INPUT

MARKET FORECAST

Software Product Support Market Analysis and Trends, Europe 1996 – 2001

Software Product Support Programme – Europe

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Software Product Support – Market Analysis and Trends Europe 1996-2001

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Perchstätten 16
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Cornwall House
55-77 High Street
Slough, Berkshire
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Tel: +44 (0) 1753 530444
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New York
400 Frank W. Burr Blvd.
Teaneck, NJ 07666
U.S.A.
Tel. +1 (201) 801-0050
Fax +1 (201) 801-0441

Paris
24, avenue du Recteur Poincaré
75016 Paris
France
Tel. +33 (1) 46 47 65 65
Fax +33 (1) 46 47 69 50

San Francisco
1881 Landings Drive
Mountain View
CA 94043-0848
U.S.A.
Tel. +1 (415) 961-3300
Fax +1 (415) 961-3966

Tokyo
Saida Building, 4-6,
Kanda Sakuma-cho
Chiyoda-ku, Tokyo 101
Japan
Tel. +81 3 3864-0531
Fax +81 3 3864-4114

Washington, D.C.
1921 Gallows Road
Suite 250
Vienna, VA 22182 3900
U.S.A.
Tel. +1 (703) 847-6870
Fax +1 (703) 847-6872

Abstract

Dynamic supply and demand side pressures are continually changing the nature of software product support services. Indeed, today's software support services focus less on reactive offerings such as problem resolution, upgrades and bug fixes, and more on pro-active support services which are akin to traditional consultancy services.

Furthermore, the industry continues to change as revenues generated by third party software support vendors account for an increasing proportion of the market. Meanwhile, demand-side pressures are encouraging vendors to promote pro-active business support services at the enterprise level and low cost support services to smaller organisations.

Against this background, INPUT research reveals that:

- The third party support market continues to offer new opportunities
- Vendors are increasingly attempting to climb the software support 'value chain' by focusing on pro-active software support services
- Vendors can be expected to increasingly extend the market, by using low cost channels such as the Internet and flexible pricing structures in order to target smaller organisations
- Multivendor, customisable software environments continue to drive user demand for software product support
- The support of application development tools and application software, in particular Enterprise Resource Planning (ERP) software, offer vendors the greatest opportunities.

Published by
INPUT
Cornwall House, 55-77 High Street
Slough, Berkshire, SL1 1DZ
United Kingdom

Software Product Support Programme — Europe

Software Product Support – Market Analysis and Trends, Europe 1996-2001

MSM6 • 768• 1996

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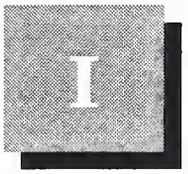


Introduction

This report was produced as part of INPUT's Software Product Support Programme in Europe.

A Purpose

Dynamic supply and demand side pressures are continually changing the nature of software product support services.

Many of today's software support services focus less on reactive offerings such as problem resolution, upgrades and bug fixes, and more on pro-active support services which are akin to traditional consultancy services. This change can largely be explained by falling unit margins associated with the provision of reactive support services.

Hence, increasing numbers of software vendors are opting to outsource many of their reactive support activities in order to contain the costs of providing support demanded by their client bases. Third parties have seized the opportunity to generate significant revenues by providing high volumes of multivendor software support. These organisations, typically systems vendors and independent services vendors invest heavily in software support infrastructures and offer both reactive and pro-active support services.

Vendors currently have opportunities to benefit from latent demand for pro-active business support services from enterprises and low cost reactive support services from smaller organisations.

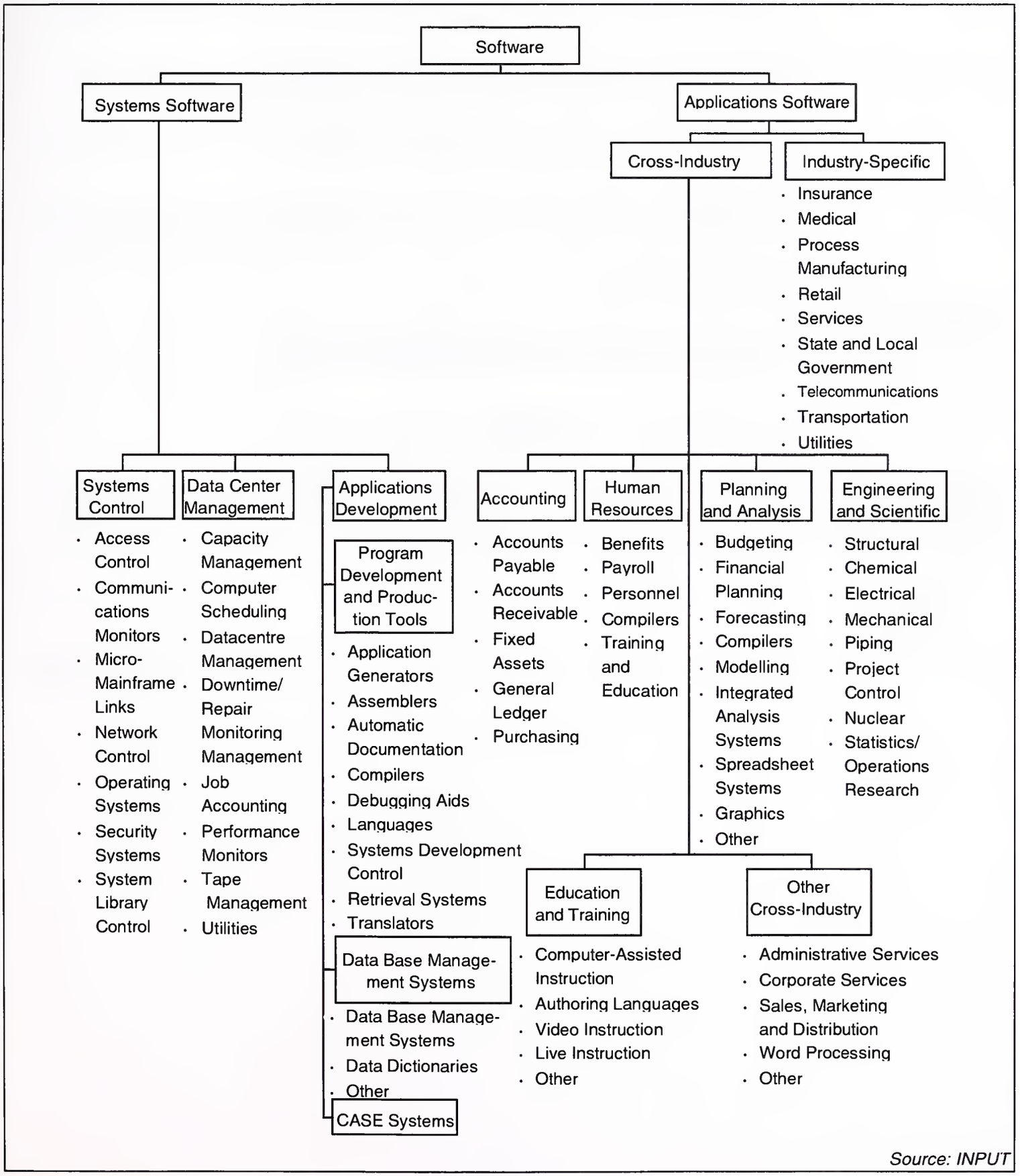
This report identifies the main forces shaping the software product support market in Europe and the opportunities that they create. It quantifies the changes forecast for the software product support market and analyses the driving forces and contemporary issues that are currently influencing the market.

B
Definition and Scope

INPUT defines the software product support business as those continuing activities provided by a vendor that are necessary to make the product work, outside the delivery of the product itself. Included are associated support activities such as telephone support, problem analysis and remote software diagnostics, software updates, software configuration and tuning, software installation, on-site support and initial training. Exhibit I-1 illustrates INPUT's definition of the software products market.

Exhibit I-1

Software Products Market Segmentation



Source: INPUT

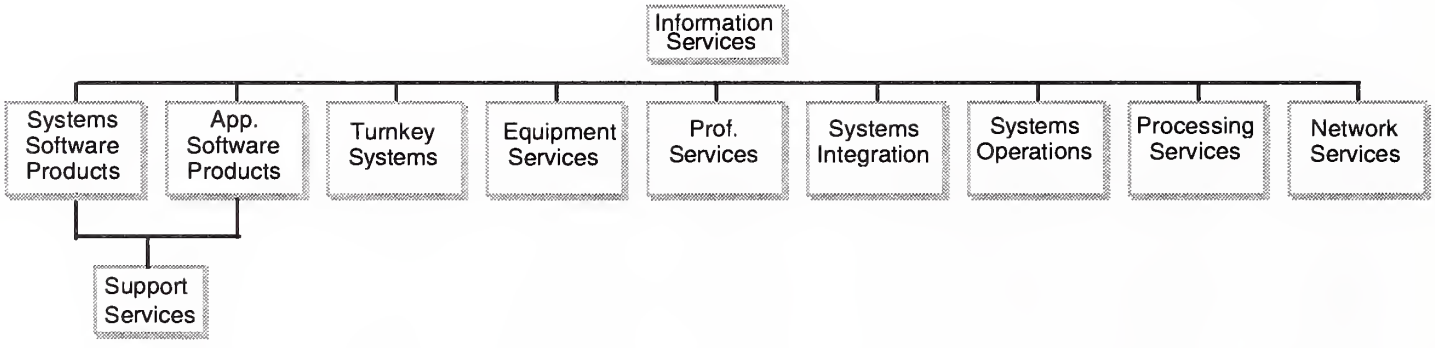
Exhibit I-2 shows INPUT's segmentation of the total software and services industry and indicates the positioning of software product support services within the overall market structure.

In each service sector, the definition of user expenditure includes only those services provided to users by an external organisation on a chargeable basis. Services provided by subsidiaries or internal resources are excluded from the open market.

For complete coverage of the entire software and services opportunity see the INPUT report *Software and Services Market Analysis and Forecast — Europe, 1996-2001.*

Exhibit I-2

Information Services Market Segmentation



Source: INPUT

C
Segmentation

The support market can be broken down into two broad software product categories, system software products and applications software products.

1. System Software Categories

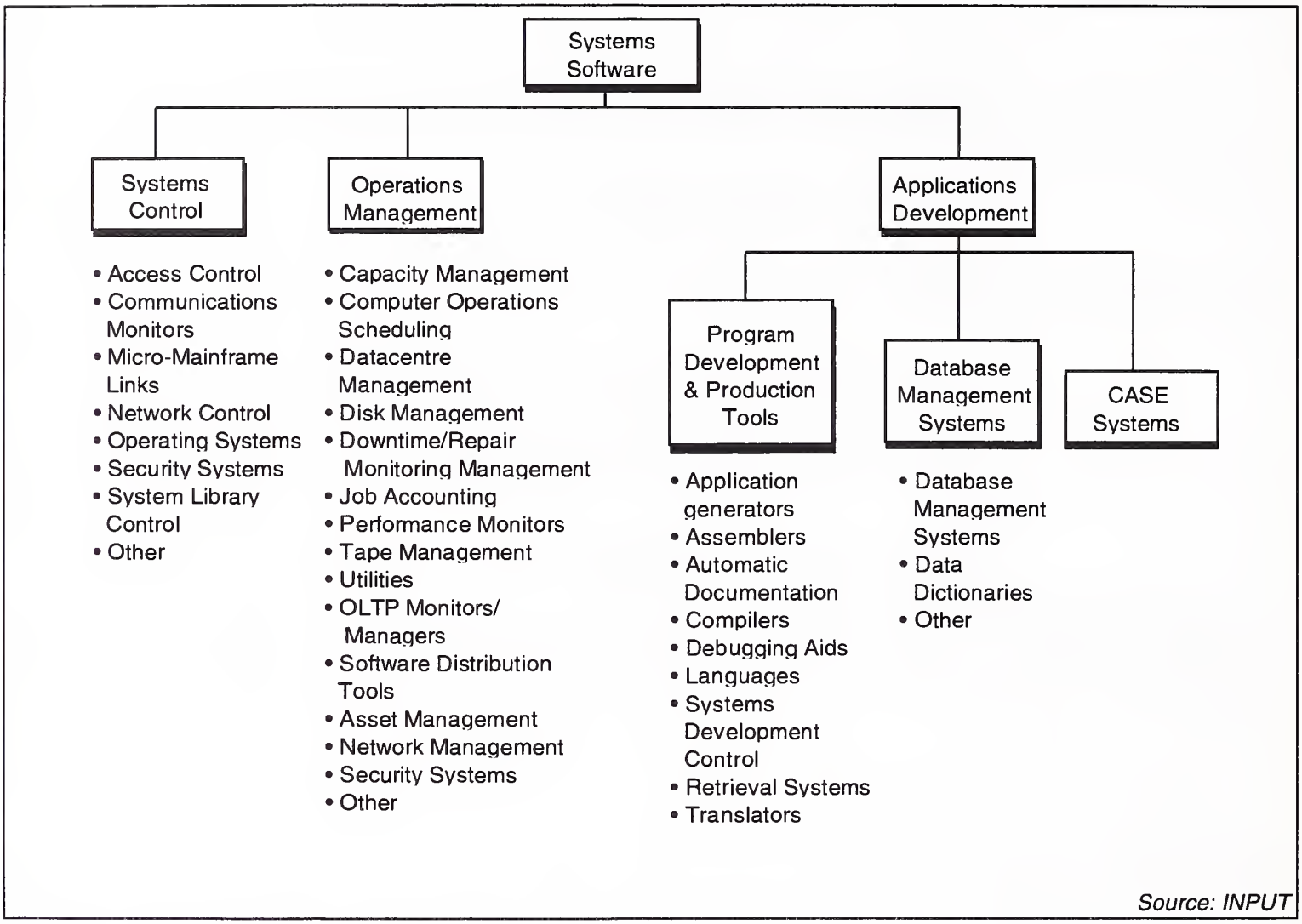
This segmentation defines the product categories which comprise system software.

This report segments the system software support market by operating software (operating systems, systems management software, middleware, and communications software), RDBMSs, and application development tools.

Exhibit I-3 illustrates INPUT's traditional segmentation of the system software market.

Exhibit I-3

System Software — Sector Analysis



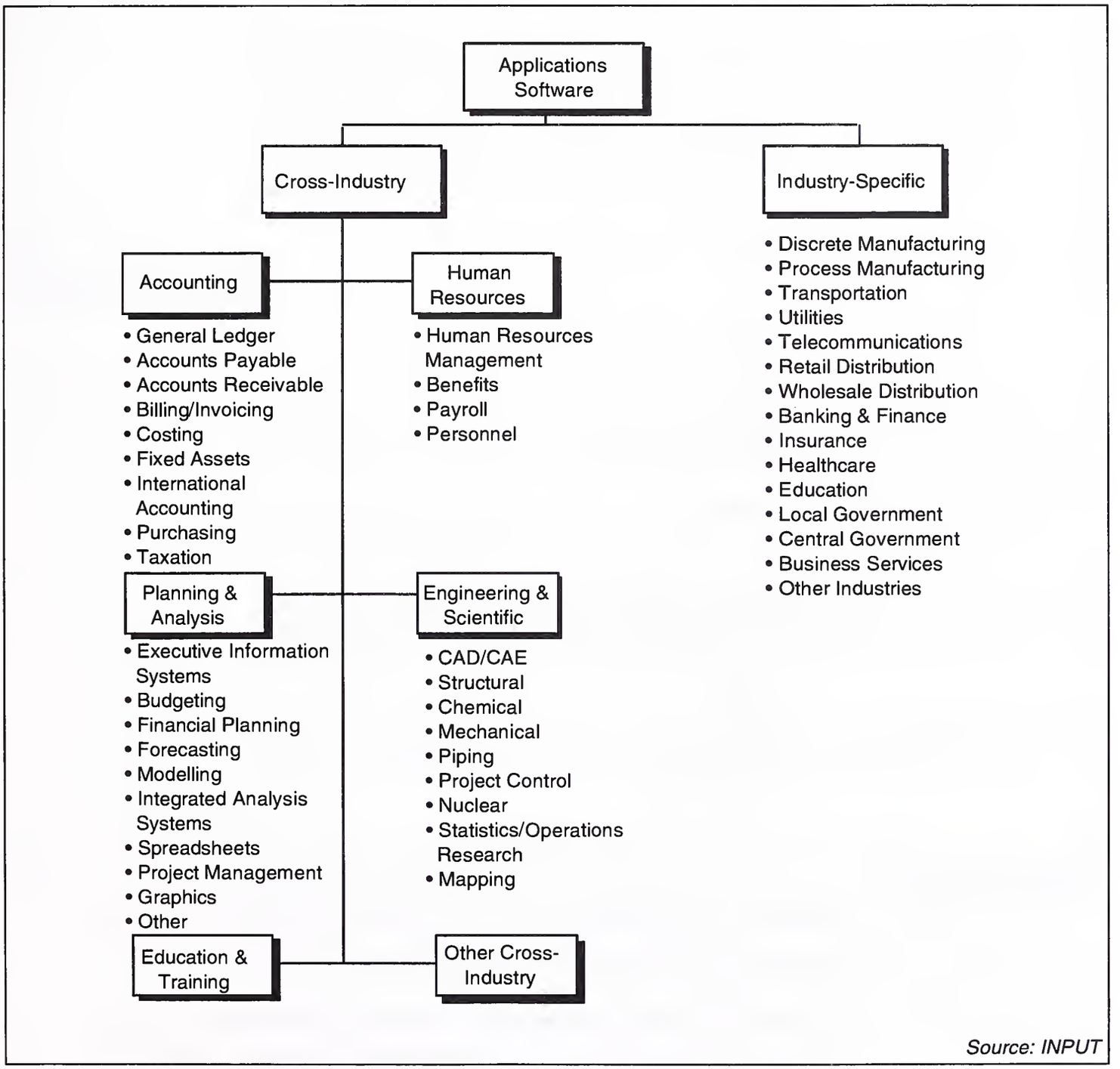
Source: INPUT

2. Applications Software Categories

Applications software products, are segmented by vertical and cross industry markets as shown in Exhibit I-4.

Exhibit I-4

Applications Software — Sector Analysis



Source: INPUT

3. Geographical Segmentation

Territories analysed are:

- Europe
- France
- Germany
- U.K.
- Italy
- Spain
- The Netherlands
- Sweden.

4. Hardware Platform Segmentation

Hardware platforms analysed are:

- Client
- Server
- Mainframe.

D Methodology

INPUT's methodology for market analysis and forecasting remains consistent with that used in previous years.

The research process is accomplished through interviews, the use of public data such as press articles and annual company reports and estimates by INPUT consultants.

This report is based on the following sources of information:

- A vendor research programme of interviews with over five hundred software and services vendors across Europe
- Secondary research from INPUT's corporate library
- Secondary research from online information sources

- Ongoing analysis of European software products and information services markets.

In previous years, it has not been possible to estimate IBM's software support revenues given that they have been bundled into the cost of products. However, INPUT has acquired sufficient information to estimate IBM software product support revenues which have been included this year.

E
Report Structure

The remaining chapters of this report are organised as follows:

Chapter II is an executive summary that provides an overview of the major issues relating to the European software product support market

Chapter III analyses the major trends that are influencing the software product support market

Chapter IV analyses trends relating to software product support in major product categories, namely operating software, RDBMSs, application development tools, and application software.

Chapter V provides commentary on the competitive environment in which software product support vendors operate, and the different types of vendor.

Chapter VI provides INPUT's estimates of growth in software product support markets over the period from 1996 to 2001 in Europe as a whole, Germany, France, The United Kingdom, Italy, Spain, The Netherlands and Sweden. The markets are analysed by system software, applications software, and hardware platform. The system software support market is further segmented by operating software, RDBMSs, and application development tools.

Chapter VII lists leading system and application software product support vendors in Europe as a whole, Germany, France, The United Kingdom, Italy, Spain, The Netherlands, and Sweden.

Appendix A lists the exchange rates and inflation assumptions used in the compilation of market forecasts in this report.

F
Related INPUT Research Reports

Recent INPUT reports which address topics related to the subjects discussed here include the following:

The Impact of the Internet on Software Support — Europe 1996

The Influence of Support on Software Product Selection — Europe 1996

The Future of IT Support — Multivendor Services in Europe 1995 - 2000

Help Desk Services Opportunities — Europe 1996

Vendor Software Product Support Strategies — Europe 1995

European Software Product Support, New Open Market Opportunities — 1994

II

Executive Summary

A
Vendors and Users Change the Focus of Software Support Services

Dynamic supply and demand side pressures are continually changing the nature of software product support services. Indeed, today's software support services focus less on reactive offerings such as problem resolution, upgrades and bug fixes, and more on pro-active support services which are akin to traditional consultancy services.

Furthermore, the industry continues to change as revenues generated by third party software support vendors account for an increasing proportion of the market. Meanwhile, demand-side pressures are encouraging vendors to promote pro-active business support services at the enterprise level and low cost support services to smaller organisations.

Against this background, INPUT research reveals that:

- The third party support market continues to offer new opportunities
- Vendors are increasingly attempting to climb the software support 'value chain' by focusing on pro-active software support services
- Vendors can be expected to increasingly extend the market, by using low cost channels such as the Internet and flexible pricing structures in order to target smaller organisations
- Multivendor, customisable software environments continue to drive user demand for software product support

- The support of application development tools and application software, in particular Enterprise Resource Planning (ERP) software, offer vendors the greatest opportunities.

B
Third Party Support Market Offers New Opportunities

Software product support spending in Europe will grow from a $5 billion market in 1996 to a $7.4 billion market in 2001 at 8% CAGR. This can be explained largely by the following supply and demand side factors:

- The installed base of software products is growing at a CAGR of 9%, leading to an increase in demand for software support services
- Profit margins generated from software products are falling, causing many vendors to unbundle the price of software support from the overall software product price in order to generate additional revenue streams
- Migration to client/server environments from mainframe environments is precipitating a demand for multivendor software support which is relatively expensive to provide
- Businesses are increasingly using customisable software products which require specialised software support services
- Support is now being used as a means of differentiating between commoditised software products
- Businesses are increasingly outsourcing support activities in order that they may focus on their core competencies and contain the costs of software support.

Support by third parties (i.e. vendors other than the original software publisher) currently accounts for 26% of the market and can be expected to account for 34% by 2001.

This can largely be explained by:

- The increasing cost of providing software support services
- The trend among many ISVs to focus on their core technology strengths and outsource less profitable support activities

- The emergence of organisations that provide high volume support services at relatively low unit costs

- The increasing popularity of using indirect sales channels as a means of targeting niche markets.

Many independent software vendors (ISVs) have opted to outsource reactive support activities to third parties.

Systems vendors account for most third party support activity. This can be explained by the fact that systems vendors have leveraged their multivendor hardware support infrastructures to enable them to additionally provide multivendor software support. Furthermore, systems vendors are focusing more heavily on services as both hardware and software products become increasingly commoditised.

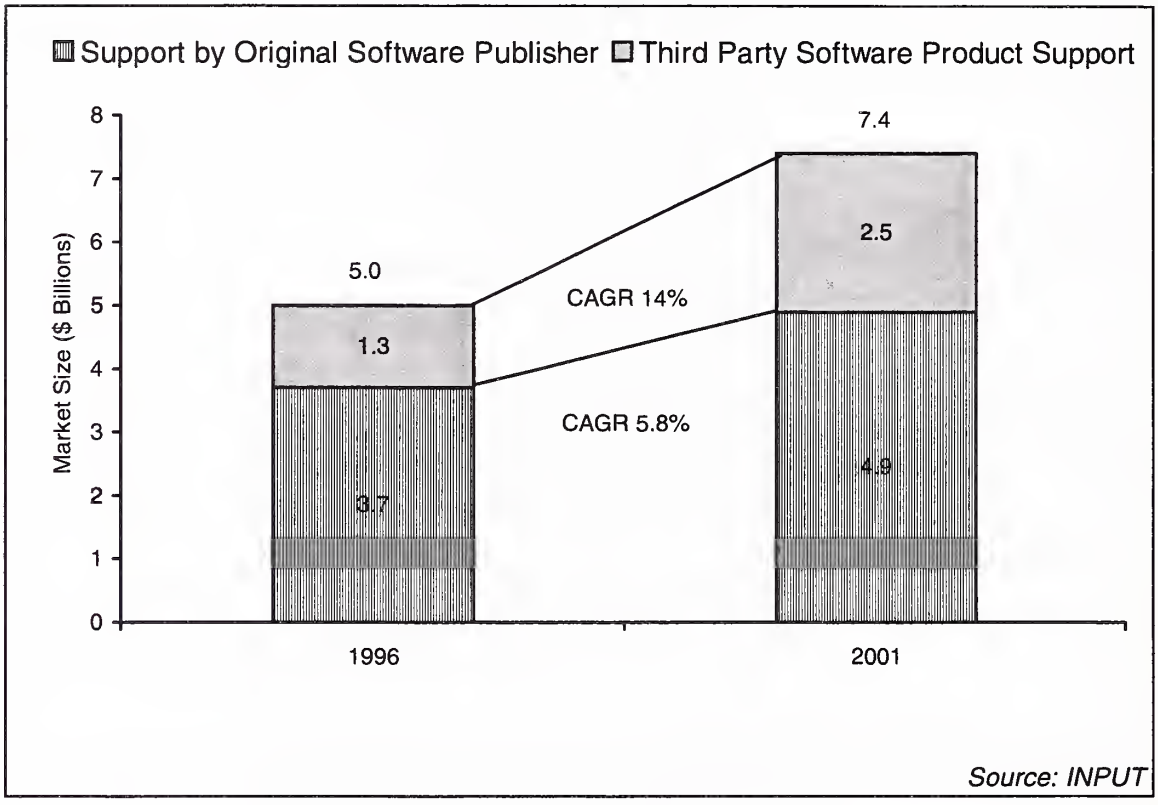
Several independent services vendors have emerged and developed a capacity to offer a high volume of multivendor software support at a relatively low unit cost. These include Stream, PSC-Softbank and Sykes.

