ 1.9 million
- 1990 Forecast:	£IRL 2.1 million	£ 2.3 million
Total revenues		
- 1989 Revenues:	N/A	N/A
- 1990 Forecast:	N/A	N/A

Type of equipment maintained

Minicomputers:	IBM System 3X, AS400
Business PCs:	IBM and compatibles
Peripherals:	Fujitsu, CDC, Dataproducts, Genicom

Notes: Computer Maintenance Ireland is an Irish-registered company with similar-size operations in the Republic and Northern Ireland.

COMPANY PROFILE

DDT
Ireland
VMT 1&3
Leopardstown Office Park
Foxrock
Dublin 16
Country Code (353) Area Code (1)
Number: 954888

Company Information

	Republic	Northern Ireland
Number of service centres:	3	1
Number of employees in maintenance:	28	7
Number of engineers:	19	6
- Field engineers:	16	4
- Bench engineers:	3	2
Number of sales personnel:	N/A	N/A
Revenues derived from maintenance		
- 1989 Revenues:	£IRL 1.0 million	£ 0.5 million
- 1990 Forecast:	N/A	N/A
Total revenues		
- 1989 Revenues:	£IRL 1.0 million	£ 0.5 million
- 1990 Forecast:	N/A	N/A

Type of equipment maintained

Business PCs: IBM and compatibles, All major manufacturers

Notes: DDT is part of ACT U.K. (Apricot). The sole business is computer maintenance. DDT is an Irish-registered company with operations in the Republic of Ireland and Northern Ireland.

COMPANY PROFILE

MEMOREX TELEX IRELAND LTD.

Ireland
Merrion House
Merrion Road
Dublin 4
Country Code (353) Area Code (1)
Number: 839222

Company Information

Number of service centres:	N/A
Number of employees in maintenance:	40
Number of engineers:	34
- Field engineers:	30
- Bench engineers:	4
Number of sales perssonel:	N/A
Revenues derived from maintenance	
- 1989 Revenues:	*£IRL 2.0 million
- 1990 Forecast:	N/A
Total revenues	
- 1989 Revenues:	£IRL 9.0 million
- 1990 Forecast:	N/A

Type of equipment maintained

IBM and PWG compatible range PC to 3090
Memorex Telex products

Notes: * Denotes independent maintenance revenue. Total maintenance revenue £IRL 4.5 million. Company was renamed Memorex Telex in 1990, was previously Specialist Machine Services (SMS), and was acquired by Memorex in 1987.

COMPANY PROFILE

TELUB SERVICE OY

Finland
Kornfallsvagen 2A
SF-6800 Helsingfors
Country Code (358) Area Code (7)
Number: 22733

Company Information

Number of service centres:	7
Number of employees in maintenance:	30
Number of engineers:	26
- Field engineers:	26
- Bench engineers:	N/A
Number of sales personnel:	2

Revenues derived from maintenance

- 1989 Revenues:	FM 14 million
- 1990 Forecast:	FM 15 million

Total revenues

- 1989 Revenues:	FM 14 million
- 1990 Forecast:	FM 15 million

Type of equipment maintained

Mainframes:

Minicomputers:

Business PCs:

Peripherals:

Other Equipment:

COMPANY PROFILE

TELUB SERVICE A/S

Norway
Loren Vangen 23
Postboks 48 Refstad
N-0513 Oslo 5
B 9360 Buggenhount
Country Code (47) Area Code (2)
Number: 652250

Company Information

Number of service centres:	5
Number of employees in maintenance:	30
Number of engineers:	26
- Field engineers:	26
- Bench engineers:	N/A
Number of sales personnel:	2

Revenues derived from maintenance

- 1989 Revenues:	NK 21 million
- 1990 Forecast:	NK 29 million

Total revenues

- 1989 Revenues:	NK 24 million
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:

Minicomputers:

Business PCs:

Peripherals:

Other Equipment:

COMPANY PROFILE

GRANADA COMPUTER SERVICES AG

Switzerland
Ried Strasse 8
CH-8953 Dietikon
Country Code (41) Area Code (1)
Number: 740 2415

Company Information

Number of service centres:	2
Number of employees in maintenance:	13
Number of engineers:	8
- Field engineers:	N/A
- Bench engineers:	N/A
Number of sales personnel:	1

Revenues derived from maintenance

- 1989 Revenues:	SF 1.6 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

Mainframes:	All major manufacturers
Minicomputers:	All major manufacturers
Business PCs:	All major manufacturers
Peripherals:	All major manufacturers
Other Equipment:	All major manufacturers

COMPANY PROFILE

SORBUS AG

Switzerland
Boesch 41
CH-6331 Huenenberg
Country Code (41) Area Code (42)
Number: 382 288

Company Information

Number of service centres:
Number of employees in maintenance:
Number of engineers:
- Field engineers:
- Bench engineers:

Number of sales personnel:

Revenues derived from maintenance

- 1989 Revenues:	SF 1.5 million
- 1990 Forecast:	N/A

Total revenues

- 1989 Revenues:	N/A
- 1990 Forecast:	N/A

Type of equipment maintained

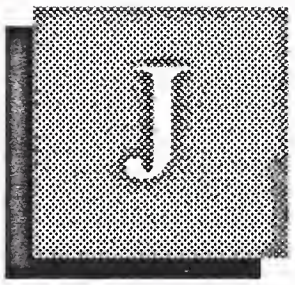
Mainframes:

Minicomputers:

Business PCs:

Peripherals:

Other Equipment:



Independent Vendor Sector Market Forecast Reconciliation

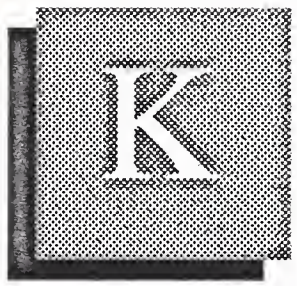
J

Appendix: Independent Vendor Sector Market Forecast Reconciliation

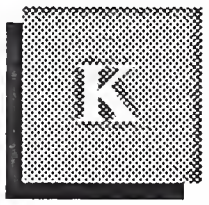
EXHIBIT J-1

Independent Vendor Sector Market Forecast Reconciliation

Country	1989 Forecast of 1989 Market	1990 Forecast of 1989 Market	CAGR Forecast in 1989 Report 1989-1994 (Percent)	CAGR Forecast in 1990 Report 1990-1995 (Percent)
Belgium	1,230 M BF	1,230 M BF	16	15
France	1,550 M FF	1,550 M FF	17	16
Italy	117 B Lira	117 B Lira	16	15
Netherlands	195 M DFl	195 M DFl	15	14
Spain	4,950 M Pta	4,950 M Pta	28	26
Sweden	250 M SK	250 M SK	8	7
United Kingdom	235 M £	235 M £	17	16
West Germany	150 M DM	150 M DM	16	16



Vendor Questionnaire



Appendix: Vendor Questionnaire

1990 Independent Maintenance Vendor Questionnaire

I. General

1. Company _____
2. Respondent Name _____
3. Title _____
4. Address _____
   _____
   _____
   _____
5. Country _____
6. Telephone Country Code _____
   Area Code _____
   Number _____

II. Company Profile

7. a. Number of Service Centres _____
   b. Service Centres located in:

   _____

8. Total Number of Employees _____

9. a. Total Number of Employees in Independent Maintenance _____
   b. Total Number of Engineers _____
   c. - Number of Field Engineers _____
   d. - Number of Bench Engineers _____
   e. Number of Sales Staff Selling Independent Maintenance _____

10. Equipment Maintained

    a. Mainframes
    b. Minicomputers
    c. PCs
    d. Peripherals
    e. Other

III. Financial Information

	1989	1990 (Forecast)
11. a. Total Revenues	_____	_____
b. Total European Revenues	_____	_____
12. a. TPM Revenues	_____	_____
b. European TPM Revenues	_____	_____