In addition to the well-known examples of Microsoft, Novell and Lotus, several other major ISVs have outsourced support activities. Examples include Sybase which has outsourced its first line support to the independent services vendor Sykes, and SCO which has outsourced much of its support to Olivetti and ICL Sorbus.

The third party support market will be worth $2.5 billion by the year 2001 as illustrated by Exhibit II-1. Growth in this sector can be expected to be significantly higher than that in the non-third party sector as ISVs continue to outsource support activities.

Exhibit II-1

Growth in the Software Product Support Market Europe, 1996-2001

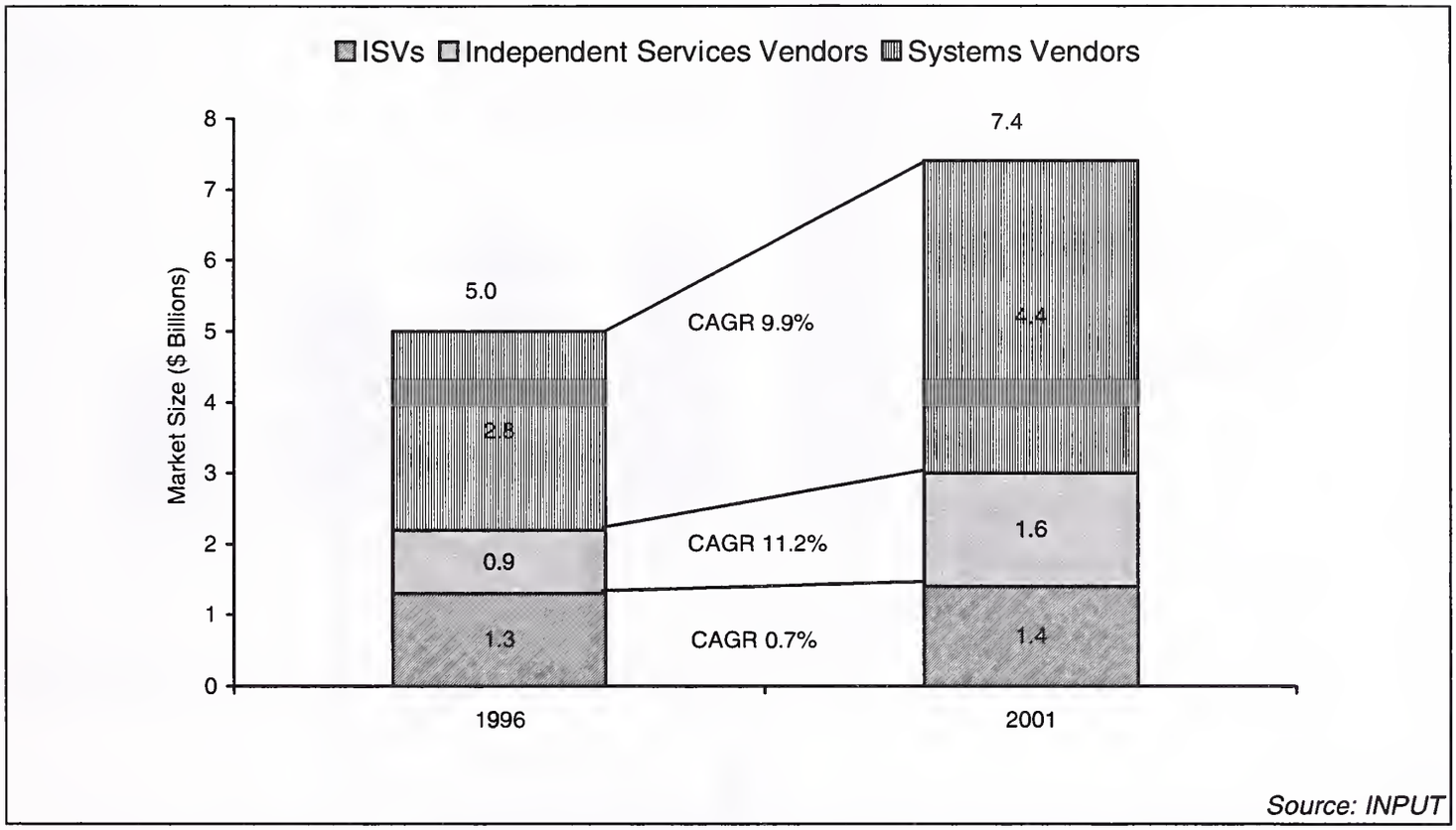


Source: INPUT

Exhibit II-2 reveals that systems vendors and independent services vendors will benefit from the growth of the software product support market (particularly the third party segment) largely at the expense of ISVs.

Exhibit II-2

Market Sizes by Vendor Type, Europe 1996-2001



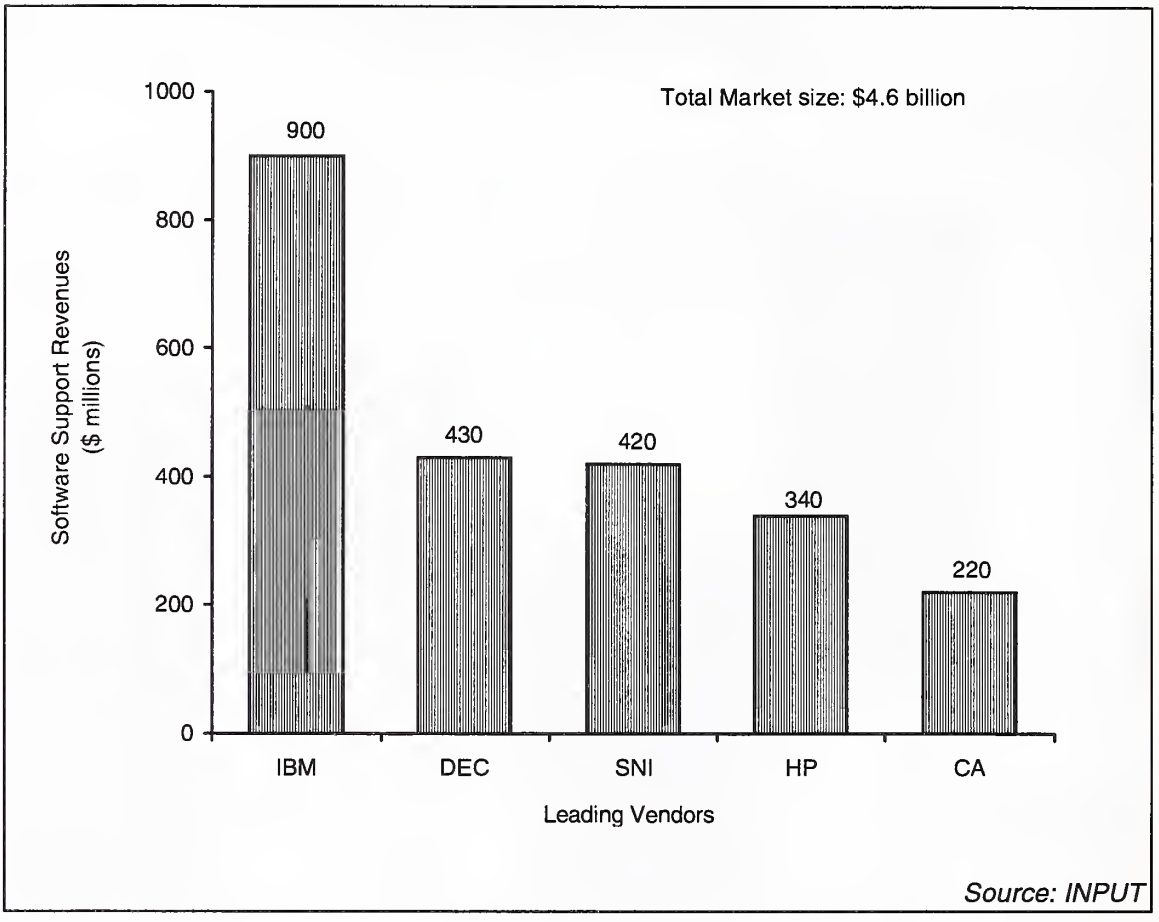
Source: INPUT

However, many ISVs have opted to retain support activities internally as one way of maximising their services revenues. They have made a strategic decision to build up their services infrastructures in order to benefit from opportunities to provide services around their increasingly commoditised products. Examples of such organisations include Oracle, Informix, Computer Associates, and SAS.

Computer Associates is the only ISV among Europe's leading five software product support vendors (see Exhibit II-3). Several large ISVs, such as Computer Associates and Oracle are ramping up their services infrastructures. However, it is unlikely that ISVs will offer the same high volume, low margin reactive support services as many systems vendors. They can be expected to invest in providing higher value services such as consultancy rather than invest heavily in huge call centres from which unit returns are diminishing.

Exhibit II-3

Leading Software Product Support Vendors, Europe 1995



Source: INPUT

C
Vendors Climb Software Support 'Value Chain'

The automation of first line reactive support services combined with economies of scale derived from providing high volumes of support at low prices is precipitating the commoditisation of many first line support services.

Furthermore, the growth of the market for support services centred around individual products is being inhibited as software products become more user friendly, more bug-free, more interoperable, and offer greater cross platform compatibility.

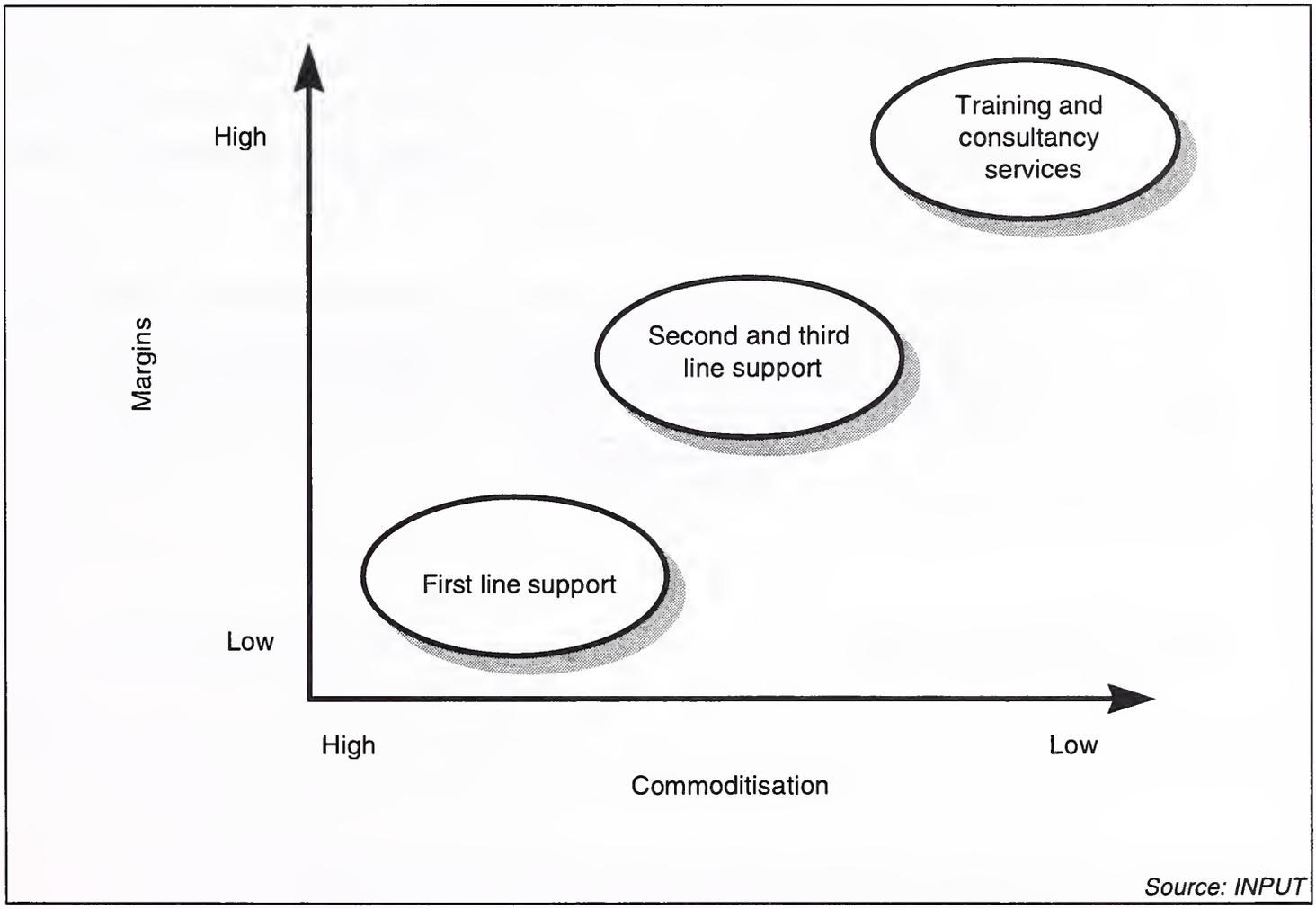
Consequently, demand (per product sold) for reactive support such as problem resolution is falling in conjunction with prices. Hence, support vendors are attempting to derive higher unit margins from second and

third line problem resolution, in addition to providing more pro-active support services such as, consultancy, and training services.

Exhibit II-4 illustrates the emerging 'value chain' of software support services. Services which are becoming commoditised such as first line problem resolution will offer less profitable opportunities in the near future.

Exhibit II-4

Software Support 'Value Chain'



Source: INPUT

Demand per product sold for first line support services is being further contained by the provision of pro-active support services such as early warnings and assistance with optimising software environments.

For example, the three major database vendors, Oracle, Informix and Sybase all now use the Internet as a channel for the provision of reactive, problem-related support services thus reducing unit margins on first line reactive support. However, all three companies are increasingly focusing

on, training, consultancy, and systems integration centred around their products as means of generating significant services revenues.

Reactive problem resolution services can now be offered cheaply and efficiently by electronic channels such as the Internet and CD ROM. Additionally, Computer Telephony Integration (CTI) and interactive voice recognition (IVR) technologies enable increased help desk automation which in turn, reduces the cost of first line support and provides customers with a more efficient service.

Pro-active support is usually incorporated into a vendor's most comprehensive and expensive support package. For example, Novell has recently introduced a set of pro-active customised support offerings as part of its *Premium* service which include product optimisation, pro-active analysis, early warnings and access to an account manager who is familiar with the customer's business.

Such pro-active services have existed for some time; however, vendors are now promoting them more aggressively in order to compensate for shrinking profit margins generated from reactive first line support activities.

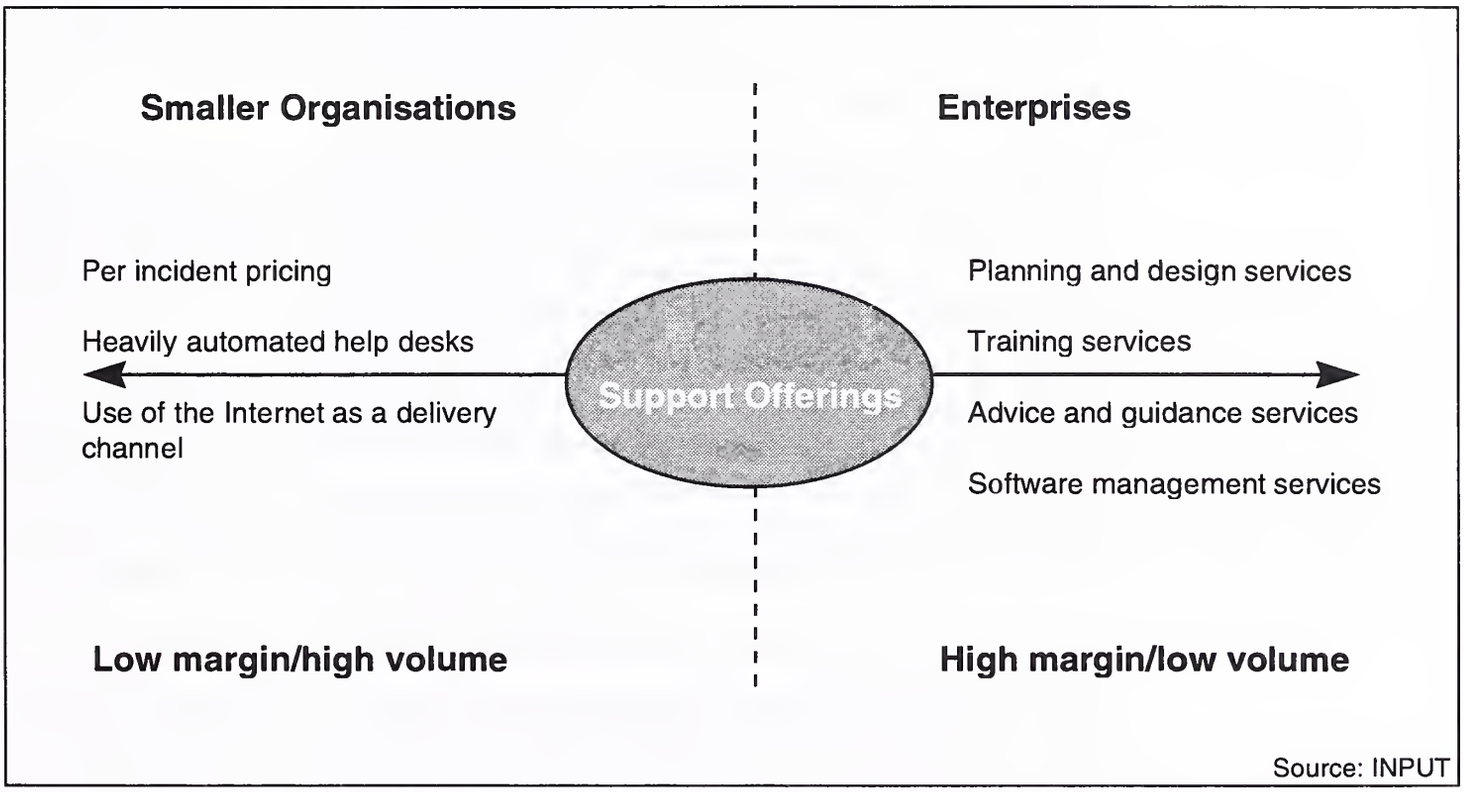
D

Vendors Respond to Market Extension Opportunities

Support vendors are increasingly extending their potential markets by matching demand for low cost reactive support from smaller organisations with cheaper support offerings, and matching demand from the enterprise for more business support with pro-active support services (see Exhibit II-5).

Exhibit II-5

Extending the Software Support Market



Source: INPUT

Many support vendors target their services at the enterprise and have little or no provision for smaller organisations or business units that fall into SOHO, SME, workgroup and departmental market segments.

However, some vendors have responded to demand from smaller organisations by offering cheaper support options. One of the most popular is the introduction of per incident pricing whereby the user pays for support each time the service is required. For example, Sybase have introduced per incident pricing. The company charge $175 per incident and the offering is targeted squarely at the departmental/workgroup market. Microsoft's *AnswerPoint* range of support offerings also includes per incident options.

The Internet offers vendors an opportunity to provide low cost support and distribution services to smaller organisations. For example, Stream International now has an electronic 'store' on the Web where customers can browse, purchase and download the latest version of the software of their choice. Additionally, Stream is charging users very low prices for support. Via the Web, users can send a message to a technical specialist and receive a response within 24 hours for $9.95. Users can enter a 'live chat' session with a specialist for $19.95 and receive a telephone call from a technician for $29.95 after requesting it via the Web.

Downloads of bug fixes and upgrades can also be offered cheaply, or free in the case of Microsoft via the Web. Other Internet support offerings include Microsoft's online support, Oracle*Mercury* and Sybase's *SupportPlus Online*.

The use of third party, high volume, support specialists is another means of containing the costs of providing support to smaller organisations. ISVs such as Microsoft, Sybase, Lotus, Novell and SCO use third parties for the support of software purchased by smaller organisations.

Unit profit margins are likely to remain very small when providing support via the Internet. However, the potential volume of customers and the falling costs of using Internet services, as well as the opportunity to eliminate other channels, promise a means of generating large amounts of revenue from markets that were hitherto almost completely untouched.

Conversely, enterprises typically demand personalised support from product vendors and express scepticism regarding sourcing support from alternative channels. In addition to reactive support, they demand pro-active support services involving services such as planning and design, consultancy, and software management. Indeed, such services are increasingly being perceived by enterprises as business support services. The relatively labour-intensive nature of this type of support engenders higher margins generated from lower volumes of service provision.

E

Customisable, Multivendor Software Environments Drive User Demand for Support

The complexity associated with today's software environments is triggering strong demand for multivendor software support services. Furthermore, many software products facilitate extensive customisation — an activity which invariably necessitates support.

The demand side pressures precipitated by customisable software and multivendor software environments are addressed below.

1. Customisable Software

The most significant opportunities lie in the support of applications software products that require extensive customisation to particular business processes such as SAP's R/3.

Professional services vendors have seized the opportunity to bundle support offerings into implementation projects for many business applications such as R/3. Offering support independently of any other IT service is less feasible for such products given that an understanding of the user's business is necessary in addition to an understanding of their existing software environment. Vendors such as Anderson Consulting and the outsourcing arms of the large systems vendors, for example, IBM ISSC, have become involved in the implementation and on-going support of SAP R/3 projects.

2. Multivendor Software Environments

The multivendor nature of software environments offers opportunities to vendors with strong multivendor capabilities. Many systems vendors and have invested heavily in in-house multivendor expertise in order to meet user demand for multivendor software support from a single point of contact. Examples includes Digital's Multivendor Customer Services (MCS) division, ICL Sorbus, Olivetti's OliService.

Some systems vendors have chosen not to focus on the provision of third party multivendor software support but instead only provide such support when their own product customers demand it. Such organisations typically form strategic alliances with vendors of products that run in a common environment and resolve problems collaboratively where necessary. Examples of such systems vendors include Sun Microsystems and Silicon Graphics.

F

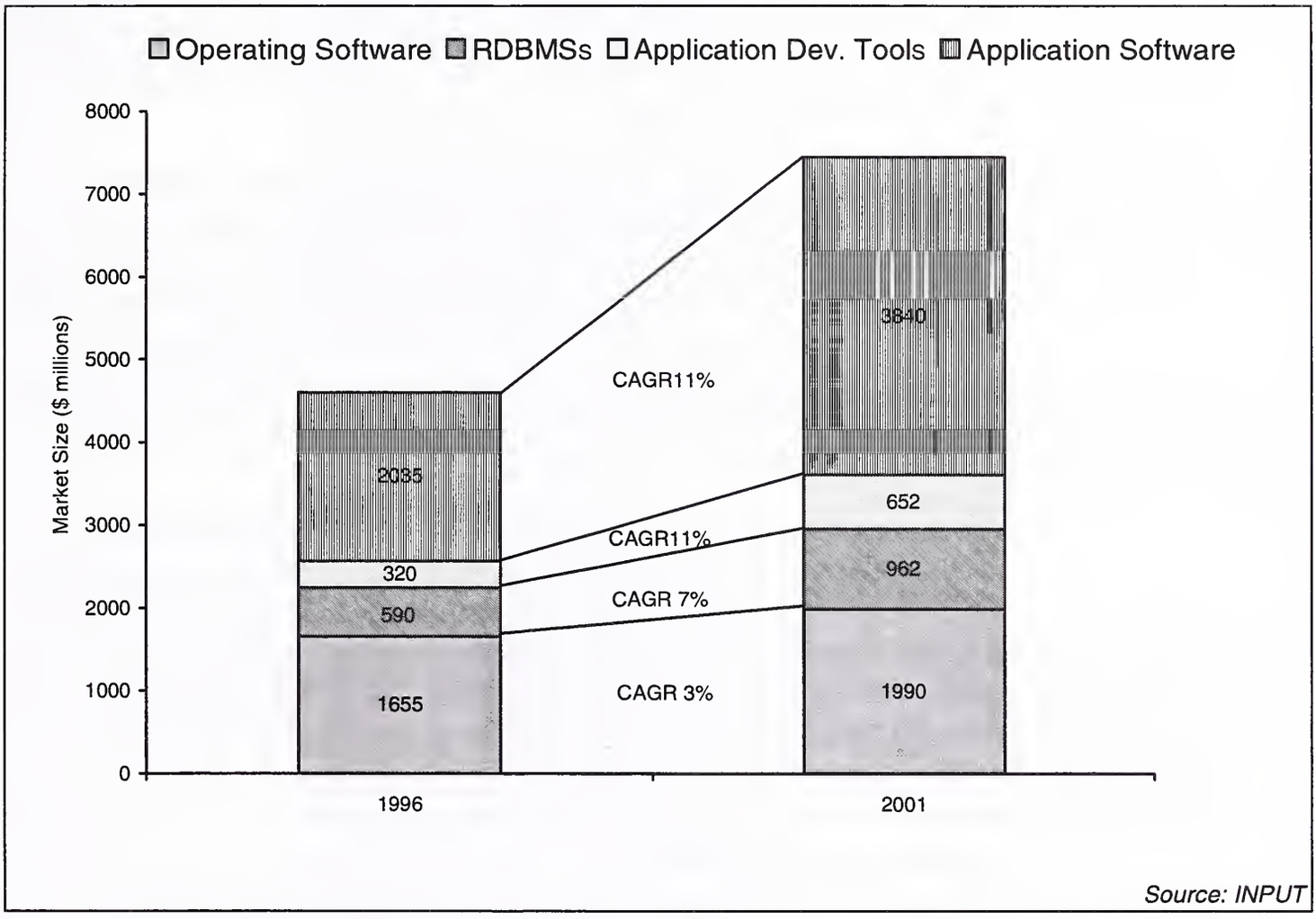
Applications Development Tools and Applications Software Offer Greatest Opportunities

Support packages for many system software products, including operating software (operating systems, systems management software and middleware) are becoming increasingly commoditised as vendors of such products increasingly utilise large call centres to deliver a high volume of low cost support for relatively robust products. This situation is compounded by increasing usage of the Internet as a support delivery channel. Indeed, similar pressures are inhibiting the growth of the RDBMS software support market. Despite, growth in the RDBMS product market of 10% CAGR between 1996 and 2001, the associated support market can only be expected to grow at a CAGR of 7%.

However, application development tools and application software products, particularly ERP software products are less commoditised and much consolidation has yet to take place in both market segments. Therefore, the skills required to support each individual product are scarce and more expensive. Consequently, the market for the support of such products can be expected to show relatively high growth (see Exhibit II-6).

Exhibit II-6

Software Product Support by Product Category, Europe 1996-2001



Source: INPUT

The following section analyses the market for server operating systems in more detail, followed by analyses of RDBMSs, application development tools and application software.

1. Server Operating Systems

Migration away from mainframes to client/server and Internet-oriented environments is leading to a change in the types of operating systems that are being most widely used. The installed bases of both multi-user Unix and Windows NT Advanced Server can be expected to increase significantly at 11% CAGR and 51% CAGR respectively between 1996 and 2001, largely at the expense of mainframe operating systems and Netware.

Microsoft actively encourages third parties to support NT which is leading to significant competition in the NT support market. The price of NT

support is therefore being contained, which is further strengthening the product's competitive position. Consequently, the NT support market will grow at 32% between 1996 and 2001 considerably lower than that for the product. However, this still heralds a massive support opportunity for third party support providers.

Multi-user Unix is becoming the standard high end server operating system and offers significant support opportunities. Its support market can be expected to grow at 4% CAGR which is significantly less than the growth rate for the product itself. Unix vendors can be expected to contain the costs of supporting their product as a means of responding to the competitive threat posed by NT. Additionally, Unix versions are becoming increasingly similar which augurs well for the prospect of a competitive Unix support market.

The market for Netware is stagnating as a result of NT's increasing functionality and increasing use of corporate intranets as a substitute for traditional LANs. Thus, support opportunities can be expected to follow suit. However, INPUT expects Novell and its partners to resist the competitive pressure to reduce support prices. Instead they can be expected to use support as a means of compensating for diminishing product revenues.

2. Multi-User Databases

The mainframe RDBMS market and the RDBMS market on other proprietary platforms such as AS400 can be expected to offer relatively few new support opportunities over the next five years. However, the Unix and NT RDBMS markets can be expected to offer significant support-related opportunities in the same timeframe.

Indeed, software support revenues for RDBMSs running on a Unix platform can be expected to grow at 9% CAGR and support revenues generated from RDBMSs running on NT can be expected to grow in excess of 80% CAGR between 1996 and 2001.

NT is opening up opportunities for the support of RDBMSs in workgroup/departmental markets where Netware once dominated. Netware was never an ideal platform for RDBMSs; however, RDBMS vendors are now producing NT compliant software products which are proving highly successful.

3. Application Development Tools

The market for application development tools support will grow at 11% CAGR between 1996 and 2001.

This healthy growth can be explained by demand for specialised tools which are used to develop and customise applications. Businesses are increasingly demanding software environments which match their unique activities. This necessitates highly specialised and hence highly profitable support services centred around optimising software environments for specific business processes.

Third party support opportunities are increasing in this area, many of which are stimulated by Microsoft. Microsoft's Visual Basic dominates low end application development — a product which Microsoft has encouraged third parties to support.

4. Application Software

The market for application software support will grow at a CAGR of 11% between 1996 and 2001. Application software product vendors are responding to falling product margins by offering support services that add value to businesses. Initial training and consultancy services are enabling businesses to optimise the use of applications and carry out business processes more effectively.

Support centred around PC applications will offer relatively few new opportunities over the next five years as ISVs find ways of reducing the cost of ownership of their products by adding intelligent installation facilities to their products, offering CD-ROMs with problem databases and offering increasing volumes of reactive support over the Internet.

However, the support of ERP software products offers a much greater opportunity to support vendors, in particular systems integrators. Indeed, systems integrators are increasingly implementing ERP projects for vendors such as SAP, Baan, PeopleSoft and Oracle. Vendors such as Anderson Consulting and IBM ISSC can reap significant returns from the ongoing support of ERP implementations.

ERP products offer vendors the opportunity to provide higher value support services such as consultancy and software management services, given that the software is normally deployed in business critical environments where demand for such services is greatest.

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III

Major Trends in Software Support — Europe 1996-2001

This chapter examines the major trends that are influencing the European software support market.

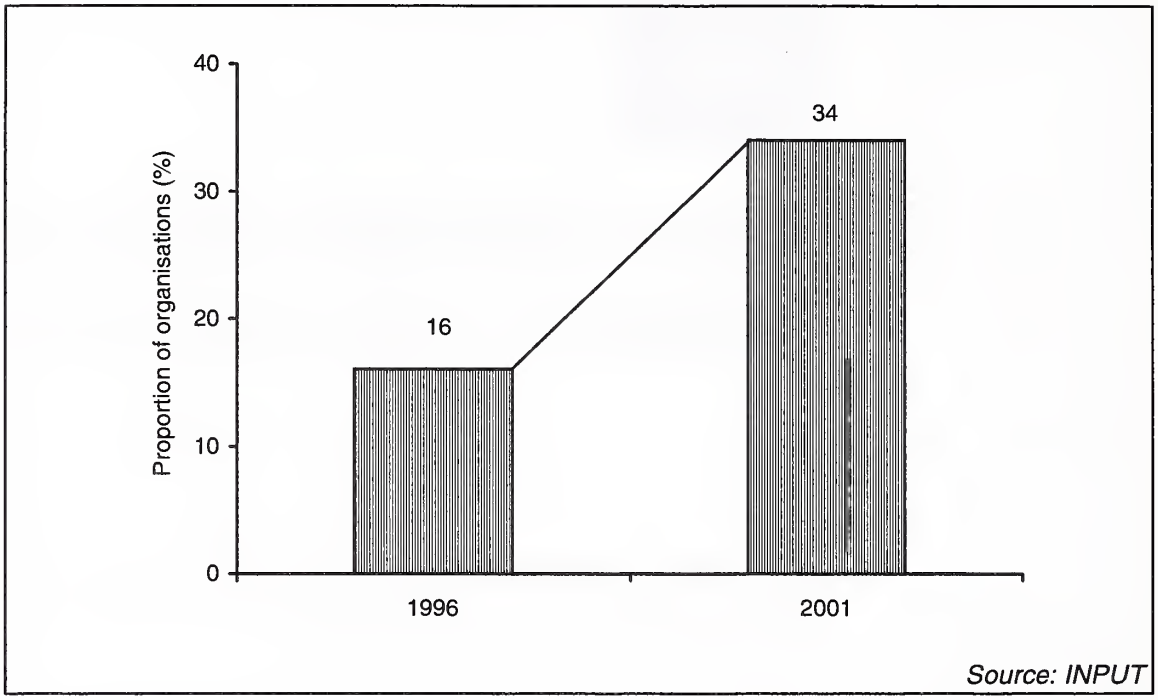
A
Users Increasingly Source Software Support Externally

The complexity of multivendor, networked software environments is stretching the internal capabilities of user organisations. In response to this pressure, organisations are sourcing an increasing proportion of their support externally, from help desk support to consultancy services. Traditionally, IT managers have attempted to maintain control over help desk activities and have provided as much help desk support as possible internally.

INPUT research reveals that over one third of businesses will outsource IT help desks by the year 2001 (see Exhibit III-1).

Exhibit III-1

Proportion of User Organisations Outsourcing Help Desks



Source: INPUT

IT managers would typically have only contacted an external support vendor when all internal avenues had been exhausted. Today, user organisations are keen to contain their IT expenditures and perceive external organisations as more capable of offering value for money than elaborate internal support infrastructures. Thus, support vendors are both filling in the gaps where support was provided internally and offering a whole raft of additional support services.

B

Help Desk Automation Reduces the Costs of Support Provision

The use of help desk management software incorporating problem resolution databases, enables organisations to automate interactions with customers in real time.

Effective implementation of help desk software is currently one of the hottest issues for software support vendors since it is capable of delivering:

- Cost reduction
- Rapid problem resolution
- Call avoidance.

For user organisations, the cost of providing support is increasingly raising software ownership costs.

Typical cost benefits of automating a call centre include a return on investment in under one year, and the reduction of software product support costs by up to 40%.

Exhibit III-2 illustrates INPUT's estimates of the costs that are typically incurred by the resolution of first, second and third line support calls. First line calls are those that can be resolved almost immediately by the customer's first contact. Second line calls typically require a technical specialist to analyse the problem and suggest a workaround. Third line calls normally require a developer to change code.

Exhibit III-2

Software Problem Resolution

Problem	Average Cost of Resolution
First Line	$40
Second Line	$150
Third Line	$800

Source: INPUT

These costs can be reduced by storing answers to problems in a database. This function can be carried out relatively simply through the use of many of today's help desk software products. Given that an estimated 80% of all support calls are repeat calls, the benefits of this process are potentially enormous.

The effective utilisation of computer telephony integration (CTI) enables call centre support consultants to access customer profiles immediately, giving support staff complete knowledge of the customer-to-company relationship.

The use of text retrieval mechanisms, decision trees and case based reasoning (CBR) enables support consultants to input details of a problem into their automated support system. If the problem has occurred previously, a solution should appear almost immediately. Relatively complex problems that might have previously required days to resolve can therefore be resolved in minutes.

A high rate of first line problem resolution reduces staff costs, as more expensive second and third line support becomes unnecessary. If a problem becomes frequent, support staff can adopt a pro-active approach by anticipating which customers are likely to encounter the problem, and preventing the problem from occurring. Additionally, learning curves for support staff are reduced as support consultants can utilise databases with pre-loaded expected questions and answers. This, in turn, reduces training costs.

Furthermore, early problem detection can be rapidly fed into the software product development cycle so enhancing software products.

INPUT estimates that help desk automation can reduce overall problem resolution times by around 75% after one year.

Problem resolution databases facilitate quicker response times and higher rates of problem resolution at the first point of contact.

Highly automated call centres can exploit interactive voice recognition (IVR) technology and CTI to start and finish problem resolution in call waiting queues, thus minimising problem resolution times.

Second and third line solutions can be stored in databases. Hence, INPUT estimates that automated support centres can typically expect an 80% increase in the number of calls resolved on the first call a year after implementation.

Faster problem resolution will increase customer satisfaction which perhaps surprisingly will increase demand for support. INPUT research indicates that satisfied customers are more likely to re-use support services. An increase in support calls is not necessarily caused by an increase in problems. Instead users may find the support services favourable and opt to use them more frequently.

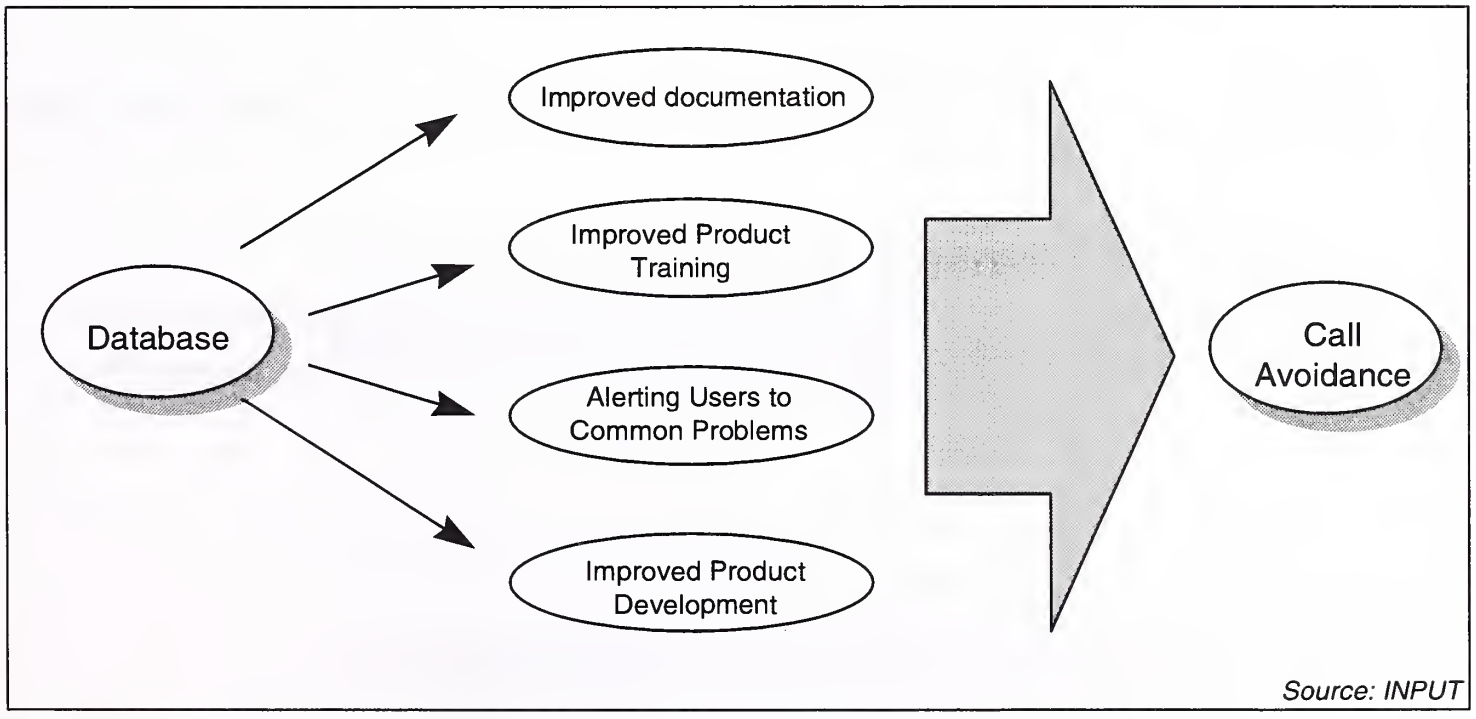
In order to minimise user support requirements, support vendors can exploit problem databases to reduce call volume. Exhibit III-3 illustrates the benefits that can be derived from call avoidance.

Common problems can be monitored and resolutions incorporated into product training and documentation. New knowledge can be used to alert users of possible problems, thus minimising their support requirements.

This additional information can then be fed into product development cycles, hence contributing to product enhancements.

Exhibit III-3

The Benefits of Call Avoidance



INPUT expects call centre technology to be integrated with other important business functions. The integration of help desk software with systems management, asset management, change management, and configuration tools offers help desk managers increasing levels of

sophistication in automated problem resolution and the implementation of corrective actions.

Indeed, identification of the most commonly occurring problems offers the opportunity to implement automated pro-active support tactics, in other words, fixing the problem before it occurs.

Vendors that take a holistic view of the benefits of call centre automation will gain a competitive advantage through exploiting the synergy between problem resolution and other critical functions such as software development and asset management.

C
Electronic Delivery Channels Drive Down Support Costs

The widespread adoption of new technologies has offered vendors new support delivery channels. These include

- The Internet
- CD ROM.

1. The Internet

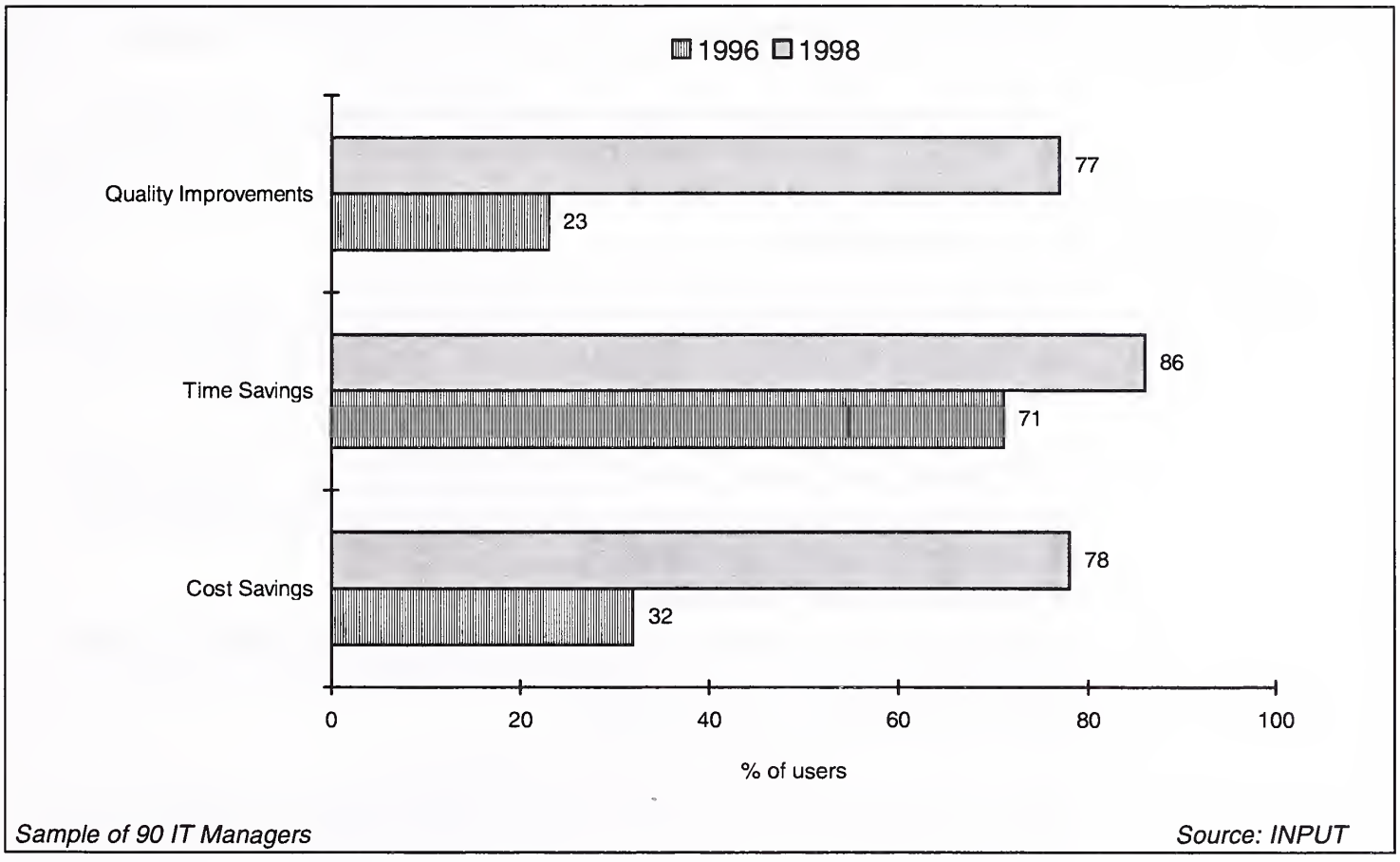
Recent INPUT research reveals that users are becoming increasingly aware of the benefits of using the Internet for software support. The major benefits are:

- Time savings
- Cost savings
- Improvements in the quality of support offered.

Exhibit III-4 illustrates the proportions of users who believe that the Internet can deliver the aforementioned benefits when used for software support now and in the future.

Exhibit III-4

Proportion of Users Perceiving the Benefits of Internet Support



Sample of 90 IT Managers *Source: INPUT*

Software support contracts are perceived by many users as being expensive. Vendors have an opportunity to meet user price expectations by offering standard (first line support) support services over the Internet. Standard Internet support offerings could include:

- Upgrade availability
- Bug fix/patch availability
- First line problem resolution using email, discussion forums, WWW pages and frequently asked question (FAQ) databases.

The advantage of this situation is that vendors can sell cheap standard support services via the Internet to a much wider market. The variable costs of offering such support are low, enabling vendors to charge a fraction of their current prices for their cheapest support packages.

At present, many users, in particular SOHO users, are unable to afford support contracts that meet their needs. Vendors can expect to benefit from demand for cheaper support from the growing SOHO market.

Vendors can additionally charge a premium for higher value support services, such as more complex problem resolution (second and third line problem resolution), on-site support and initial training, which are more expensive to provide.

Use of such Internet support services will reduce call volumes for product vendors such as Microsoft and its partners. In effect, the Internet will increasingly complement existing support delivery channels.

Importantly, automated support over the Internet can only adequately offer first line problem resolution. Second and third line support will require access to support consultants.

Furthermore users reveal that in the near future they expect to replace many of their current, more traditional support services with support services delivered over the Internet.

Exhibit III-5 illustrates commonly used support delivery mechanisms at present and Internet equivalents which will become more commonly used.

Exhibit III-5

Internet Substitutes for Traditional Support Delivery Mechanisms

Support Service	Traditional Delivery Mechanisms	Internet Equivalents
Problem Resolution	Telephone; on-site support consultant	Email; WWW; Discussion forums; FAQ databases; Remote problem resolution
Installation	On-site support consultant	Remote installation
Upgrades/Bug Fixes/Patches	On-site support consultant; purchase directly from product vendor outlet and install	Remote upgrade; download upgrade and install
Initial Training	Training takes place on user site or at vendor site	Computer based training

Source: INPUT

Most support vendors view Internet channels as complementary to their existing delivery channels. However, as users source increasing volumes of support from the Internet, the need for first line support delivered by complementary channels will be reduced. Users will increasingly source first line software support from the Internet.

Widespread Internet usage will enable support vendors to deliver their support services to a larger market than ever before. Additionally, product vendors can potentially enjoy the benefits of delivering support and avoid many of the disadvantages. The product vendor can benefit from:

- Generating additional revenue
- Reduce the costs of providing support
- Providing support to more product customers.