13. Approximately what percentage of your maintenance revenues is derived from:

    a. Mainframe Maintenance _____%
    b. Minicomputer Maintenance _____%
    c. PC Maintenance _____%
    d. Peripheral Equipment Maintenance _____%
    e. Other _____%

14. Approximately what percentage of your maintenance revenues is derived from maintaining the following manufacturers' equipment?

    a. IBM _____%
    b. Digital _____%
    c. Bull _____%
    d. Unisys _____%
    e. ICL _____%
    f. Hewlett-Packard _____%
    g. Wang _____%
    h. Data General _____%
    i. Convergent Technology _____%
    j. Altos _____%
    k. MAI _____%
    l. Olivetti _____%

m. Apple _____%
n. Stratus _____%
o. Norsk Data _____%
p. Prime _____%
q. Sun _____%
r. Apollo _____%
s. Nokia _____%
t. Other _____ _____%
Other _____ _____%

15. Could you please identify the percentage of your maintenance revenues derived from the following industry sectors:

a. Banking and Finance _____%
b. Manufacturing _____%
c. Government _____%
d. Public Sector _____%
e. Retail and Distribution _____%
e. Equipment Manufacturers _____%

IV. Mergers/Acquisitions

16. Has your company been involved in a merger or acquisition in the last twelve months? If so, please give details.

V. Current Service

17. What services does your company currently offer, or plan to offer, other than pure hardware maintenance?

	Current	Future
Planning	❑	❑
Installation	❑	❑
Disaster Recovery	❑	❑
Application S/W Support	❑	❑
Consultancy	❑	❑
User Training on Hardware	❑	❑
Preventive Maintenance	❑	❑
System Software Support	❑	❑
De-Installation	❑	❑
System Configuration	❑	❑
Other _____	❑	❑
_____	❑	❑
_____	❑	❑
_____	❑	❑

VI. Future Services

18. In which of the following areas, if any, have you diversified, or plan to diversify in the next two or three years:

	Current	Future
a. Hardware Sales	❑	❑
b. Application Software Sales	❑	❑
c. Training	❑	❑
d. Computer Supplies Sales	❑	❑
e. None of the Above	❑	❑
f. Other	❑	❑

VII. User Criteria

19. What, in your opinion, are the reasons users choose TPM?

a. TPM is cheaper ❑
b. TPM is more efficient ❑
c. TPM offers local service ❑
d. TPM offers single-source maintenance ❑
e. TPM offers better service ❑
f. TPM service is more flexible ❑
g. Other _____
_____
_____

20. Conversely, what, in your opinion, are the reasons users do not choose TPM service?

a. Satisfied with manufacturer ❑
b. Manufacturer has a service advantage ❑
c. TPM is unable to support software ❑
d. Users are contractually tied to manufacturer ❑
e. User fear of vendor response ❑
f. Unaware of TPM ❑
g. Other _____
_____
_____

VIII. Competition

21. Who do you consider to be your principle competitors in the TPM marketplace?

IX. Independent Maintenance Market Development

I would like to obtain your view on how you believe the independent maintenance market will develop over the next 5 to 10 years.

22. a. Market Growth - Slowing ❑ Current Rate ❑ Increasing ❑

    b. TPM companies will be successful in maintaining software:
    Systems software Agree ❑ Disagree ❑
    Application software Agree ❑ Disagree ❑

    c. Manufacturers products/diagnostics etc. will progressively eliminate TPM service:
    Agree ❑ Disagree ❑

    d. Independent maintenance will become the province of a small number of large companies, and a large number of very small companies.
    Agree ❑ Disagree ❑

23. What is the primary strategy of your company for, say, the next 5 years?

	Yes	No
a. Concentrate on independent hardware maintenance	❑	❑
b. Diversify into other sectors	❑	❑
c. Organic growth	❑	❑
d. Growth by acquisition	❑	❑
e. Concentrate on specific:		
- Industry sectors	❑	❑
- Niche markets	❑	❑

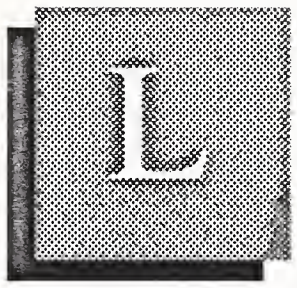
24. Finally, are there any unique characteristics of the TPM market in your country?

Addition for In-Depth Interview

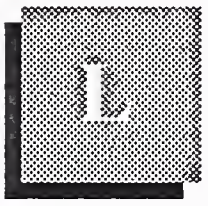
25. What do you feel are the key issues facing TPM companies?

26. What do you believe TPM companies need to do to ensure their future viability, say over the next 5 years?

27. With the continuing success of TPM how do you think the manufacturers will react to regain the initiative?



User Questionnaire



Appendix: User Questionnaire

1990 Independent Maintenance User Questionnaire

A
General

1. What is the make and model number of the main computer on your site and how many do you have?

   - Make _____
   - Model _____ (CRITICAL INFORMATION)
   - Units _____

2. Are you the person who is knowledgeable on the servicing of this system?
   (If not, obtain the name of the correct person and start again.)
   Name of person responsible _____

3. Do you have another system? What is the make and model number of that system and how many do you have?

   - Make _____
   - Model _____ (CRITICAL INFORMATION)
   - Units _____

All of the following questions that I am going to ask you are related to your _____ system. (Write in system type.)

(To confirm, read out the make and model number.)

4. So that we can ensure that we get a proper cross-section of industry and commerce, can you tell me what is the main business sector of your company?

   (Read out the list to allow for best choice. Then circle appropriate answer.)

Business sector

- Manufacturing	1
- Distribution	2
- Transportation	3
- Utilities	4
- Banking and Finance	5
- Insurance	6
- Governments	7
- Services	8
- Other/Don't Know	9

B

Service Vendor Selection

I would like to ask you some questions relating to the vendor who services your computer system.

5. Could you please rate the importance of the following criteria in selecting your service vendor, on a scale of 0 to 10 (0 = low, 10 = high).

	Rating
a. Price	_____
b. Quality of service	_____
c. Guaranteed system availability level	_____
d. Guaranteed availability of spare parts	_____
e. Technical expertise	_____
f. Fast response time	_____
g. Availability of software support	_____
h. Ability to provide other services	_____
i. Contract flexibility	_____
j. Ability to service other products	_____
k. Vendor reputation	_____

6a. Would you please tell me who services your computer system hardware? (Remind the user _____ System)

(Please check appropriate vendor type, multiple answers are allowed.)

- Manufacturer	❑
- Dealer/distributor	❑
- Third-party maintenance company	❑
- Own company	❑
- Other	❑

(If the respondent answered YES to third-party maintenance, ask the following question. If not, go to question 8.)

6b. I notice that your system, or part of it, is serviced by a third-party maintenance company. Could you tell me the reason you use third-party maintenance?

(Please check appropriate answer; multiple answers allowed.)

- Lower cost ❑
- Local service ❑
- Single source service ❑
- TPM service higher quality ❑
- More flexible contract ❑
- Don't know/other ❑

7a. I notice that you do not use a third-party maintenance company; is there a reason for this?

(Please check appropriate answer; multiple answers allowed.)

- Satisfied with manufacturer ❑
- Manufacturer has an advantage ❑
- TPM cannot support software ❑
- TPM service is higher quality ❑
- Tied to manufacturer with contract ❑
- Fear of system supplier response ❑
- Considered and rejected TPM ❑
- TPM financial weakness ❑
- Unaware of TPM ❑
- Other/Don't know ❑

7b. Assuming you were approached by a TPM company, at what level of price reduction would you consider using a TPM vendor to service your computer hardware?