In addition, vendors can use customer feedback to:

- Enhance software products
- Improve product documentation
- Improve product training
- Alert users to common problems
- Incorporate customer feedback into other business activities where appropriate, such as asset management.

Furthermore, product vendors can contain the following problems associated with providing support:

- Costs involved in employing large numbers of support staff
- Costs involved in investing in call centre infrastructure
- Difficulties in offering affordable support to SOHO users.

Given that software can be distributed via the Internet, in addition to many support functions, support vendors that do not offer second and third line multivendor support expertise could find themselves in a difficult position.

Much of the most complex problem resolution activity and initial training will continue to be critical high value support services that can only be delivered using traditional methods. Service vendors and channel players will therefore still have an opportunity to exploit these opportunities using traditional support channels.

Customers of many systems vendors have become accustomed to receiving point to point support services such as remote diagnostics. Such services involve establishing a single, direct link between the vendor's site and the customer's machine.

However, an increasing number of support vendors, in particular systems vendors, can be expected to replace such point to point support services with Internet support services. The Internet offers vendors the opportunity to implement 'one to many' remote support services as opposed to 'one to one' remote support.

2. CD ROM

Increasingly, vendors are supplementing their support offerings with CD ROM knowledge bases.

For example, Microsoft invites customers to subscribe to their TechNet offering which entitles them to a CD every month containing the latest technical information regarding Microsoft products. It includes:

- Current technical notes
- Microsoft Resource Kits
- The entire Microsoft Knowledge Base.

Additionally, Microsoft provide a second disk containing its most recent drivers and patches.

D

Software Product Commoditisation Leads Vendors to Generate Revenue from Support

The software product market has become increasingly competitive which has precipitated the following:

- Falling software product prices
- Escalating development costs
- Declining profit margins
- Market consolidation, with large vendors like Microsoft and Oracle dominating the market
- Little differentiation between competing products.

Consequently, software products are becoming increasingly commoditised

Vendors have responded by charging for support separately from the product. The cost of support has increased and vendors offer a wider choice of support services than ever before. Additionally, many vendors view support provision as a means of differentiating their products.

E

Complex, Multivendor Software Environments Precipitate Increased User Demand for Support

Client/server computing delivers greater flexibility to enterprises in the form of distributing information and user empowerment. However, it is costly and complex to support. For support personnel, such environments are characterised by:

- Disparate, isolated LANs
- Multiple platforms, applications and standards
- Software products sourced from many vendors
- Support infrastructures becoming unable to cope.

Enterprises frequently purchase support contracts from numerous vendors, none of whom have a full understanding of the systems to be supported. User research has consistently revealed that users wish to source support for all of their software environments from one source.

Therefore, support vendors must offer multivendor expertise and satisfy all other user needs for the support of business critical client/server systems. Such offerings are expensive given the costs of providing them. However, upward pressure on the cost of providing support drives the support market in revenue terms and encourages price competition.

Importantly, given that each client/server environment is unique, vendors must introduce flexibility into their support offerings.

Demands for multivendor support are being met by partnering in two ways:

- Develop own multivendor expertise
- Route third party support issues to partners.

1. Internal Multivendor Expertise

Many large vendors have the necessary internal resources to provide extensive multivendor expertise. Many such companies choose to focus significantly on services provision and succeed in generating healthy revenues from support.

Systems vendors such as IBM, H-P, Digital, SNI, Olivetti, ICL Sorbus and Unisys have strong services divisions and offer multivendor support services. The companies have partnered heavily with other vendors and trained their own staff to support products sourced from their partners. The ability the offer 'one stop shopping' has reaped dividends for the aforementioned organisations.

2. Route Calls to Appropriate Partners

The other major approach for dealing with user demand for 'one stop shop' multivendor support is to take ownership of a problem when a call is made, isolate the problem and if it relates to a partner's product, route it to the partner in question.

Many vendors such as Sun and Oracle favour this approach. Both are members of the TSANet (Technical Support Alliance Network) which is a collection of vendors who agree to route problems to one another if

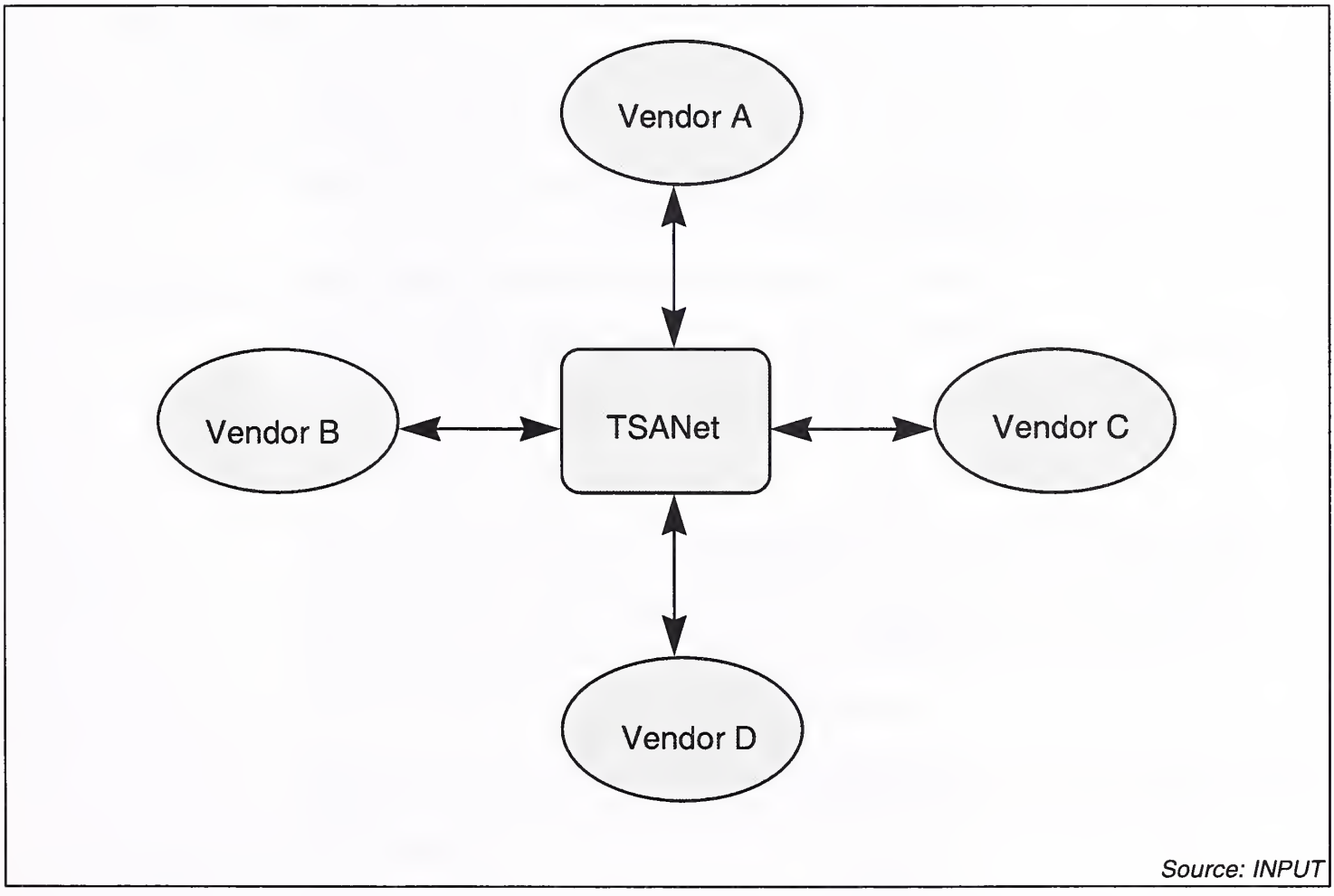
necessary, thus enabling themselves to act as 'one stop shops' but without the internal multivendor expertise.

How does TSANet Work?

Essentially it enables customer problems relating to a member's product to be resolved from a single point of contact (see Exhibit III-6).

Exhibit III-6

Co-operative Support



Source: INPUT

Resolving a problem using TSANet begins with a customer reporting a problem to Vendor A. Vendor A determines that the problem relates to products sourced from Vendor B and C. Since all three vendors are members of TSANet, Vendor A contacts vendors B and C to isolate the issue. The problem is identified and the original vendor (Vendor A) contacts the customer with the solution.

TSANet offers three major benefits:

- Vendors accept ownership of calls
- Raises customer satisfaction levels
- Lowers the costs of providing support.

TSANet members accept ownership of customer calls which eliminates 'finger pointing' among vendors. Members work together to solve the customer's multivendor problem and the initiative engenders cross product training and information exchange. The initiative is not dominated by any one vendor for the benefit of any one vendor nor is it designed for those who wish to offer third party support. It is an organisation for product producers only, enabling them to resolve multivendor support problems.

In the U.S., there are over 70 TSANet members and the numbers are constantly growing. Currently U.S. members include:

- Borland
- Digital
- Hewlett-Packard
- IBM
- Informix
- Microsoft
- Novell
- Oracle
- Unisys.

Nine vendors have so far become members of TSANet in Europe:

- 3Com
- Banyan
- ICL

- Lotus
- Madge Networks
- Novell
- Olivetti
- Oracle
- SCO.

However, if a vendor has become a TSANet member in the U.S. but not in Europe, European members can contact U.S. members when necessary.

Each member nominates three support consultants as authorised callers. Authorised callers are listed in the TSANet database, hence the receiving organisation can verify the authority of the caller.

Annual membership to TSANet in Europe costs $4,500. An additional $1,500 is charged for each additional site.

3. Product Customisation

Most software products facilitate some degree of customisation. Indeed, many enterprise applications suites are designed to be customised for particular cross and vertical industry functions. For example, SAP's and Baan's Enterprise Resource Planning (ERP) applications suites can be customised for most business activities.

Highly tailored software products require, highly tailored support services which cover not just the core product but also add-ons and bespoke enhancements.

For example, supporting Lotus Notes implementations offers a growing support opportunity as users invariably customise it to suit specific collaborative working environments.

The Notes-related software support market can be expected to exhibit significant growth as demand strengthens largely due to the increasing complexity of Notes implementations precipitated by customisation.

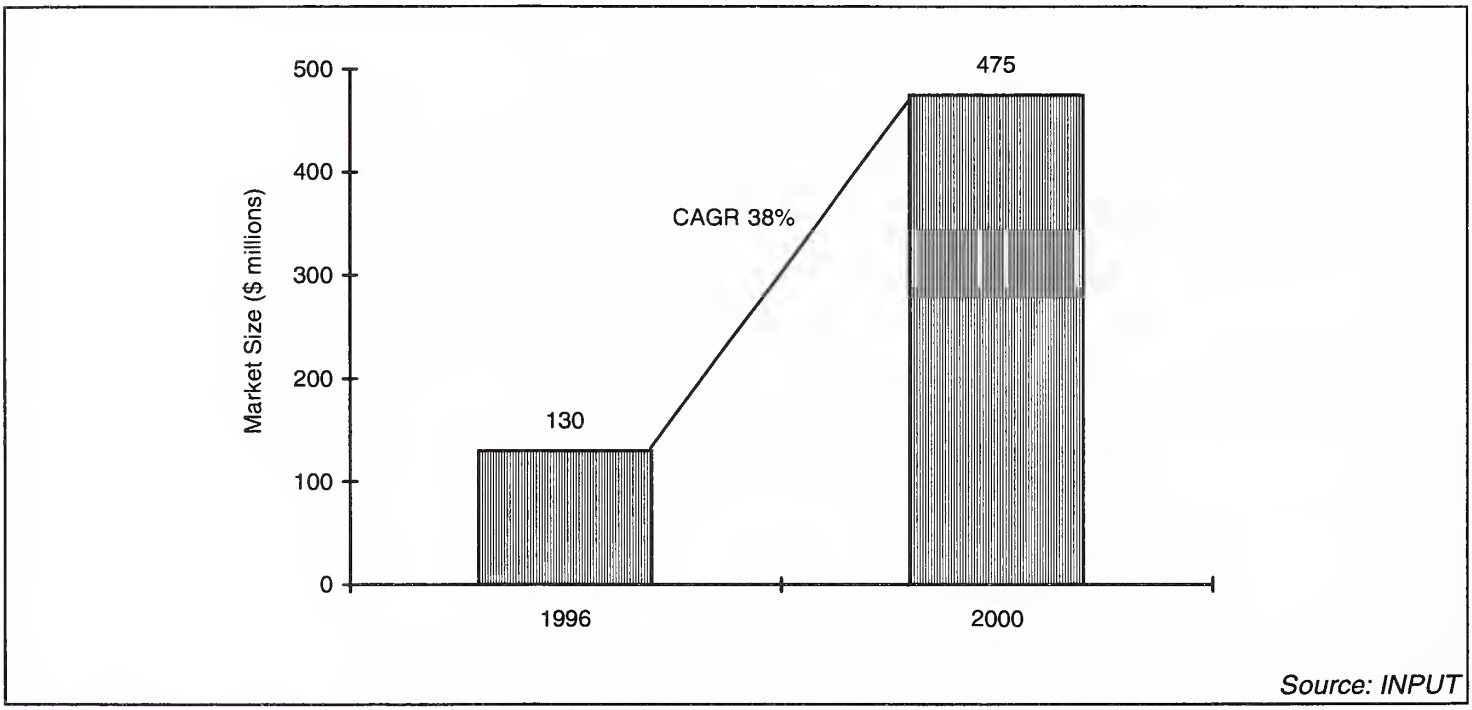
INPUT estimates that the market size for the support of Notes-related software in Europe, which includes Notes client and server and add-on

products sold by third parties, is currently $132 million. It can be expected to:

- Grow at 38% CAGR between 1996 and 2000
- More than treble in size by the year 2000 (see Exhibit III-7).

Exhibit III-7

Notes-Related Software Support Market, Europe 1996-2000



Source: INPUT

F
Market Inhibitors

1. Help Desk Automation and Electronic Delivery

In addition to acting as a driver for the software product support market, help desk automation also inhibits revenue growth.

Given that automating help desks lowers the cost of providing reactive support services, the revenues generated by vendors for such services will decline. Stiff price competition will also be encouraged by such facilities, as users increasingly require fast, efficient and cheap reactive support services.

The use of the Internet and other electronic delivery channels is also a low cost means of delivering support. Users can be expected to increasingly seek first line support from frequently asked question (FAQ)

databases and to download bug fixes and upgrades. This will act as a form of preventative support in the sense, that these channels will filter out many callers, and call volume will fall. Essentially, the calls that are received at help desks will be more complex in nature and will require more time to resolve.

2. Reactive Support Services Become Commoditised

In addition to the effect of automation, the market for reactive support is being inhibited by changes to software products. Individual products require less reactive support as they become more user friendly, more bug-free, more interoperable and offer greater cross platform compatibility.

The natural corollary of these inhibitors is the commoditisation of reactive support services. Less reactive support will be required and, when it is provided, it will be cheaper and will be delivered increasingly frequently by electronic channels.

3. Focus on Product and not the Business

As software automates more business processes from accounting to supply chain management, enterprises require more support for the business process as opposed to the product. Most vendors focus heavily on technological issues relating to products which does not closely match user requirements. Users will increasingly substitute technical support services with consultancy services that are focused on the business.

4. The Internet as a platform

The Internet faces many challenges before it will be perceived as a viable platform for business critical applications including security concerns and bandwidth problems. However, Internet-based applications will change how vendors offer support. Software will increasingly be managed at a central site by vendors. This will reduce the cost of support and users' perceived need for support, thus constraining the market for software product support further.

5. Customer Dissatisfaction and Poor Image

Competing successfully in the market for software support will be enhanced by effective marketing of support services and the provision of those services in an efficient and cost-effective manner.

Customers still remain sceptical about support services, largely as a result of past experience, but also because of negative media coverage. Hence, more innovative marketing strategies will be required by serious players.

G
User Environments

User environments vary in size and complexity. Smaller user organisations can rarely afford the cost of supporting client/server environments. Many such organisations have either neglected to fully support their software environments or have not switched to the technology that suits them due to concerns about support and maintenance.

Many enterprises, however, have demanded ever more comprehensive support services in order to fully reap the benefits of their client/server implementations. Moreover, they are typically willing to pay the high price of fully supporting their software environments.

Vendors have begun to respond to the support services targeted at SOHO/SME environments by offering a wider range of support services that are priced to suit all potential customers. Vendors benefit by exploiting hitherto neglected markets. Many vendors such as Sybase, Oracle, and Microsoft have started to offer support services specifically targeted at SOHO/SME users. Offerings typically include:

- Electronic delivery of bug fixes and upgrades
- Email problem resolution enabling users to track the progress of their queries
- Access to FAQ databases with information that can resolve an estimated 85% of problems
- Per incident pricing which allows users to pay for each problem involves the use of the telephone.

Vendors make lower margins when providing support to smaller organisations. However, the potential volume of support packages that could be sold far outweighs concerns about profitability. Many systems vendors, and independent services vendors such as Stream, PSC-Softbank, Sykes and McQueen specialise in providing high volume, low cost support to smaller organisations. Concurrently, many ISVs outsource

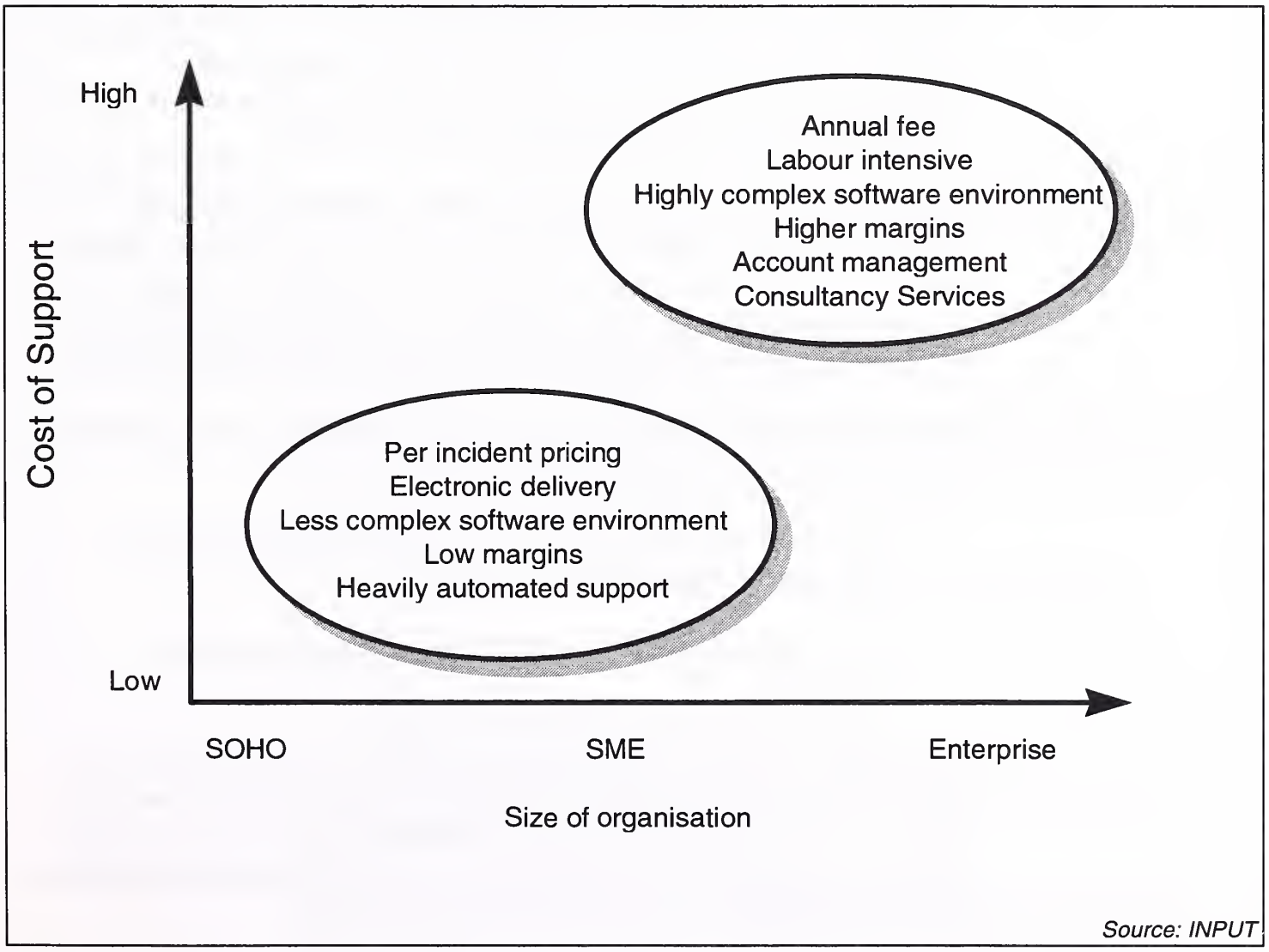
reactive support services to such organisations. Sybase, Adobe and Microsoft are examples of organisations that heavily use third parties for the support of SOHO/SME environments.

Enterprises typically demand support from the original product vendors and express scepticism regarding sourcing support from third parties. In addition to reactive support, they demand pro-active support services involving account management. This often encompasses planning, design and consultancy services around the products in question. The relatively labour-intensive nature of this type of support engenders higher margins which can be generated by charging an annual fee for support.

Exhibit III-8 illustrates the typical differences between support offered to the enterprise and that offered to smaller organisations.

Exhibit III-8

Supporting Organisations of Differing Sizes



Source: INPUT

H
Moving Up the Value Chain

The automation of first line reactive support services combined with economies of scale derived from offering high volumes of support at low prices is engendering the commoditisation of first line support services.

Vendors are responding to this commoditisation by:

- Climbing the support 'value chain'
- Providing pro-active advice and guidance services
- Improving training provision.

1. Vendors Climb the Support 'Value Chain'

Market growth for support services centred around individual products is being inhibited as software products become more user friendly, more bug-free, more interoperable, and offer greater cross platform compatibility. Furthermore, economies of scale and automation are reducing the costs of providing many support services.

Consequently, demand per product sold for reactive support such as problem resolution is falling in conjunction with prices. Lower margins in this area are driving vendors to attempt to derive higher margins from second and third line problem resolution, in addition to providing more pro-active support services such as, consultancy, and training services.

Demand per product sold for first line support services is being reduced by the following pro-active support services:

- The use of electronic support channels to offer preventative information, updates and bug fixes
- The provision of early warnings once a problem has been uncovered.

For example, the three major database vendors, Oracle, Informix and Sybase now use the Internet as a channel for the provision of reactive, problem-related support services. All three companies are increasingly focusing on training and consultancy as a means of generating significant services revenues.

Reactive problem resolution services can now be offered cheaply and efficiently by electronic channels such as the Internet and CD ROM. Additionally, CTI and IVR technologies enable increased help desk automation which in turn, reduces the cost of first line support and provides customers with a more efficient service.

Exhibit III-9 illustrates some of the support services that are offered over the Internet by Oracle, Informix and Sybase.

Exhibit III-9

Internet Support Services Offered by Database Vendors

	Oracle's Mercury	Sysbase's Electronic Support	Informix's TechInfo Centre
Bug Fixes	*	*	*
Early Warnings	*	*	*
FAQ* Databases	*	*	*
Problem Logging	*	*	
Resolution Monitoring		*	

* *Frequently Asked Questions* Source: INPUT

2. Pro-active Advice and Guidance Services are Key

Pro-active support is usually incorporated into a vendor's most comprehensive and expensive support package. For example, Novell has recently introduced a set of pro-active customised support offerings as part of its *Premium* service. These offerings include:

- Configuration management to optimise software products
- Remote service management
- Pro-active analysis and early warnings
- Access to a service account manager who liaises between the customer and Novell.

Informix also promotes the pro-active element of its *Regency* Support offering. It provides customers with an account manager who assists in future planning. Account managers visit sites biannually, get the latest

information on user environments, and help to match current software capabilities with anticipated user demands.

Although such pro-active services have existed for some time, vendors are now promoting them more aggressively in order to compensate for shrinking revenues from reactive first line support activities.

3. Software Support Vendors Focus on Training

As complex multivendor software environments become more widespread, the skills that are required to take full advantage of them will become increasingly scarce for the following reasons:

- Demand for trained staff will increase as skill sets do not match complex new environments
- Training in the use of complex software environments will demand a lot of time, thus creating supply lags.

Support vendors are realising that training services are an integral part of their support offerings. Trained users will increasingly be able to resolve problems internally, thus avoiding the need to seek external problem resolution. This will further drive the shrinkage of the market for first line support services and facilitate the commoditisation of these services.