(Please check appropriate answer. Only one answer allowed.

- 1% - 10% ❑
- 11% - 20% ❑
- 21% - 30% ❑
- 31% - 40% ❑
- 41% - 50% ❑
- 50% + ❑
- Unwilling at any price ❑
- Other/Don't know ❑

8. How important is it that your service vendor communicates with you regularly and effectively to advise you of, for example:

- The status of your system }
- possible problems }
- repair plans } INTERVIEWER
- availability of spare parts } PROMPTS
- routine visits }
- hardware and software changes }

Could you please provide an importance and satisfaction rating on a scale of 0 to 10 where 0 is of no importance or indicates total dissatisfaction and 10 is at top importance or indicates that you are fully satisfied.

Importance _____
Satisfaction _____

9a. Would you prefer all hardware maintenance and software support to be provided by one service vendor at each site? If yes, what would your interest level be?

Level of interest: (please check) Low ❑ Medium ❑ High ❑

(Check answer) Yes ❑ No ❑ Don't know ❑

(If the respondent answered YES, ask:)

9b. Who would you prefer that vendor to be?

(Please check appropriate answer, multiple answers allowed.)

- The manufacturer of your main hardware ❑
- Dealer/distributor/VAR ❑
- TPM company ❑
- One of your hardware manufacturers ❑
- Don't know/other ❑

Note: VAR is a Value-Added Reseller.

C

Hardware Maintenance

I would now like to ask you some questions about the hardware maintenance of your computer system. (Reaffirm the system type _____)

Some of the questions are scaled with ratings from 0 to 10. Zero (0) represents zero importance or satisfaction, 5 is average, and 10 represents top importance or fully satisfied.

10. What is your rating for the importance of hardware maintenance to your business and how satisfied are you with your service vendor's performance?

Importance _____
Satisfaction _____

11. If we define SYSTEMS AVAILABILITY as the percentage of your normal working hours that the system is operational (disregarding non-critical peripheral breaks,) what percentage has that been for your system over the last twelve months? _____%

12. How many times each year does your system fail completely for a period of greater than one hour?

    per year _____

    And what percentage of these system failures are due to:

    a. Hardware _____%
    b. Systems software _____%
    c. Applications software _____%
    d. Other (i.e. power failure) _____%

    (Please check that percentages add up to 100.)

13. What is your rating for the importance of SYSTEMS AVAILABILITY (scale 0-10), and what is your level of satisfaction?

    Importance _____
    Satisfaction _____

14. Defining HARDWARE RESPONSE TIME as the time it takes between reporting a fault and the arrival of the service engineer on site (in working hours, that is to say 8 hours = 1 working day), what response time (in hours) do you find acceptable and what did you actually experience as an average over the last twelve months?

    - Acceptable _____ Hours
    - Experienced _____ Hours

15. If REPAIR TIME is defined as the time taken to get the system fully operational from the time the engineer arrives on site, then what time do you find acceptable (in working hours) and what time did you experience in the last twelve months?

    (Note: 8 hours = 1 working day/shift)

    - Acceptable _____ Hours
    - Experienced _____ Hours

16. I would now like go through a list of five aspects of hardware maintenance and ask you to give both an importance and a satisfaction rating for each (scale 0-10).

	Importance	Satisfaction
Spare availability	_____	_____
Engineer skills	_____	_____
Problem escalation	_____	_____
Documentation	_____	_____
Remote diagnostics	_____	_____

17. How important is it that your system supplier provides a hardware consultancy/planning service to support your operations and how satisfied are you with the service provided? (Scale 0-10).

    Importance _____
    Satisfaction _____

18. If possible, I would like you to provide some information on hardware maintenance pricing.

    a. What percentage price increase or decrease did you pay for hardware maintenance in the year 1989?

    Increase _____%
    Decrease _____%
    No change 1 (circle)

    b. What do you expect the price changes for hardware maintenance to be in the future, in percentage terms per annum?