Vendors can be expected to increasingly focus on the training. It will frequently be promoted as a pro-active support service that enables businesses to optimise software environments while reducing the need for reactive, problem-related support services.

I
The Adoption of Corporate Intranets

An Intranet is a miniature replication of the Internet environment created within an organisation for its own use. Information and applications are delivered and accessed over an Intranet in exactly same way they are over the Internet.

The major features of the Internet include:

- Standardisation of network infrastructure
- Standardisation of service protocols
- Openness of access from all platforms to all platforms

These features are equally apparent in an Intranet. Enterprises can be expected to implement Intranets for the following reasons:

- By distributing internal company documents and routing workflow processes electronically over an Intranet, considerable cost savings can be made — the costs of printing, storage and distribution are automatically removed. But use of an Intranet can also mean cost savings compared with a traditional groupware system such as Lotus Notes
- Networking infrastructure is moving towards Intranet technology — supporting TCP/IP protocols. Applications are starting to migrate to the Web platform, and new, low-cost Internet access devices are emerging to make use of these applications in a standardised environment
- Were an organisation to implement a major upgrade of its enterprise network infrastructure that did not take TCP/IP into account, it would soon start to face a gradual reduction in the number of applications and technology enhancements available to it as the rest of its industry went down the Intranet route

- A company can integrate existing Internet applications into its internal backend processing systems. For example, it may already have a public Web site that provides a set of forms with which partners and potential customers can request additional product information, order goods, or request customer support. Without an Intranet on the other side of the firewall, that company would either have to process each request manually as it arrived or implement an automated conversion system that translated incoming Web requests and transactions to the format usable within the corporate environment.

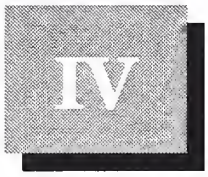
The Web will be a mainstream medium for deployment, execution and support of software applications. First network-centric, then database, then personal productivity applications will shift from hardware/operating system platform to the Web platform. The first category of application is currently undergoing this shift: witness the move of groupware onto the Web.

By the end of the century, half the applications available today will be available in Web form. Organisations are creating enterprise-wide Intranets first for document sharing, then for internal applications. The growth in the Intranet systems integration market will drive the Intranet application market, and software application vendors must position themselves to address this market.

Corel has developed Java applet-based versions of several of its personal productivity tools. It plans to ship limited functionality versions of WordPerfect, Quattro Pro, Chart Presentation and Move by the end of 1996 or early 1997. The company plan to charge users on a useage basis. Users would pay around $100 for a one year subscription to online applications.

Corel's move is aimed to challenge Microsoft directly in terms of differentiating their product. This move will force the industry to consider the pricing and distribution issues inherent in Web -based applets. Corel suggests that its prices are 30-40% lower than those of competitors because the traditional channel can be circumvented.

The expected widespread adoption of corporate Intranets offers support vendors a new opportunity to support the next generation of 'best of breed' software products.



Market Sector Analysis

This chapter analyses the support opportunities centred around software product types. It examines the support of:

- Unix, Netware and Windows Advanced Server operating systems
- RDBMSs
- Application development tools
- Application software.

A
Netware Threatened as NT Flourishes

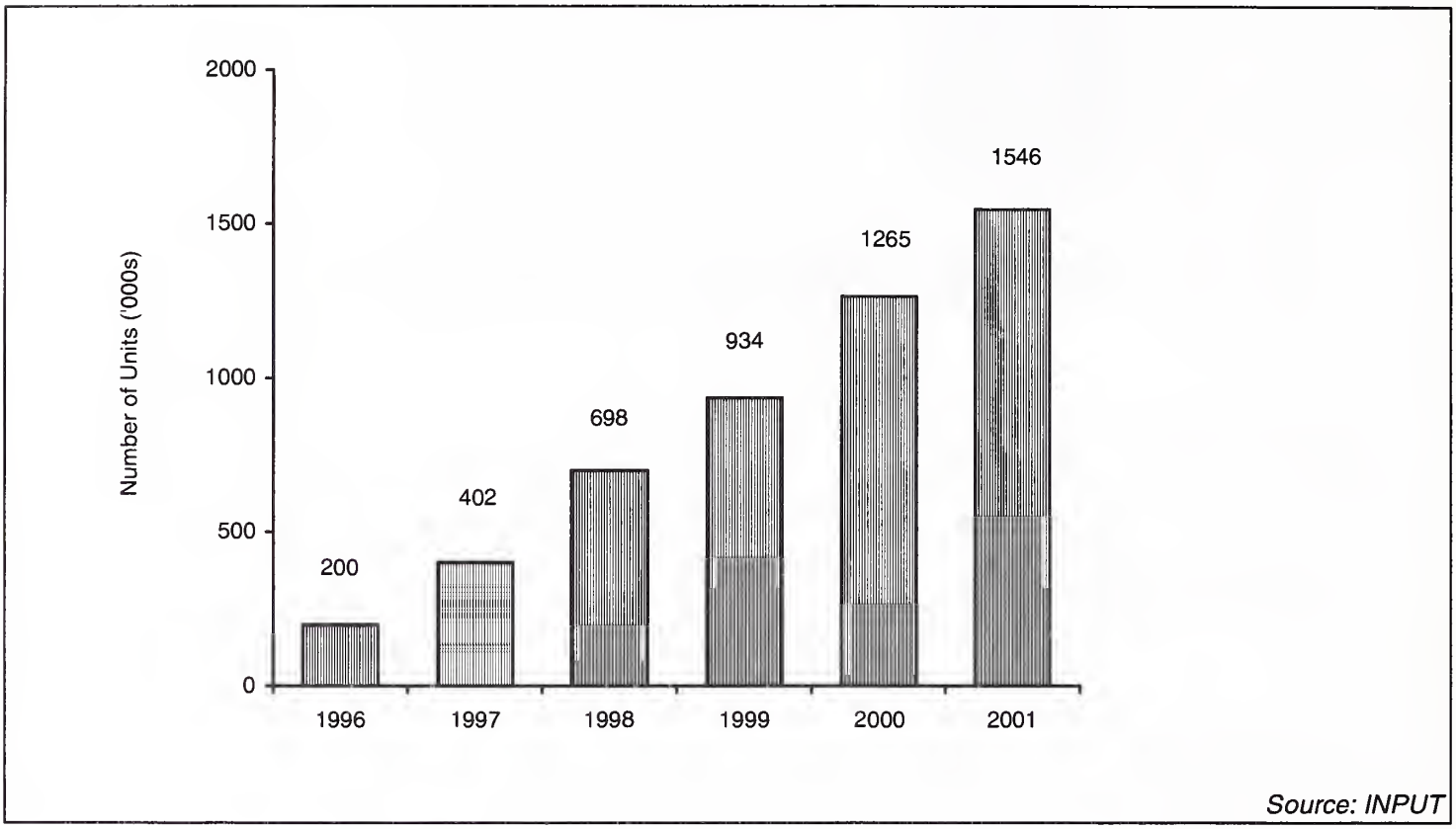
This section analyses the support markets for Windows NT Advanced Server, Unix, and Netware.

1. Windows NT Advanced Server

The installed base of the Windows NT Server operating system in Europe will grow at a 51% CAGR between 1996 and 2001. (see Exhibit IV-1).

Exhibit IV-1

Installed Base of NT Advanced Server — Europe



Source: INPUT

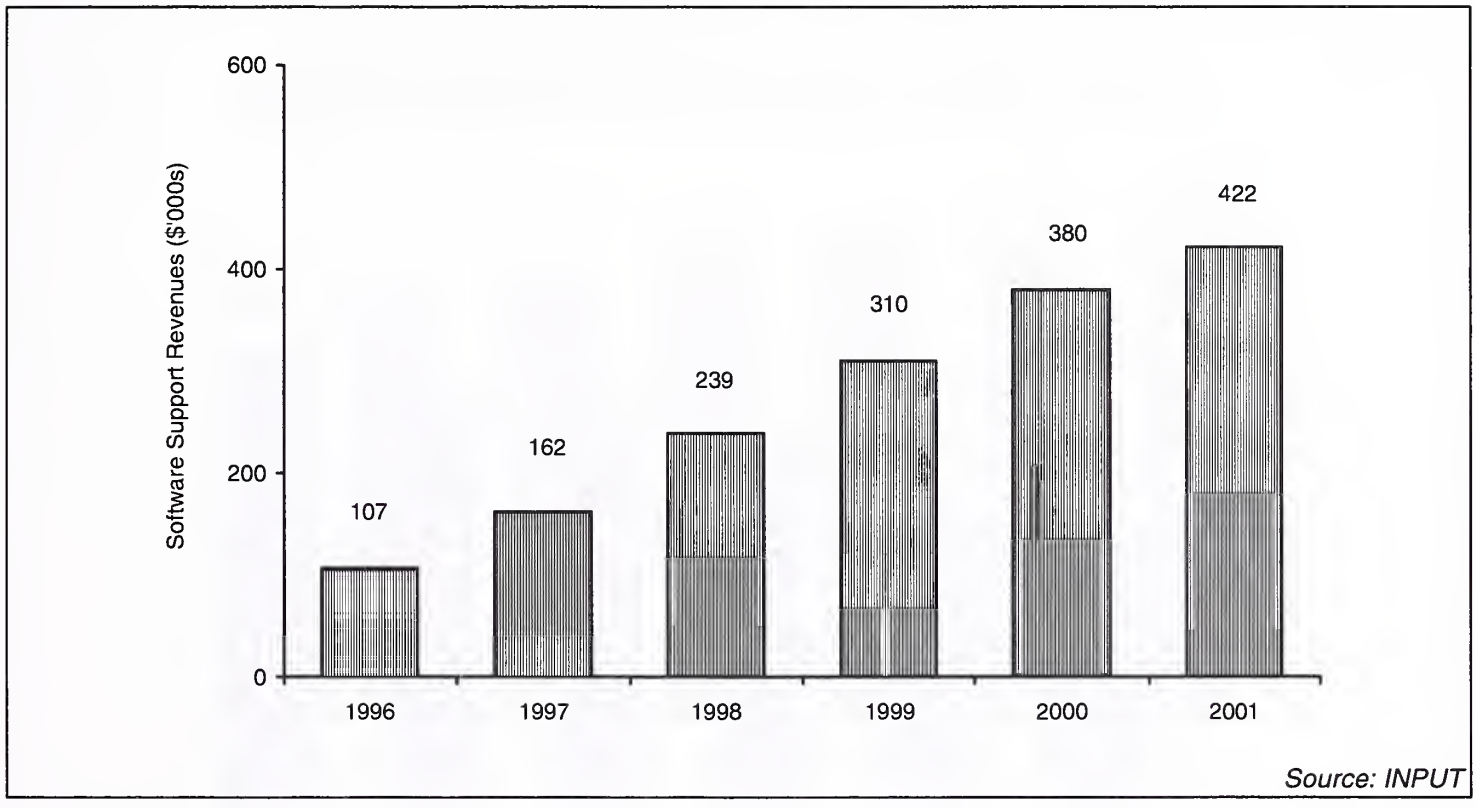
INPUT research reveals that this phenomenal growth can be attributed to several factors including:

- The relative ease of use of Windows NT compared to Unix in particular
- The growing number of software products that are NT-enabled
- The relatively low maintenance costs associated with Windows NT Server
- NT's increasing scalability
- NT's growing popularity as a mid-range operating system
- NT's ability to support the TCP/IP protocol natively, making it an ideal Web server operating system
- The low relatively low installed base of Windows NT Server.

Windows NT Server software support revenues can also be expected to show extremely high growth over the next five years (see Exhibit IV-2).

Exhibit IV-2

Windows NT Server Software Support Revenues — Europe ($ '000s)



However, the NT support market will grow by 32% CAGR between 1996 and 2001 which is lower than that for the product's installed base. This can be explained by the following factors:

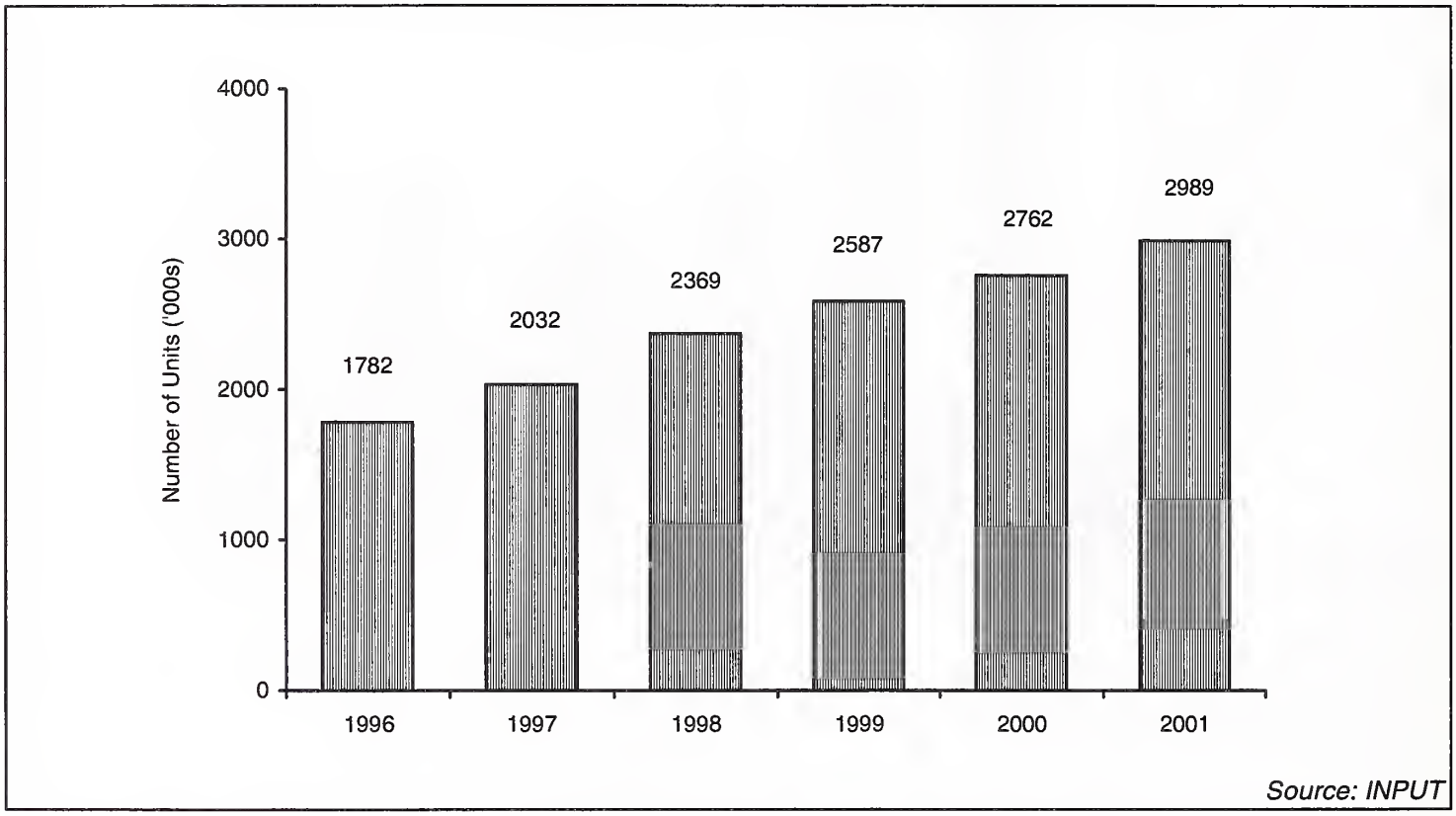
- Automation is leading to lower support prices
- The relatively low installed base of NT at the end of 1995
- The relative ease of use of NT
- Healthy competition that exists in the market for NT support as thousands of Microsoft solution providers vie for services revenue centred around Windows NT Server.

2. Unix as a Multi-user Server Operating System

The installed base of Unix as a multi-user server operating systems can be expected to grow at a healthy 11% CAGR between 1996 and 2001 (see Exhibit IV-3).

Exhibit IV-3

Installed Base of Unix as a Multi-user Operating System



Source: INPUT

This growth can be attributed to several factors including:

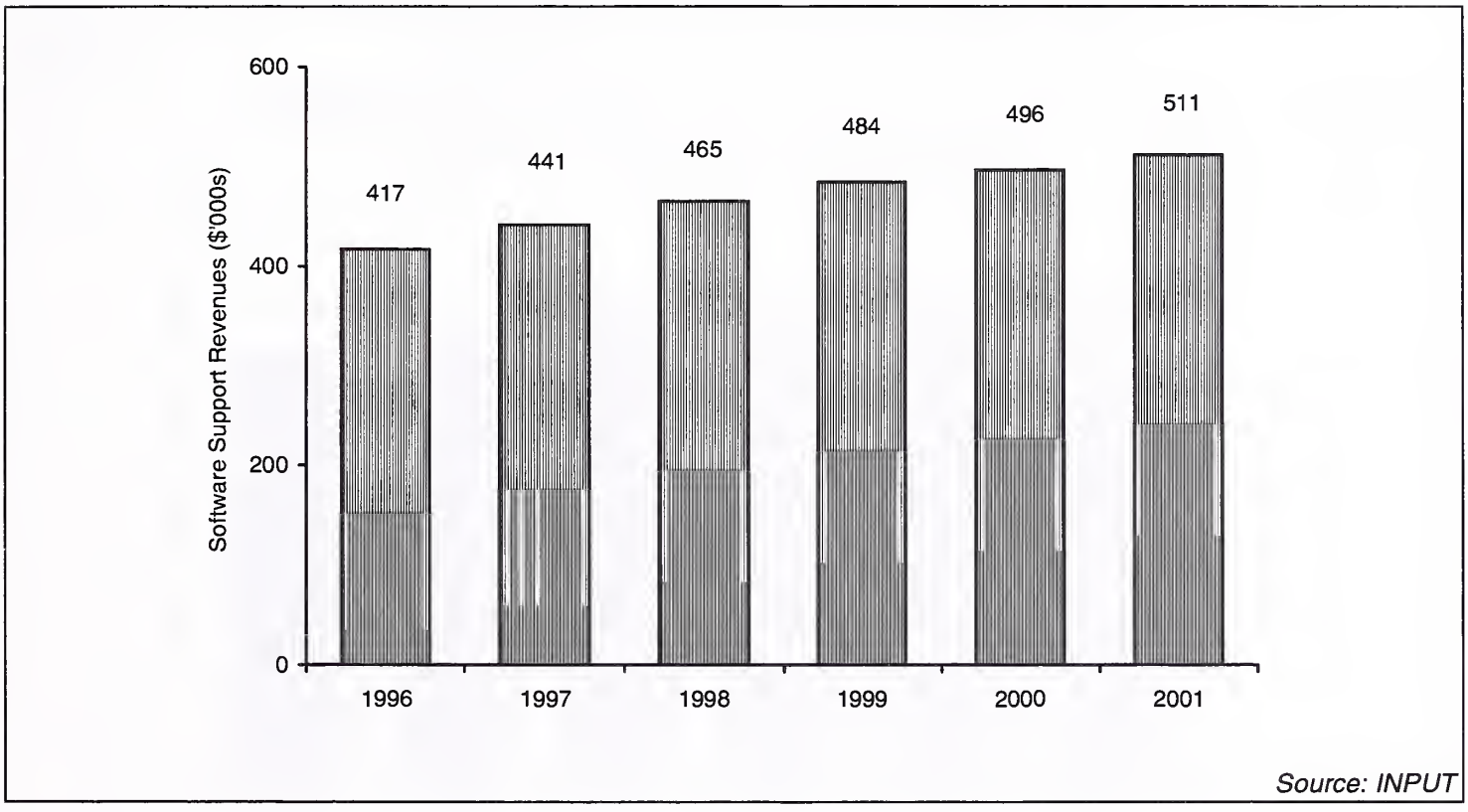
- Unix's scalability which will make it the most suitable operating system for enterprise servers at the high end for the next five years
- The existing base of enterprise software products that are designed to run on Unix
- Unix's open nature, in particular the TCP/IP protocol which is native to Unix. This facilitates its popularity as a Web server operating system.

Although Unix will continue to flourish, it will lose a significant amount of market share at the low end enterprise level and at the mid-range level to the increasingly scaleable and robust Windows NT Server.

Software support revenues attributable to Unix as a multi-user server operating system can be expected to show a modest CAGR of 4% (see Exhibit IV-4).

Exhibit IV-4

Unix Software Support Revenues — Europe ($ '000s)



Source: INPUT

This relatively low growth can be explained by the following factors:

- Automation of support processes leading to falling support prices
- Pressure on Unix vendors to contain support costs in order to compete effectively with Windows NT Advanced Server
- The trend to outsource first and second line support leading to competitive support pricing.

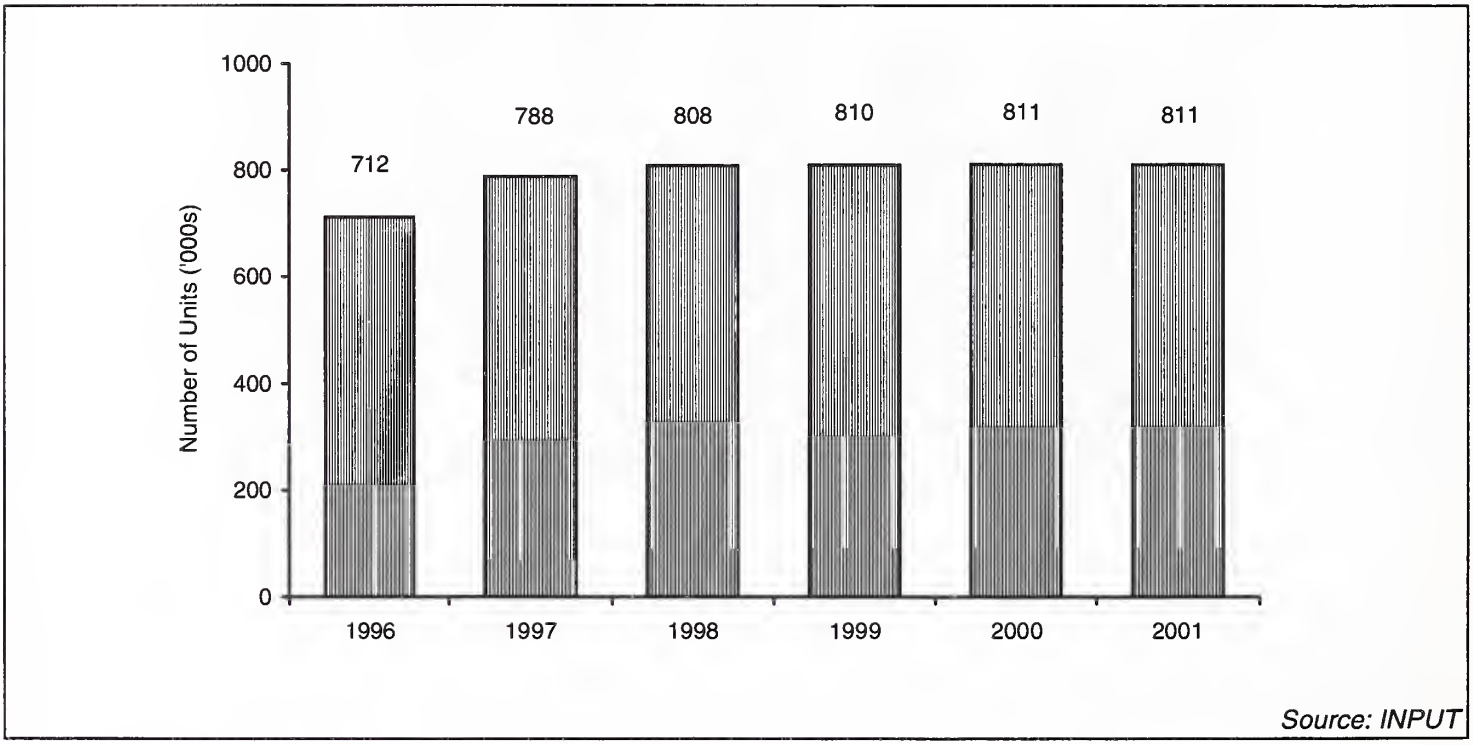
3. Novell Netware

The installed base of Novell's Netware products can be expected to show significant growth over the next couple of years. However, this can be expected to be reduced to a negligible growth rate by 1999.

The CAGR for the installed base of Netware between 1996 and 2001 is estimated to be a modest 3% (see Exhibit IV-5).

Exhibit IV-5

Installed Base of Netware — Europe



Source: INPUT

The installed base of Netware can be expected to decline at the beginning of the next century. This forecast can be explained by the following factors:

- Given that Intranets are expected to increasingly replace traditional LANs, and Netware's relatively rigid architecture does not facilitate its use in an Intranet environment, Netware sales can be expected to decline rapidly

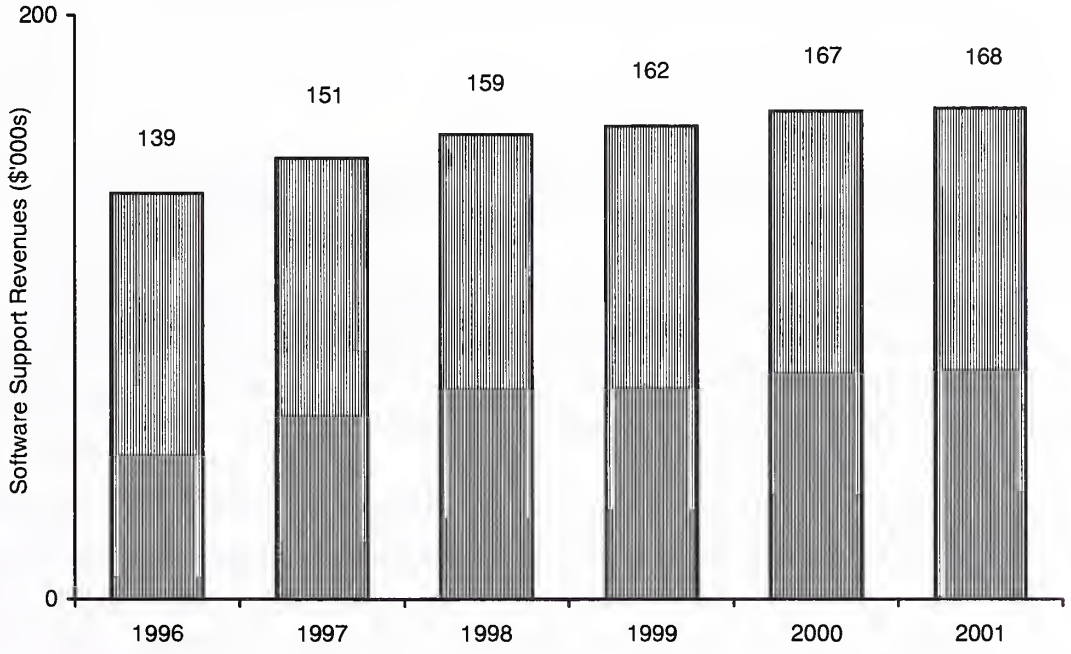
- Although Windows NT still lacks a directory service such as Novell's NDS, it is eroding Netware's market share. Competition from NT is likely to become more extreme when a single directory tree architecture appears in the Cairo version of NT scheduled for late 1997.

Although the installed base of Netware 4.1 is growing rapidly, it can largely be accounted for by existing customers upgrading from Netware 3.x..

Growth in Netware support revenues can be expected to grow at a CAGR of 4% which is higher than its installed base CAGR (see Exhibit IV-6).

Exhibit IV-6

Netware Software Support Revenues — Europe ($ '000s)



Source: INPUT

The difference between Netware's installed base growth and its support revenue growth can largely be attributed to services vendors attempting to maintain revenue in response to the decline in product revenues. This can be expected to occur despite the downward pressure on support prices in general.

In summary, NT is gaining significant market share from both Unix and Netware at the mid-range or departmental/workgroup server level. NT is not yet sufficiently scaleable and robust to compete with Unix at the high end. The enterprise cannot wait for NT to become suitable as many large organisations are currently in the process of replacing mainframes with high end Unix servers.

Despite the rapid build-up of NT servers, many vendors are continuing to sell Unix servers in conjunction with NT servers. However, Novell must

revise its strategy if Netware is to remain a major player. When NT incorporates a directory tree structure to compete with NDS, Netware will cease to offer any significant benefits that are not delivered by NT.

Note that Netware has recently launched a suite of products known as IntraNetware which includes the latest version of Netware 4.1.1, Netscape Navigator version 2.5 of Novell's Web Server integrated with Novell Directory Services, and the new Novell Internet Access Server. Internet Access Server provides a gateway between TCP/IP and IPX that enables Internet access and acts as a natural firewall.

B

RDBMSs Support Market Boosted by Client/Server Migration

The RDBMS market is buoyant, largely due to migration from mainframes to client/server Unix platforms and the growth of the workgroup/departmental market segment which can be expected to be further boosted by growing NT usage.

By the end of 1996, the European RDBMS market will be worth $3.3 billion. The market for RDBMSs running on a client/server Unix platform can be expected to be worth more than the mainframe RDBMS market this year. The market for RDBMSs running on Windows NT Advanced Server will grow at 81% CAGR and be worth around three-quarters of the Unix market by 2001.

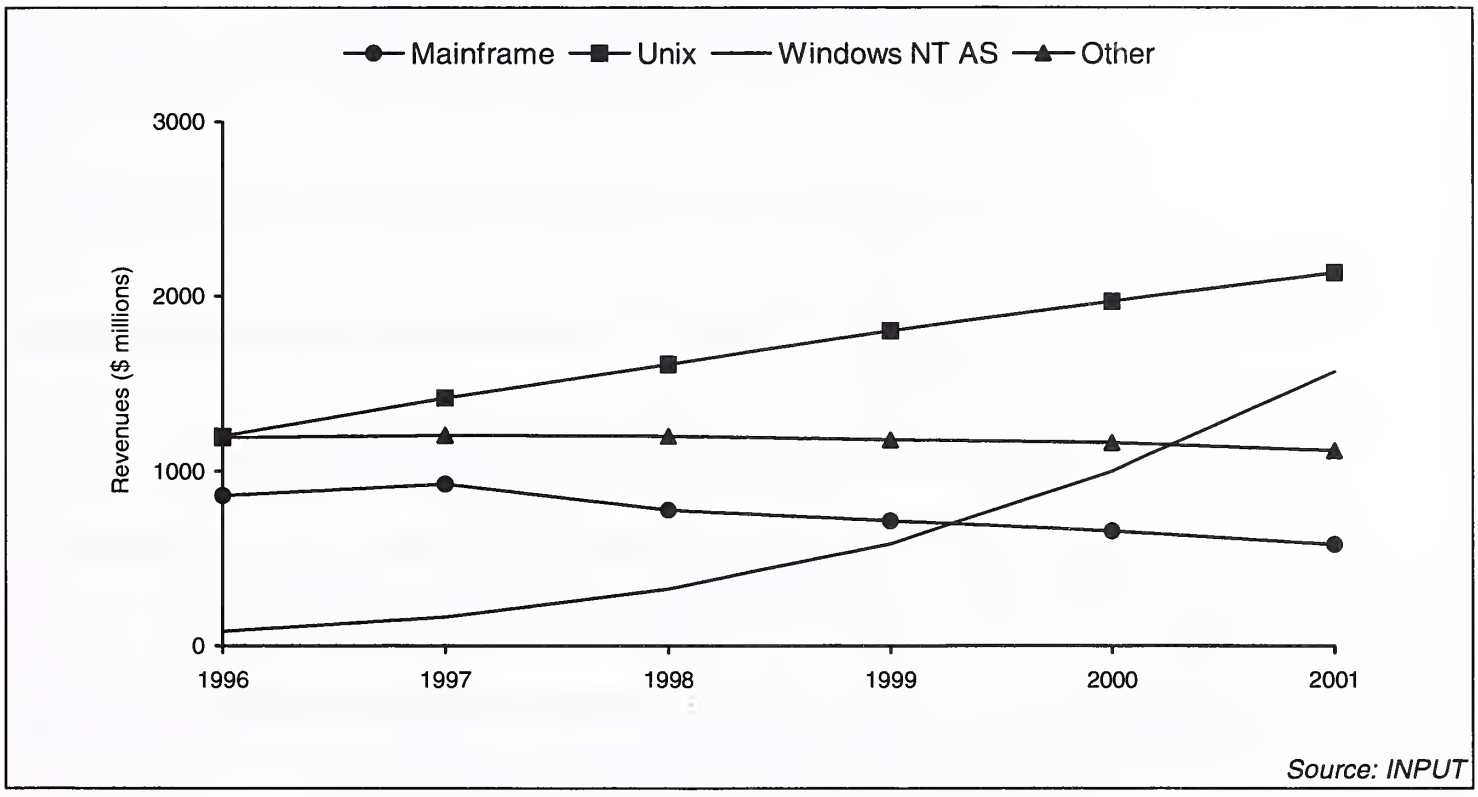
The market for RDBMSs running on other platforms including mid-range proprietary operating environments such as AS400, OS/2, and Windows can be expected to remain stagnant over the next five years exhibiting a CAGR of -1%.

The most dynamic platforms for multi-user RDBMS vendors are Windows NT and client/server Unix (see Exhibit IV-7).

The overall RDBMS market will grow at a 10% CAGR between 1996 and 2001 (see Exhibit IV-8).

Exhibit IV-7

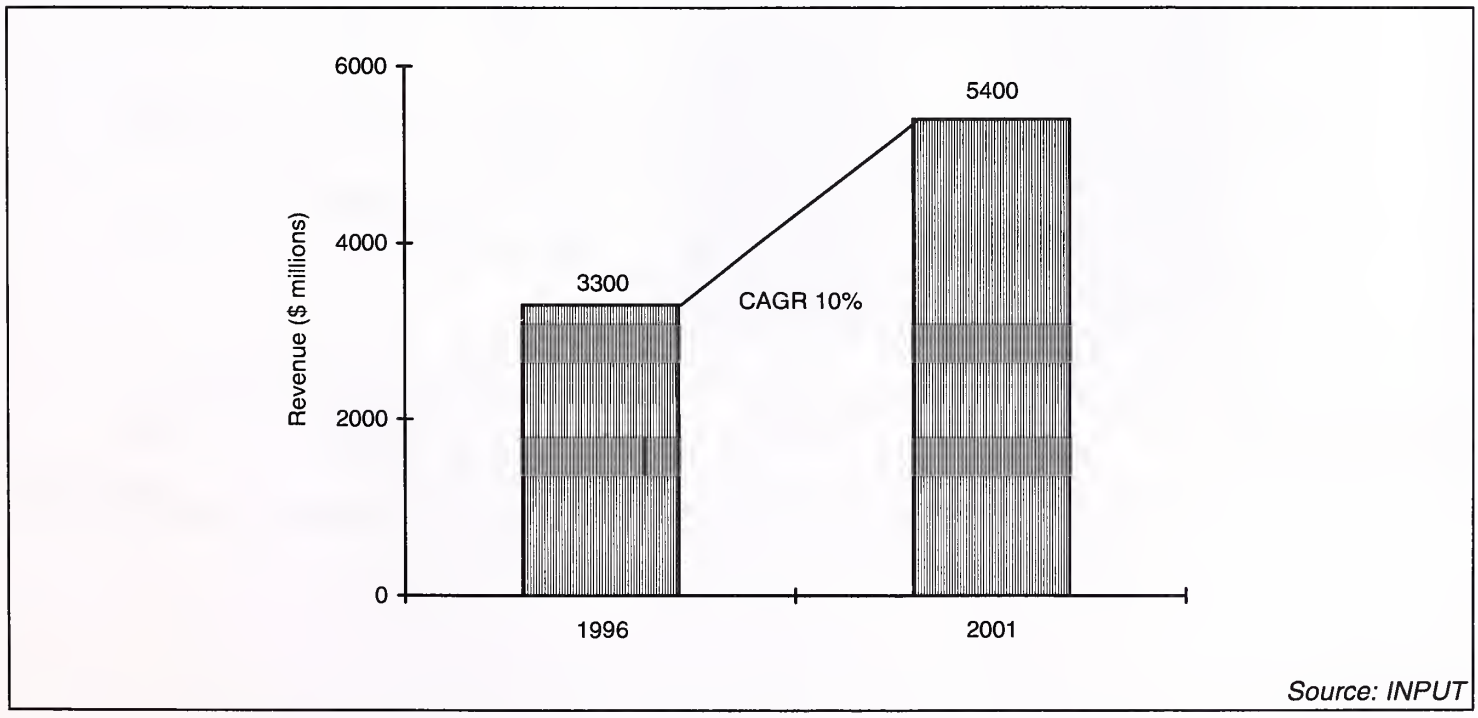
Growth in RDBMS Revenues by Platform ($ '000s)



Source: INPUT

Exhibit IV-8

RDBMS Product Market Europe 1996-2001 ($ '000s)



Source: INPUT

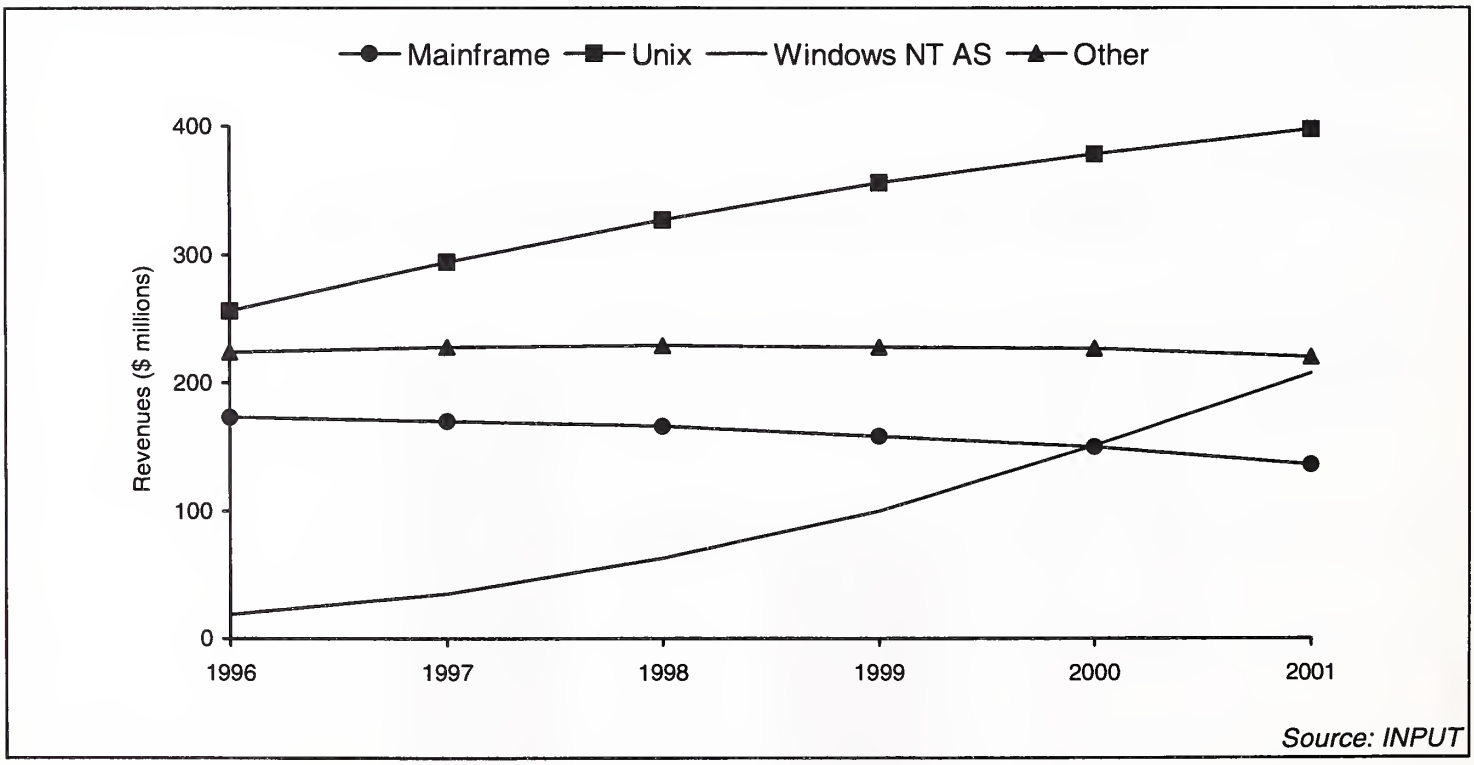
This growth in the RDBMS market can be explained by:

- The growth in popularity of online transaction processing (OLTP) as a means of cutting costs
- Corporate downsizing leaving fewer middle managers. Thus, senior management require RDBMSs as a means of retrieving information rapidly
- Improved performances of RDBMSs facilitating the use of data warehouses
- An increasing number of business applications that are supported by RDBMSs
- An increased requirement to store multimedia objects.

The market for the support of RDBMSs running on Unix and Windows NT can also be expected to grow significantly (see Exhibit IV-9).

Exhibit IV-9

RDBMS Software Support Market, Europe 1996-2001 ($ '000s)



Source: INPUT

Support revenues for RDBMSs running on a Unix client/server platform will grow at 9% CAGR which is lower than the CAGR of RDBMS products running on a Unix platform (12%). Indeed, support revenues generated from RDBMSs running NT will grow at 61% CAGR between 1996 and 2001 which is considerably less than that for the products to be supported (81%).

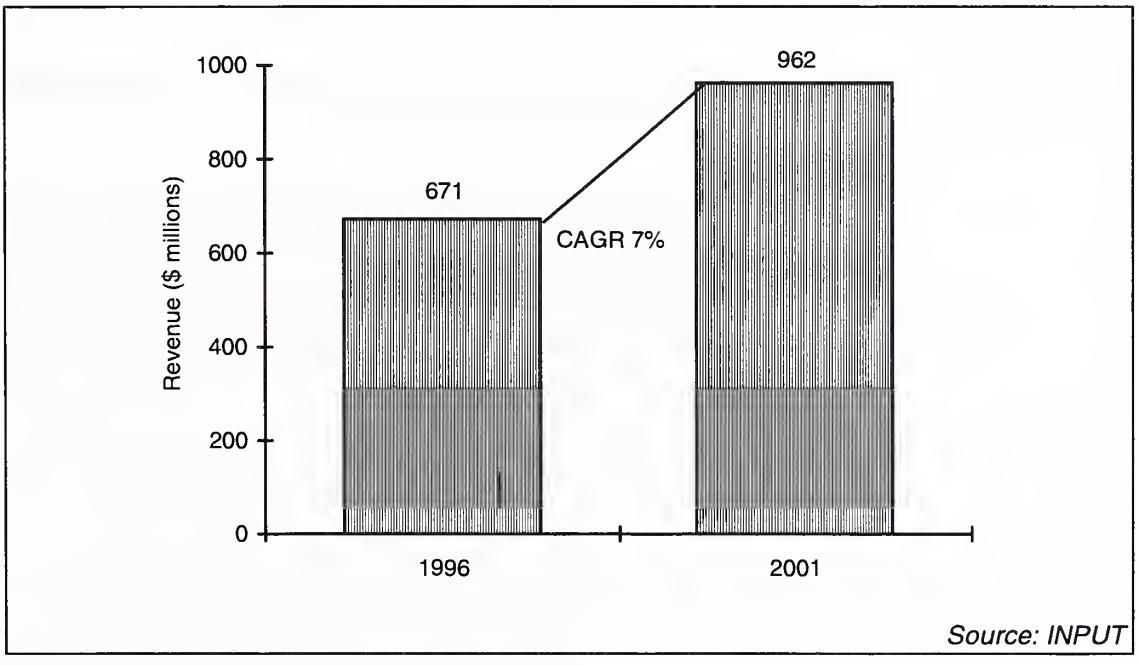
This can be explained by:

- The growing automation of support services
- Increased competition in support markets as vendors attempt to contain ownership costs
- Less of a requirement for reactive support services as RDBMS products become more robust and support toolsets become available.

The overall market for RDBMS support will grow at 7% CAGR which is lower than the 10% CAGR in the product market (see Exhibit IV-10).

Exhibit IV-10

RDBMS Software Support Market, Europe, 1996-2001 ($ '000s)



Source: INPUT

The major RDBMS vendors have all recently revised their support offerings to reflect changing client bases (i.e. more workgroup/departmental customers) and to provide cheaper and higher quality support services which it is hoped will give them a competitive advantage in product markets.

Many vendors now market more flexible, cheaper support packages targeted at workgroup/departmental users. For example, Sybase's SupportLite offering includes allows users to pay per incident. The company charges $175 per incident. Oracle is currently market testing a per incident option and Microsoft has introduced per incident pricing for all of their products.

Additionally, many RDBMS vendors are using the Web to offer support cheaply and effectively. For example, Sybase's SupportPlus Online Services offer a number of support activities using the Web as a delivery channel including:

- Electronic case management. which enables users to log problems, monitor its escalation and receive a resolution to a problem via email
- A technical support database
- Electronic software distribution which enables users to download bug fixes and upgrades.

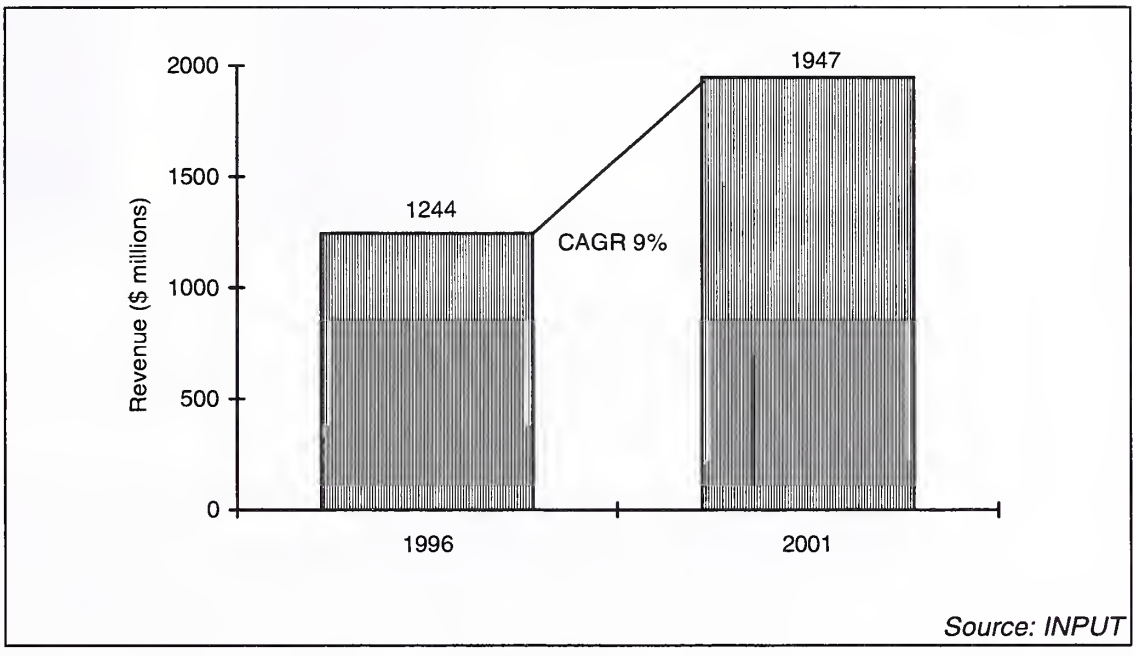
Increasing opportunities for RDBMS vendors at the workgroup/departmental level are largely due to Windows NT opening up this market. Netware was never successful as a RDBMS platform largely due to the expense of running RDBMSs on Netware loadable modules and resource allocation problems.

C
Application Development Tools

The market for application development will grow steadily, at 9% CAGR over the next five years (see Exhibit IV-11).