    Increase _____%
    Decrease _____%
    No change 1 (circle)

    c. How important do you rate HARDWARE MAINTENANCE PRICING and how satisfied are you with the price you currently pay? (scale O - 10)

    Importance _____
    Satisfaction _____

19. Which type of hardware maintenance contract do you currently have on the main part of your system?

    (Please circle appropriate answer, only ONE answer allowed.)

    - Warranty ❑
    - Three-year ❑
    - One-year ❑
    - Time and materials ❑
    - None ❑

D

Software Support

I would like to ask you some questions relating to the service you get from your software support vendor.

These questions relate to SYSTEMS SOFTWARE - NOT APPLICATIONS.

As before, some of the questions are scaled with ratings from 0 to 10. Zero (0) represents zero importance or satisfaction, 5 is average and 10 is top importance or fully satisfied.

20. Who supports your systems software?

    (Please check appropriate answer, multiple answers allowed.)

    - Hardware manufacturer ❑
    - Software house ❑
    - Software product vendor ❑
    - Value-Added Reseller (VAR) ❑
    - In-house ❑
    - Don't know/other ❑

21. What is your rating for the importance of systems software support to your business and what is your satisfaction with your vendor's systems support activities? (Scale 0-10)

    Importance _____
    Satisfaction _____

22. What percentage of systems software problems are solved by telephone, and how long does this take in elapsed time from the time it is alerted to the service engineer?

    - Solved by phone _____%
    - Elapsed time _____ Hours

23. For those problems NOT possible to solve over the telephone, what RESPONSE TIME would you find acceptable, and what time (on average and in working hours) have you experienced over the last twelve months? (Take RESPONSE TIME to mean from the time the problem is reported to the arrival of the engineer on site.)

    - Acceptable _____ Hours
    - Experienced _____ Hours

24. If FIX TIME is defined as the time taken to get the system fully operational from the arrival of the engineer on site, then what time (in working hours) do you find acceptable, and what did you experience over the last twelve months?

    - Acceptable _____ Hours
    - Experienced _____ Hours

25. I would now like to go through a list of five aspects of SYSTEMS SOFTWARE SUPPORT and ask you to give an IMPORTANCE and a SATISFACTION rating for each. (Scale 0 - 10)

	Importance	Satisfaction
Engineer skills	_____	_____
Documentation	_____	_____
Software installation	_____	_____
Provision of updates	_____	_____
Remote diagnostics	_____	_____

26. How important is it that your system supplier provides a systems software consultancy/planning service to support your operations and how satisfied are you with the service provided? (Scale 0 - 10)

Importance _____
Satisfaction _____

27. If possible, I would like you to provide some information on systems software support pricing.

a. What percentage price increase or decrease did you pay for systems software support in the year 1989?

Increase _____%
Decrease _____%
No change 1 (circle)

b. What do you expect the price changes for systems software support to be in the future, in percentage terms per annum?

Increase _____%
Decrease _____%
No change 1 (circle)

c. How important do you rate SYSTEMS SOFTWARE SUPPORT PRICING and how satisfied are you with the price you currently pay? (Scale O - 10)

Importance _____
Satisfaction _____

28. Which type of systems software support contract do you currently have?

(Please check appropriate answer. Only ONE answer allowed.)

a. Support included in software license fee ❑
b. Three-year contract ❑
c. One-year contract ❑
d. ad hoc ❑
e. none ❑
f. Unaware of TPM ❑

E
Other Services

29. To conclude this questionnaire, I am particularly interested in obtaining your views on other services or modified current service offerings that your service suppliers could provide that would help to improve the running of your computer systems.

    Could you say which of the following services your service vendor is currently contracted to supply and which you would like your service vendor to provide. Also could you give a level of interest rating against each in the range 0 to 10 where 0 = no interest, 5 = average interest and 10 = must have.

    (Please circle appropriate answer and give LOI rating.)