Exhibit IV-11

Application Development Tools Market
Europe 1996-2001 ($ '000s)



Source: INPUT

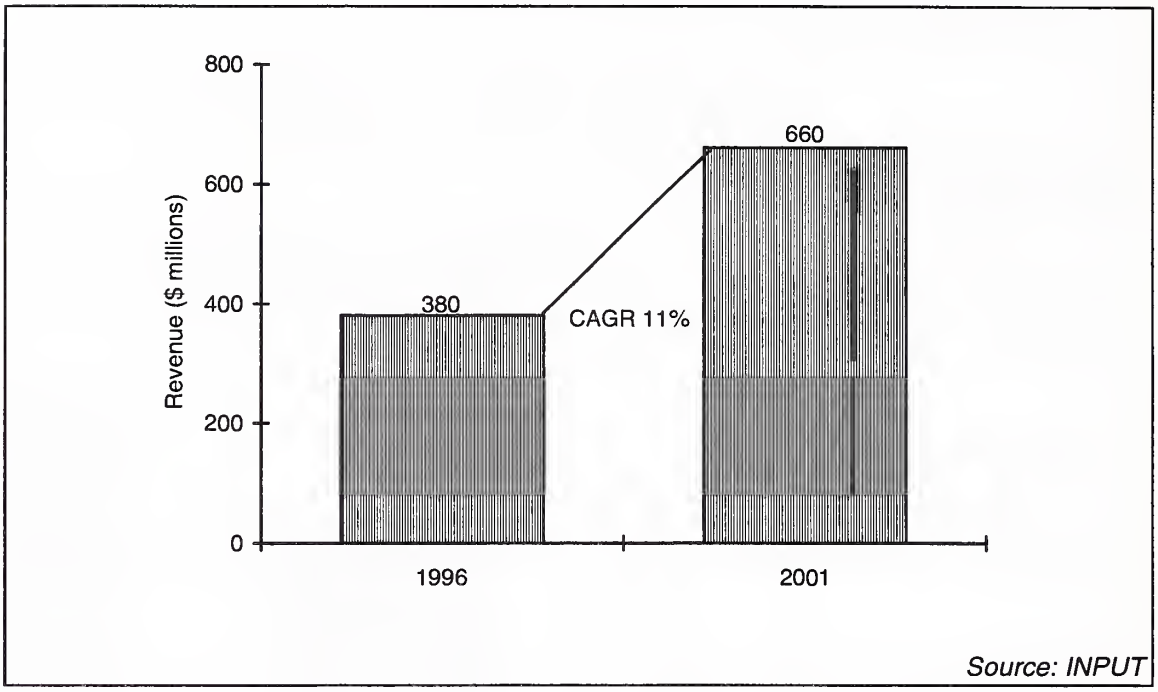
This growth can be explained by several factors including:

- The growth in the RDBMS market precipitating demand for associated tools
- The need to develop distributed systems that can be partitioned as migration to client/server environments continues
- The growing popularity of component software leading to a demand for associated development tools.

Application development tools support revenues can be expected to show CAGR of 11% which is higher than the CAGR of 9% for the products to be supported (see Exhibit IV-12).

Exhibit IV-12

Application Development Tools Support Market
Europe 1996-2001



Source: INPUT

Although automation and the commoditisation of reactive support services will exert downward pressure on application development tools support revenues, the growth rate for the support of application development tools can be expected to be higher than that of the products to be supported for the following reasons:

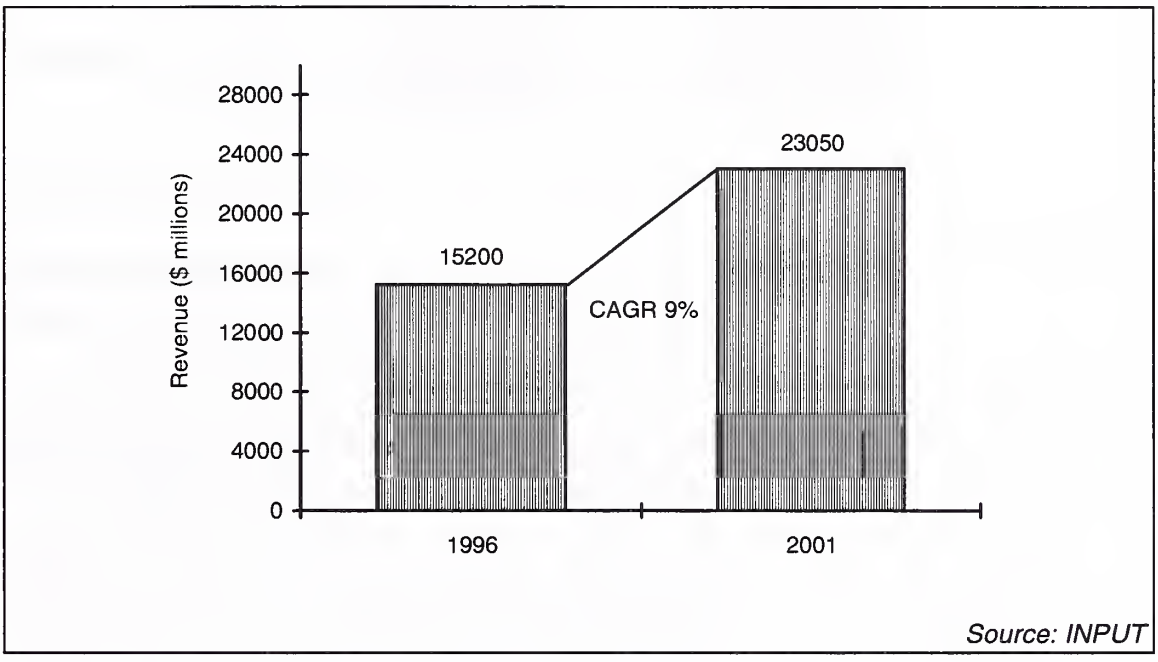
- The specialised and complex nature of the application development tools support
- Continued demand for the support of legacy CASE tools and 3GLs where skills shortages exist
- Particularly strong user demand for higher value support services such as usage advice and training.

D
Application Software

The application software product market will grow at a 9% CAGR, in terms of annual licence revenues, in Europe between 1996 and 2001 (see Exhibit IV-13).

Exhibit IV-13

Application Software Product Market
Europe 1996-2001 ($ '000s)



Source: INPUT

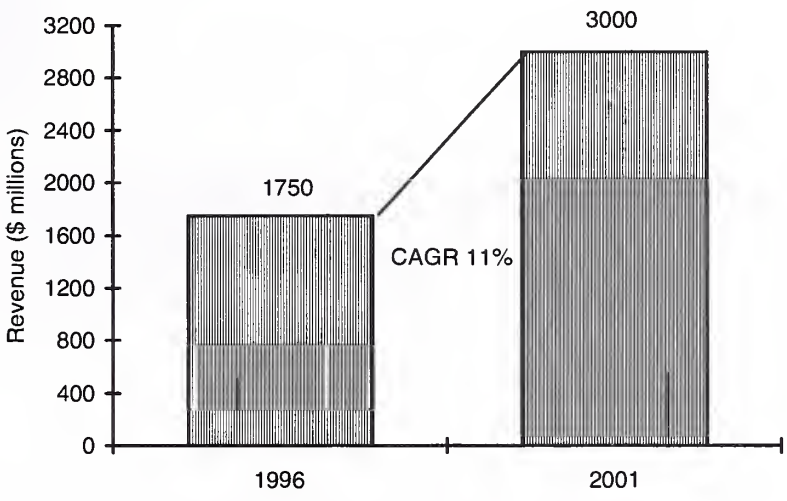
This growth can be explained by:

- User demand for products that are tailored specifically for both vertical and cross-industry processes
- The use of application software for increasingly specialist business processes
- Heavy marketing of application software
- Less in-house application development
- The growing popularity of Enterprise Resource Planning (ERP) software products such as SAP's R/3.
- The growth in ERP software is being driven by:
- Corporate decisions to standardise their software across international boundaries by choosing internationally recognised packages to be used across the enterprise
- Increasing functionality of ERP products as 'modules' that are developed for specific business purposes
- Most ERP product suites are designed to leverage the benefits of client/server technology.

The application software support market will grow at a 11% CAGR across Europe between 1996 and 2001 which is higher than that for application software products (see Exhibit IV-14).

Exhibit IV-14

Application Software Product Support Market
Europe 1996-2001 ($ '000s)



Source: INPUT

The market for applications software support is growing at a higher rate than that for applications software products. Applications products are becoming increasingly commoditised as competition hots up in key vertical and cross industry markets. However, vendors are responding to falling product margins by offering support services that add value to businesses. Initial training and consultancy services are enabling businesses to optimise the use of applications and carry out business processes more effectively.

Support centred around PC applications will offer relatively few new opportunities over the next five years as ISVs find ways of pro-actively supporting their products and reducing call volumes significantly. The Internet can be expected to become an important support channel at this level.

However, the support of ERP software products offers a much greater opportunity to support vendors, in particular systems integrators. Indeed, systems integrators are increasingly implementing ERP projects for vendors such as SAP, Baan, PeopleSoft and Oracle. Vendors such as Anderson Consulting and IBM ISSC can reap significant returns from the on-going support of ERP implementations. ERP products offer vendors the opportunity to promote higher value support services such as consultancy and software management services, given that it is normally deployed in business critical environments.

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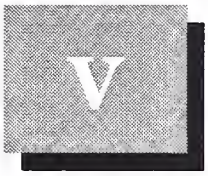


The Competitive Landscape for Software Support

This chapter examines some of the dynamics affecting the supply side of the software support business.

INPUT has identified the following competitive trends in the market for software support:

- Support is increasingly being sourced from third parties
- Vendors are extending markets by introducing flexible pricing
- Vendors are heavily promoting higher value services such as consultancy, software management and other pro-active services as profits on reactive support services fall.

A
Third Parties Increase their Share of the Market

The trend towards outsourcing support activities to third parties is continuing.

Vendors of shrink-wrapped products such as Microsoft and Novell, Lotus, Adobe and SCO have outsourced much of their first line support for some time. A number of third parties have exploited these opportunities, most notably the larger systems vendors such as IBM, H-P and Digital and several independent services vendors such as Stream, Sykes and McQueen.

However, the most significant opportunities lie in the support of products that require extensive customisation to particular business processes. These are typically application software products such as SAP's R/3.

Professional services vendors have seized the opportunity to bundle a support offering into an implementation project for many business applications such as R/3. Offering support independently of any other IT service is less feasible for such products given that an understanding of the user's business is necessary. Vendors such as Anderson Consulting and the outsourcing arms of the large systems vendors, for example, IBM ISSC have become involved in the implementation and on-going support of SAP R/3 projects.

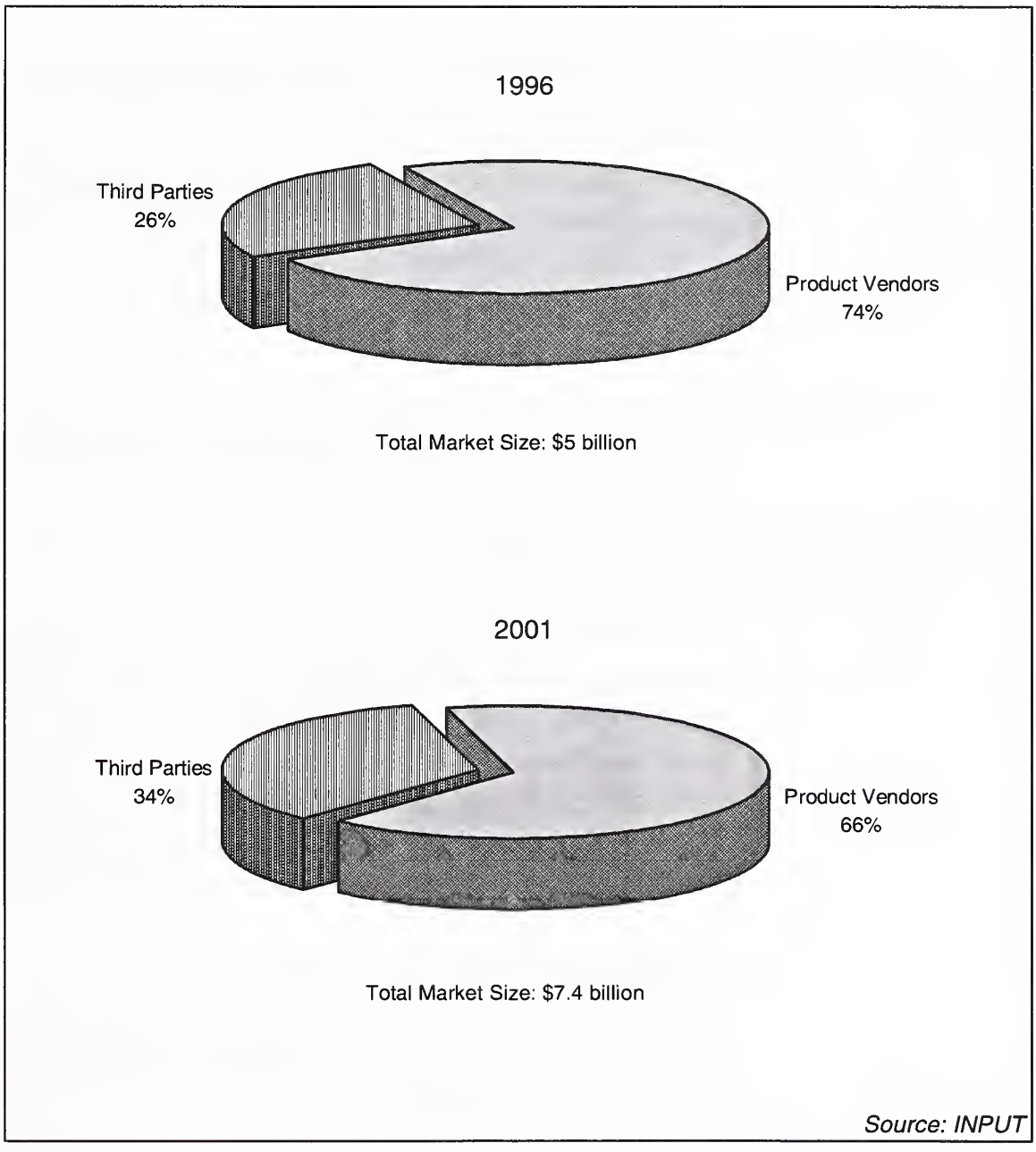
Database vendors are warming to the idea of outsourcing first line support services. Sybase has recently outsourced its European first line support activities to the services vendor, Sykes. Neither Oracle nor Informix presently outsources first line support. Instead, both companies are ramping up their services infrastructures in order to benefit from opportunities to provide services centred around their products. However, it is unlikely that they will continue to offer reactive first line support for much longer as installed bases of their products continue to grow rapidly.

The trend to outsourcing support by ISVs has not been as rapid as anticipated because many ISVs regard support as a means of generating significant revenue streams for themselves and wish to keep information derived from user feedback confidential. As unit profit margins fall for the provision of first line reactive support services, this situation can be expected to change.

Exhibit V-1 illustrates the share of the support market that can be attributed to third parties in 1996 and in 2001.

Exhibit V-1

Share of Software Support Market Attributable to Third Parties, Europe 1996 & 2001



For the purposes of this report, INPUT identifies three groups of support providers, namely systems vendors, ISVs and independent services vendors.

1. Systems Vendors

Software product support revenues generated by systems vendors account for the largest share of the software product support market. Given the established support facilities and the multivendor capabilities available to systems vendors, most systems vendors will continue to support their own

products directly. Additionally, an increasing number of systems vendors will augment their revenues by offering third party support for software products developed by other vendors.

Systems vendors such as IBM, Digital, SNI, Unisys, ICL, and Olivetti are continually enhancing their service divisions in order to capitalise on the open market for multivendor software product support. These vendors are increasingly offering third party support for software from ISVs such as Microsoft and Novell as well as from other more product oriented systems vendors.

2. ISVs

Software product support revenues generated by ISVs vendors currently account for 27% of the total market value ($5 billion). This figure can be expected to decline as increasing numbers of ISVs choose to outsource reactive support activities to third parties and focus on their core product offerings and higher value services.

ISVs such as Microsoft have found it logistically difficult to meet demand for the support of their products. On the other hand, vendors that retain most of their support functions such as the DBMS vendors, SAP and Computer Associates, interface with a smaller number of users who are generally specialists within IS departments, and therefore face fewer capacity problems. This can be expected to change as many of these vendors extend their markets well beyond the enterprise.

3. Independent Services Vendors

For the purposes of this report, the term independent support vendor is used to collectively refer to the following types of vendors all of whom offer third party support:

- Professional services vendors
- VARs
- Dealers
- Training companies
- Independent vendors that solely offer support services.

Many independent services vendors do not fall neatly into the above categories. Some may even develop applications software products though software development is not their primary concern.

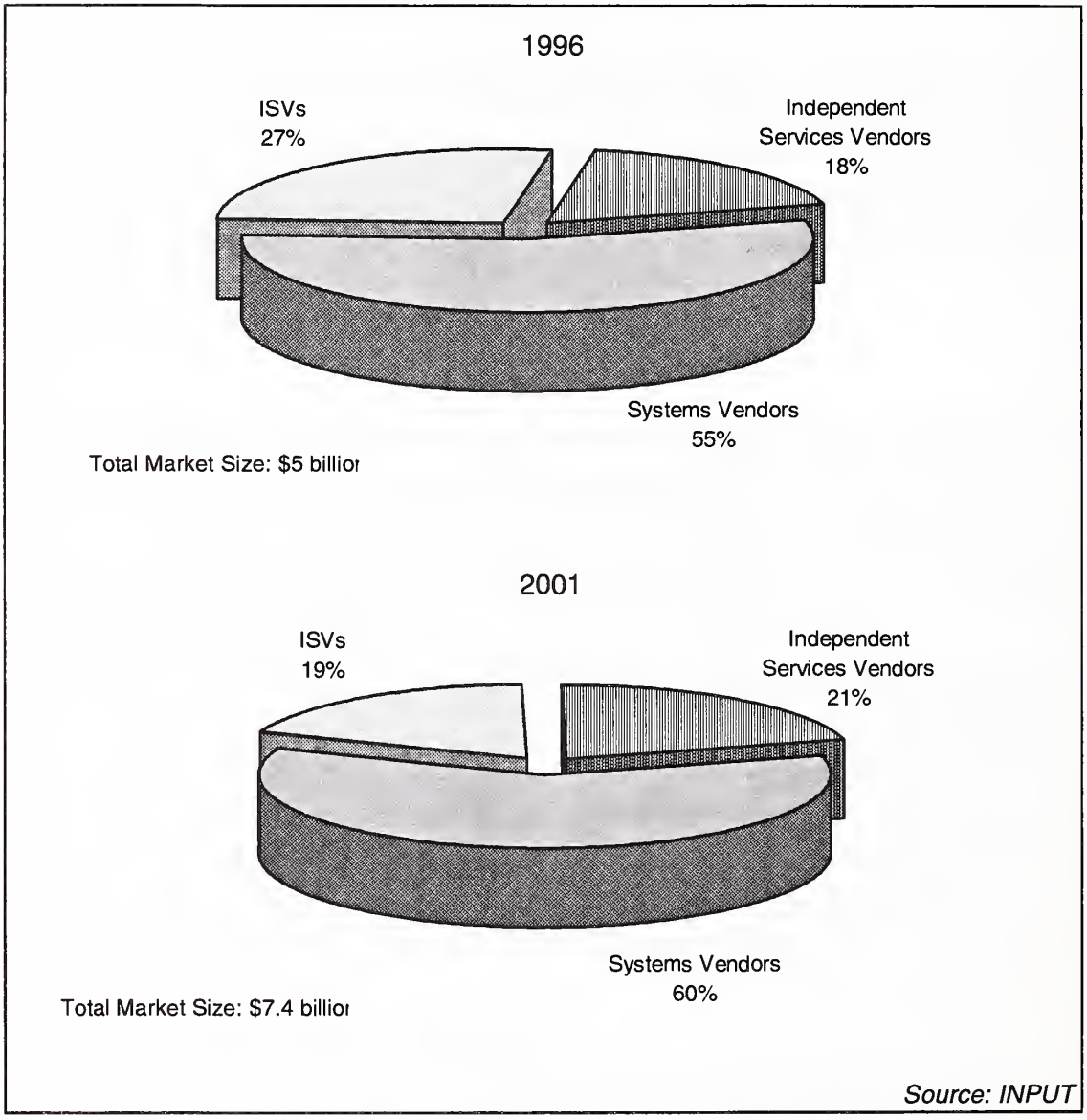
A number of independent services vendors have penetrated the market. For example, Stream is rapidly increasing its market share. The market share and hence the visibility of a number of smaller independent vendors are increasing, largely as a result of partnerships with Microsoft. For example, PSC-Softbank in the United Kingdom and Helpline in France are both Microsoft Desktop Support Partners (DSPs) and can be expected to grow rapidly over the next few years. Note that Stream is also a Microsoft DSP.

Exhibit V-2 shows market shares for vendor categories in 1996 and expected shares in 2001.

Independent services vendors as a group can expect to see their share of the market increase from 18% in 1995 to 21% at the turn of the century, largely at the expense of ISVs who will increasingly outsource their support.

Exhibit V-2

Total Software Product Support Market by Vendor Categories, Europe 1996 & 2001



Source: INPUT

Systems vendors as a group can expect to see their market share rising from 55% to 60% over the next five years, also largely at the expense of ISVs. Most systems vendors are capitalising on their established multivendor hardware support infrastructures by incorporating multivendor software product support activities into their business models.

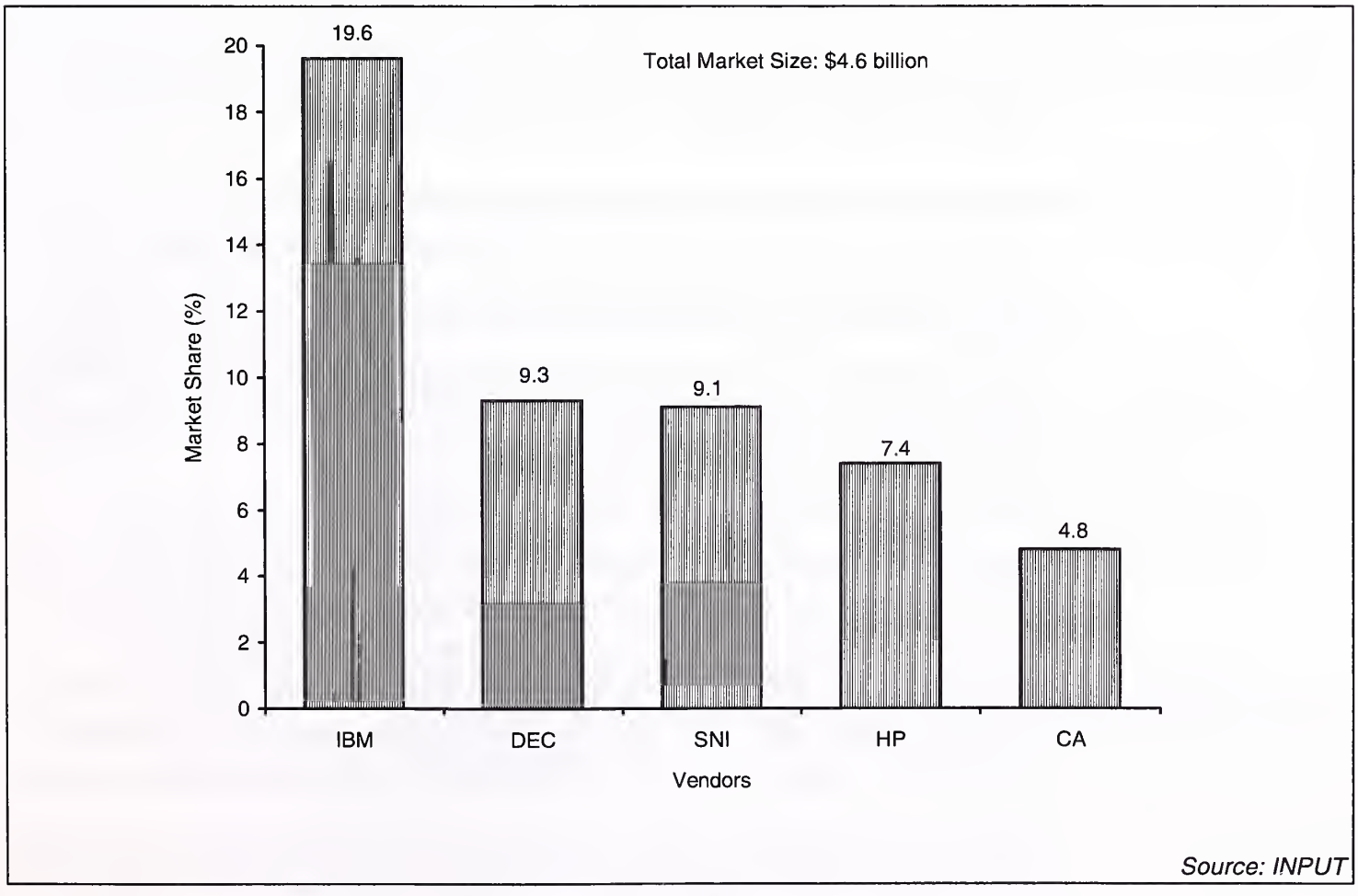
Consequently, INPUT believes that systems vendors will continue to dominate the market for software product support.