	Current Contracted	Require	LOI
Configuration Planning	❑	❑	____
Capacity Planning	❑	❑	____
Environmental Planning	❑	❑	____
Cabling	❑	❑	____
Software Evaluation	❑	❑	____
Consultancy	❑	❑	____
Network Planning	❑	❑	____
Network Management	❑	❑	____
Disaster Recovery	❑	❑	____
Facilities Management	❑	❑	____
Problems Management	❑	❑	____
Applications Software Support	❑	❑	____

These last questions complete the questionnaire. I would like to thank you on behalf of INPUT for helping us to complete this survey. To express our appreciation for your time we will be sending you a "Thank You" pack containing a summary of the results from our survey.

Again, thank you for your time.

Additional Questions for Independent Maintenance User In-Depth Interviews

1. Do you see TPM service as a long-term solution to your service needs?
   Yes ❑ No ❑
   For how long: 2 3 4 5 10 years
   (circle)

2. Using TPM service, does this create any problems in supporting your systems software?
   Yes ❑ No ❑

   How is this support achieved?

   - The TPM does it ❑
   - In-house ❑
   - Equipment supplier ❑
   - Independent software company ❑

3. Do you believe that TPM companies can provide satisfactory software support?

   Systems Software Yes ❑ No ❑
   Applications Yes ❑ No ❑

Any comments:

4. Was there a specific reason why you changed to TPM service?

   a. Manufacturer inflexibility ❑
   b. Dissatisfied with manufacturer quality ❑
   c. Need for cost reduction ❑
   d. Need for single-source service not available from the manufacturer ❑

Any comments:

5. If one of your hardware suppliers approached you with a single-source solution, would you give this serious consideration?
   Yes ❑ No ❑

   What would your level of interest be on a scale of 0 - 10? (10 is high) _____

6. What do you consider to be the main strengths and weaknesses of TPM companies?

   a. Strengths:

b. Weaknesses:

7. What do you consider to be the main strengths or weaknesses of your hardware supplier's service?

   a. Strengths:

   b. Weaknesses:

8. Which sort of organisations do you believe will be able to provide independent software support, either now or in the future?

Report Quality Evaluation

To our clients:
To ensure that the highest standards of report quality are maintained, INPUT would appreciate your assessment of this report. Please take a moment to provide your evaluation of the usefulness and quality of this study. When complete, simply fold, staple, and drop in the post.

Thank You.

1. Report title: ***Independent Maintenance—Western Europe, 1990-1995*** (CEIMO)

2. Please indicate your reason for reading this report:
   - ☐ Required reading
   - ☐ Area of high interest
   - ☐ Area of general interest
   - ☐ New product development
   - ☐ Business/market planning
   - ☐ Product planning
   - ☐ Future purchase decision
   - ☐ Systems planning
   - ☐ Other _____

3. Please indicate extent report used and overall usefulness:

	Extent		Usefulness (1=Low, 5=High)				
	Read	Skimmed	1	2	3	4	5
Executive Overview	☐	☐	☐	☐	☐	☐	☐
Complete Report	☐	☐	☐	☐	☐	☐	☐
Part of Report (_____ %)	☐	☐	☐	☐	☐	☐	☐

4. How Useful was:

Data presented	☐	☐	☐	☐	☐
Analyses	☐	☐	☐	☐	☐
Recommendations	☐	☐	☐	☐	☐

5. How useful was the report in these areas:

Alert you to new opportunities or approaches	☐	☐	☐	☐	☐
Cover new areas not covered elsewhere	☐	☐	☐	☐	☐
Confirm existing ideas	☐	☐	☐	☐	☐
Meet Expectations	☐	☐	☐	☐	☐
Other _____	☐	☐	☐	☐	☐

6. Which topics in the report were the most useful? Why?_____

_____

7. In what ways could the report have been improved? _____

_____

8. Other comments or suggestions: _____

_____

Name _____ Title _____

Department _____

Company _____

Address _____

_____ Country

Telephone _____ Date Completed _____

Thank you for your time and cooperation.

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