By no means all systems vendors will promote multivendor software product support offerings. Some systems vendors have chosen to focus on their own products and offer multivendor support solely in response to local demand from their customer bases. These systems vendors can be expected to increasingly outsource their support functions.

Four of the five largest software product support vendors in terms of revenues are systems vendors as shown in Exhibit V-3.

Exhibit V-3

Leading Vendors Market Shares — Software Product Support, Europe 1995



Source: INPUT

Computer Associates is among the leading five software product support vendors. It does not offer third party, multivendor software product support. Instead it focuses on providing high quality support offerings to its product customers and views the provision of support that meets customer needs as a means of enhancing its competitive positions in the product market.

Given that neither Computer Associates nor other leading ISV support vendors such as Oracle show any indication of competing in the support market independently, INPUT believes that they will account for a progressively smaller share of the market over the next few years. It is also likely that these companies will respond to customer demand for single source, multivendor support by outsourcing elements of their support to systems vendors and independent services vendors.

INPUT believes that by the year 2001, no software product vendors will be in the top ten support vendors in terms of revenue.

B
Vendors Extend the Market for Support

One way in which support vendors are increasing their revenues is by opening up markets that were hitherto unable to afford the on-going software support services.

As the shift to multivendor client/server environments and the unbundling of support prices from product prices have precipitated an increase in the cost and ultimately the price of support, many smaller organisations have been priced out of the market. Many vendors target their services at the enterprise and have little or no provision for smaller organisations or business units that fall into SOHO, SME, workgroup and departmental market segments.

However, some vendors have responded to this relatively untapped demand by offering cheap support options. One of the most popular is the introduction of per incident pricing whereby, the user pays for support each time it is required. For example, Sybase have introduced per incident pricing. The company charge $175 per incident and the offering is targeted squarely at the departmental/workgroup market. Microsoft's *AnswerPoint* range of support offerings also includes per incident options.

The Internet provides an ideal vehicle for the provision of low cost support offerings to smaller organisations. For example, Stream International now has an electronic 'store' on the Web where customers can browse,

purchase and download the latest version of the software of their choice. Additionally, Stream is charging users very low prices for support. Via the Web, users can send a message to a technical specialist a receive a response within 24 hours for $9.95. Users can enter a 'live chat' session with a specialist for $19.95 and receive a telephone call from a technician for $29.95 after requesting it via the Web.

Downloads of bug fixes and upgrades can also be offered cheaply, or free in the case of Microsoft via the Web. Other Internet support offerings include Microsoft's online support, Oracle*Mercury* and Sybase's *SupportPlus Online*.

C
Vendors Promote Higher Value Services

Vendors are heavily promoting higher value services such as consultancy, software management and other pro-active services as profits on reactive support services fall.

Help desk automation and the use of the Internet are exerting pressure on revenues generated from the provision of reactive support services. ISVs are keen the contain the costs of reactive support services given that the cost of support is increasingly influencing user selection of relatively undifferentiated software products.

For example, Oracle, Sybase and Informix all offer pro-active support services.

Sybase's pro-active *SupportPlus Preferred Plan* includes:

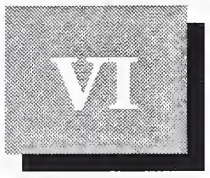
- Service planning and reviews in which an account manager provides pro-active planning and project reviews to assist users to identify potential service and productivity improvements. Additionally, account managers review user projects and offer advice on ways of reducing development times and increasing productivity

- Advanced application services which are designed to optimise application performance and to plan for emerging technologies and product trends

- Elective services which are designed to increase the effectiveness of user planning when it is centred around Sybase products. This includes global support planning, migration planning, and backup and restore planning.

Oracle's *Gold* and Informix's *Regency* support options provide similar pro-active services.

The trend towards offering such pro-active support services to enterprises at a premium price is transforming the support business. Pro-active support services are becoming more akin to consultancy services that are also offered by most ISVs. INPUT expects support services to increasingly be offered as consultancy services as the market for reactive support services stagnates. ISVs will increasingly use support, consultancy and education and training services as means of differentiating themselves.



European Market Forecast

This appendix provides forecasts of the European software product support market.

The market is segmented by country, hardware platform, and software product type.

1. Geographical Segmentation

Territories analysed are:

- Europe
- Germany
- France
- The United Kingdom
- Italy
- Spain
- The Netherlands
- Sweden.

2. Hardware Platform Segmentation

Hardware platforms analysed are:

- Mainframe
- Server
- Client.

3. Software Product Type Segmentation

Software product types analysed are:

- System Software which is further segmented by:
  - Operating Software
  - RDBMSs
  - Application Development Tools
  - Application Software.

A
Europe

Exhibit VI-1

European Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01
Operating Software	1655	5.4%	1745	1832	1908	1949	1975	1990	*3%*
RDBMSs	590	13.7%	671	728	784	842	906	962	*7%*
Application Development Tools	320	19.1%	381	461	512	559	603	652	*11%*
Application Software	2035	10.1%	2240	2535	2795	3159	3521	3840	*11%*
Total Software Product Support	4600	9.5%	5037	5556	5999	6509	7005	7444	*8%*

Source: INPUT

Exhibit VI-2

European Software Product Support Revenues by Product Type, (ECU Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	1293	5.4%	1363	1431	1490	1522	1542	1554	*3%*
RDBMSs	461	13.7%	524	569	612	658	708	751	*7%*
Application Development Tools	250	19.1%	298	360	400	437	471	509	*11%*
Application Software	1589	10.1%	1749	1980	2183	2467	2750	2999	*11%*
Total Software Product Support	3593	9.5%	3934	4339	4685	5084	5471	5814	*8%*

Source: INPUT

Exhibit VI-3

European Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	2,003	9.0%	2,184	2,359	2,502	2,616	2,721	2,815	*5%*
- Mainframe	1,089	5.4%	1,148	1,196	1,211	1,226	1,179	1,159	*0%*
- Server	772	12.9%	871	968	1,083	1,170	1,318	1,426	*10%*
- Client	142	15.9%	165	195	209	220	223	230	*7%*
Application Software	1,589	10.1%	1,749	1,980	2,183	2,467	2,750	2,999	*11%*
- Mainframe	292	-4.0%	280	280	261	267	277	290	*1%*
- Server	743	8.0%	802	945	1,103	1,284	1,467	1,642	*15%*
- Client	555	20.3%	668	755	819	916	1,006	1,067	*10%*
TOTAL Software Product Support	3,593	9.5%	3,934	4,339	4,685	5,084	5,471	5,814	*8%*

Source: INPUT

Exhibit VI-4

European Software Product Support Market by Hardware Platform (ECU Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	2,565	9.0%	2,797	3,021	3,204	3,350	3,484	3,604	*5%*
- Mainframe	1,395	5.4%	1,470	1,532	1,550	1,569	1,510	1,484	*0%*
- Server	988	12.9%	1,115	1,240	1,386	1,499	1,688	1,826	*10%*
- Client	182	15.9%	211	250	268	282	286	294	*7%*
Application Software	2,035	10.1%	2,240	2,535	2,795	3,159	3,521	3,840	*11%*
- Mainframe	373	-4.0%	358	359	334	341	354	371	*1%*
- Server	951	8.0%	1,027	1,210	1,412	1,644	1,878	2,103	*15%*
- Client	711	20.3%	855	966	1,049	1,173	1,288	1,366	*10%*
TOTAL Software Product Support	4,600	9.5%	5,037	5,556	5,999	6,509	7,005	7,444	*8%*

Source: INPUT

B
Germany

Exhibit VI-5

German Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	337	0.9%	340	350	361	375	390	405	*4%*
RDBMSs	141	3.5%	146	157	164	176	189	202	*7%*
Application Development Tools	76	3.9%	79	88	96	106	118	130	*10%*
Application Software	407	10.1%	448	523	584	645	738	844	*14%*
Total Software Product Support	961	5.4%	1013	1118	1205	1302	1435	1581	*9%*

Source: INPUT

Exhibit VI-6

German Software Product Support Revenues by Product Type, (DM Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	482	0.9%	486	501	516	536	558	579	*4%*
RDBMSs	202	3.5%	209	225	235	252	270	289	*7%*
Application Development Tools	109	3.9%	113	126	137	152	169	186	*10%*
Application Software	582	10.1%	641	748	835	922	1055	1207	*14%*
Total Software Product Support	1374	5.4%	1449	1599	1723	1862	2052	2261	*9%*

Source: INPUT

Exhibit VI-7

German Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	554	2.0%	565	595	621	657	697	737	*5%*
- Mainframe	349	-2.6%	340	318	312	316	322	326	*-1%*
- Server	168	11.0%	186	236	266	295	327	362	*14%*
- Client	37	4.7%	39	41	43	46	48	50	*5%*
Application Software	407	10.1%	448	523	584	645	738	844	*14%*
- Mainframe	67	-3.9%	64	68	70	72	76	82	*5%*
- Server	207	13.3%	235	282	320	356	409	471	*15%*
- Client	133	12.1%	149	174	194	216	253	292	*14%*
TOTAL Software Product Support	961	5.4%	1,013	1,118	1,205	1,302	1,435	1,581	*9%*

Source: INPUT

Exhibit VI-8

German Software Product Support Market by Hardware Platform (DM Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	821	5.7%	868	916	967	1,018	1,064	1,097	*5%*
- Mainframe	490	-0.2%	489	484	479	472	470	466	*-1%*
- Server	276	15.9%	320	368	421	478	524	560	*12%*
- Client	55	7.3%	59	64	67	68	70	71	*4%*
Application Software	582	10.1%	641	748	835	922	1,055	1,207	*14%*
- Mainframe	95	-3.9%	92	97	100	103	109	117	*5%*
- Server	296	13.3%	336	403	458	510	585	673	*15%*
- Client	190	12.1%	214	248	278	309	361	417	*14%*
TOTAL Software Product Support	1,403	7.5%	1,509	1,664	1,802	1,940	2,119	2,304	*9%*

Source: INPUT

C
France

Exhibit VI-9

French Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	268	1.5%	272	280	288	298	310	318	*3%*
RDBMSs	100	12.0%	112	121	136	145	152	164	*8%*
Application Development Tools	56	14.3%	64	72	83	96	110	120	*13%*
Application Software	366	12.0%	410	471	525	584	638	690	*11%*
Total Software Product Support	790	8.6%	858	944	1032	1123	1210	1292	*9%*

Source: INPUT

Exhibit VI-10

French Software Product Support Revenues by Product Type, (FF Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	1311	1.5%	1330	1369	1408	1457	1516	1555	*3%*
RDBMSs	489	12.0%	548	592	665	709	743	802	*8%*
Application Development Tools	274	14.3%	313	352	406	469	538	587	*13%*
Application Software	1790	12.0%	2005	2303	2567	2856	3120	3374	*11%*
Total Software Product Support	3863	8.6%	4196	4616	5046	5491	5917	6318	*9%*

Source: INPUT

Exhibit VI-11

French Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	424	5.7%	448	473	507	539	572	602	*6%*
- Mainframe	253	-5.3%	240	225	215	208	202	198	*-4%*
- Server	146	25.2%	183	219	259	297	333	365	*15%*
- Client	24	5.1%	26	28	33	35	36	39	*9%*
Application Software	366	12.0%	410	471	525	584	638	690	*11%*
- Mainframe	50	-5.3%	47	47	45	46	42	39	*-4%*
- Server	175	19.0%	208	246	283	317	353	389	*13%*
- Client	141	9.5%	155	178	196	221	243	262	*11%*
TOTAL Software Product Support	790	8.6%	858	FALSE	1,032	1,123	1,210	1,292	*9%*

Source: INPUT

Exhibit VI-12

French Software Product Support Market by Hardware Platform (FF Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	2,073	5.8%	2,194	2,309	2,479	2,636	2,797	2,944	*6%*
- Mainframe	1,239	-5.3%	1,174	1,100	1,049	1,016	988	969	*-4%*
- Server	715	25.2%	895	1,071	1,269	1,451	1,631	1,786	*15%*
- Client	119	5.1%	125	138	161	169	178	189	*9%*
Application Software	1,790	12.0%	2,005	2,303	2,567	2,856	3,120	3,374	*11%*
- Mainframe	244	-5.3%	231	228	222	225	206	192	*-4%*
- Server	854	19.0%	1,016	1,203	1,386	1,552	1,726	1,900	*13%*
- Client	691	9.5%	757	871	960	1,079	1,188	1,282	*11%*
TOTAL Software Product Support	3,863	8.7%	4,199	4,613	5,046	5,491	5,917	6,318	*9%*

Source: INPUT

D
United Kingdom

Exhibit VI-13

United Kingdom Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	265	0.8%	267	269	270	274	277	278	*1%*
RDBMSs	88	9.1%	96	104	110	114	120	125	*5%*
Application Development Tools	38	21.1%	46	52	58	67	75	81	*12%*
Application Software	244	12.3%	274	312	348	396	442	475	*12%*
Total Software Product Support	635	7.6%	683	737	786	851	914	959	*7%*

Source: INPUT

Exhibit VI-14

United Kingdom Software Product Support Revenues by Product Type, (PS Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	171	0.8%	172	173	174	176	178	179	*1%*
RDBMSs	57	9.1%	62	67	71	73	77	81	*5%*
Application Development Tools	24	21.1%	30	33	37	43	48	52	*12%*
Application Software	157	12.3%	176	201	224	255	285	306	*12%*
Total Software Product Support	409	7.6%	440	475	506	548	589	618	*7%*

Source: INPUT

Exhibit VI-15

Untied Kingdom Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	391	4.6%	409	425	438	455	472	484	*3%*
- Mainframe	232	-6.5%	217	206	200	198	194	191	*-3%*
- Server	145	20.7%	175	200	217	235	255	269	*9%*
- Client	14	20.7%	17	19	21	22	23	24	*6%*
Application Software	244	12.3%	274	312	348	396	442	475	*12%*
- Mainframe	74	-4.8%	70	66	64	64	64	61	*-3%*
- Server	110	17.9%	130	164	189	219	249	276	*16%*
- Client	60	23.0%	74	82	95	113	128	138	*13%*
TOTAL Software Product Support	635	7.6%	683	737	786	851	914	959	*7%*

Source: INPUT

Exhibit VI-16

United Kingdom Software Product Support Market by Hardware Platform (PS Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	252	4.6%	263	274	282	293	304	312	*3%*
- Mainframe	149	-6.5%	140	133	129	127	125	123	*-3%*
- Server	93	20.7%	113	129	140	151	164	173	*9%*
- Client	9	20.7%	11	12	13	14	15	15	*6%*
Application Software	157	12.3%	176	201	224	255	285	306	*12%*
- Mainframe	47	-4.8%	45	43	41	41	41	39	*-3%*
- Server	71	17.9%	84	106	122	141	161	178	*16%*
- Client	39	23.0%	48	53	61	73	83	89	*13%*
TOTAL Software Product Support	409	7.6%	440	475	506	548	589	618	*7%*

Source: INPUT

E
Italy

Exhibit VI-17

Italian Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	188	5.3%	198	206	217	226	239	248	*5%*
RDBMSs	59	22.0%	72	79	88	95	107	114	*10%*
Application Development Tools	31	25.8%	39	47	55	62	66	72	*13%*
Application Software	310	10.6%	343	405	456	509	548	598	*12%*
Total Software Product Support	588	10.9%	652	737	816	892	960	1032	*10%*

Source: INPUT

Exhibit VI-18

Italian Software Product Support Revenues by Product Type, (Lira Billions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	299	5.3%	315	328	345	359	380	394	*5%*
RDBMSs	94	22.0%	114	126	140	151	170	181	*10%*
Application Development Tools	49	25.8%	62	75	87	99	105	114	*13%*
Application Software	493	10.6%	545	644	725	809	871	951	*12%*
Total Software Product Support	935	10.9%	1037	1172	1297	1418	1526	1641	*10%*

Source: INPUT

Exhibit VI-19

Italian Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	278	11.2%	309	332	360	383	412	434	*7%*
- Mainframe	139	-0.5%	138	138	134	133	135	131	*-1%*
- Server	124	24.4%	154	176	205	228	254	277	*13%*
- Client	15	9.5%	17	18	21	22	24	26	*9%*
Application Software	310	10.6%	343	405	456	509	548	598	*12%*
- Mainframe	50	-16.3%	42	42	41	39	36	35	*-4%*
- Server	144	11.0%	160	198	221	259	291	324	*15%*
- Client	115	22.1%	141	164	193	210	221	239	*11%*
TOTAL Software Product Support	588	10.9%	652	737	816	892	960	1,032	*10%*

Source: INPUT

Exhibit VI-20

Italian Software Product Support Market by Hardware Platform (Lira Billions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	442	11.2%	491	528	572	609	655	690	*7%*
- Mainframe	221	-0.5%	220	219	213	212	214	208	*-1%*
- Server	196	24.4%	244	280	326	362	403	441	*13%*
- Client	25	9.5%	27	29	33	35	38	42	*9%*
Application Software	493	10.6%	545	644	725	809	871	951	*12%*
- Mainframe	80	-16.3%	67	67	66	62	57	56	*-4%*
- Server	229	11.0%	254	315	352	412	462	515	*15%*
- Client	183	22.1%	224	261	308	334	352	380	*11%*
TOTAL Software Product Support	935	10.9%	1,037	1,172	1,297	1,418	1,526	1,641	*10%*

Source: INPUT

F
Spain

Exhibit VI-21

Spanish Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	68	10.5%	75	78	83	89	94	98	*5%*
RDBMSs	24	28.2%	31	37	42	45	49	53	*11%*
Application Development Tools	13	29.6%	17	21	25	28	31	33	*14%*
Application Software	83	23.4%	103	129	146	162	179	191	*13%*
Total Software Product Support	189	19.8%	226	265	296	324	353	375	*11%*

Source: INPUT

Exhibit VI-22

Spanish Software Product Support Revenues by Product Type, (Ptas Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	8210	10.5%	9075	9438	10043	10769	11374	11858	*5%*
RDBMSs	2927	28.2%	3751	4477	5082	5445	5929	6413	*11%*
Application Development Tools	1588	29.6%	2057	2541	3025	3388	3751	3993	*14%*
Application Software	10096	23.4%	12463	15609	17666	19602	21659	23111	*13%*
Total Software Product Support	22821	19.8%	27346	32065	35816	39204	42713	45375	*11%*

Source: INPUT

Exhibit VI-23

Spanish Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	105	17.0%	123	136	150	162	174	184	*8%*
- Mainframe	57	13.1%	65	70	73	76	80	80	*4%*
- Server	41	21.1%	49	55	64	72	80	88	*13%*
- Client	7	24.4%	9	11	12	14	14	15	*11%*
Application Software	83	23.4%	103	129	146	162	179	191	*13%*
- Mainframe	15	7.6%	16	18	17	18	19	20	*4%*
- Server	39	21.1%	47	62	75	83	92	99	*16%*
- Client	29	34.9%	39	49	54	61	68	72	*13%*
TOTAL Software Product Support	189	19.8%	226	265	296	324	353	375	*11%*

Source: INPUT

Exhibit VI-24

Spanish Software Product Support Market by Hardware Platform (Ptas Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	12,725	17.0%	14,883	16,456	18,150	19,602	21,054	22,264	*8%*
- Mainframe	6,919	13.1%	7,824	8,468	8,865	9,213	9,653	9,696	*4%*
- Server	4,901	21.1%	5,934	6,648	7,782	8,744	9,653	10,699	*13%*
- Client	905	24.4%	1,125	1,339	1,503	1,646	1,748	1,870	*11%*
Application Software	10,096	23.4%	12,463	15,609	17,666	19,602	21,659	23,111	*13%*
- Mainframe	1,852	7.6%	1,993	2,210	2,085	2,164	2,272	2,381	*4%*
- Server	4,718	21.1%	5,714	7,449	9,034	10,004	11,131	11,977	*16%*
- Client	3,526	34.9%	4,756	5,949	6,547	7,435	8,257	8,754	*13%*
TOTAL Software Product Support	22,821	19.8%	27,346	32,065	35,816	39,204	42,713	45,375	*11%*

Source: INPUT

G
The Netherlands

Exhibit VI-25

The Netherlands Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	114	3.3%	118	122	125	128	130	132	*2%*
RDBMSs	41	13.7%	46	50	54	58	63	66	*7%*
Application Development Tools	22	19.1%	26	32	35	39	42	45	*11%*
Application Software	140	10.1%	155	175	193	218	243	265	*11%*
Total Software Product Support	317	8.7%	345	379	407	443	477	508	*8%*

Source: INPUT

Exhibit VI-26

The Netherlands Software Product Support Revenues by Product Type, (Dfl Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	183	3.3%	189	195	200	205	208	211	*2%*
RDBMSs	65	13.7%	74	80	87	93	100	106	*7%*
Application Development Tools	35	19.1%	42	51	57	62	67	72	*11%*
Application Software	225	10.1%	247	280	309	349	389	424	*11%*
Total Software Product Support	508	8.7%	552	606	652	708	763	813	*8%*

Source: INPUT

Exhibit VI-27

The Netherlands Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	177	7.7%	191	204	214	225	234	243	*5%*
- Mainframe	96	-0.8%	95	94	91	87	83	80	*-4%*
- Server	68	19.1%	81	94	104	117	131	142	*12%*
- Client	13	10.7%	14	17	19	20	20	22	*9%*
Application Software	140	10.1%	155	175	193	218	243	265	*11%*
- Mainframe	26	-9.4%	23	23	22	24	24	26	*2%*
- Server	66	15.1%	76	89	101	113	131	149	*14%*
- Client	49	13.6%	56	63	69	81	88	90	*10%*
TOTAL Software Product Support	317	8.7%	345	379	407	443	477	508	*8%*

Source: INPUT

Exhibit VI-28

The Netherlands Software Product Support Market by Hardware Platform (Dfl Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	283	7.7%	305	326	343	359	375	389	*5%*
- Mainframe	154	-0.8%	153	150	146	140	133	127	*-4%*
- Server	109	19.1%	130	150	167	188	209	228	*12%*
- Client	20	10.7%	22	27	30	32	33	34	*9%*
Application Software	225	10.1%	247	280	309	349	389	424	*11%*
- Mainframe	41	-9.4%	37	37	35	38	39	42	*2%*
- Server	105	15.1%	121	143	162	182	210	238	*14%*
- Client	78	13.6%	89	100	111	130	140	144	*10%*
TOTAL Software Product Support	508	8.7%	552	606	652	708	763	813	*8%*

Source: INPUT

H
Sweden

Exhibit VI-29

Swedish Software Product Support Revenues by Product Type, ($ Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	60	7.4%	64	66	67	68	69	70	*2%*
RDBMSs	21	17.7%	25	28	31	35	38	40	*10%*
Application Development Tools	12	19.1%	14	17	18	20	22	23	*11%*
Application Software	73	7.8%	79	88	99	110	121	130	*10%*
Total Software Product Support	166	9.5%	181	200	216	234	252	268	*8%*

Source: INPUT

Exhibit VI-30

Swedish Software Product Support Revenues by Product Type, (SKr Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
Operating Software	395	7.4%	424	437	444	451	457	464	*2%*
RDBMSs	141	17.7%	166	186	206	232	252	265	*10%*
Application Development Tools	76	19.1%	91	110	122	133	144	156	*11%*
Application Software	486	7.8%	524	583	656	729	802	862	*10%*
Total Software Product Support	1098	9.7%	1205	1316	1428	1546	1656	1747	*8%*

Source: INPUT

Exhibit VI-31

Swedish Software Product Support Market by Hardware Platform ($ Millions)

Delivery Modes	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	92	11.2%	103	111	116	123	129	133	*5%*
- Mainframe	56	-2.5%	55	53	51	48	43	38	*-7%*
- Server	31	35.1%	41	49	56	65	75	85	*16%*
- Client	6	18.5%	7	8	9	10	10	10	*9%*
Application Software	73	7.8%	79	88	99	110	121	130	*10%*
- Mainframe	17	-11.7%	15	15	15	14	13	13	*-3%*
- Server	32	14.7%	37	42	48	58	65	71	*14%*
- Client	24	12.4%	27	31	36	39	43	46	*11%*
TOTAL Software Product Support	166	9.5%	181	200	216	234	252	268	*8%*

Source: INPUT

Exhibit VI-32

Swedish Software Product Support Market by Hardware Platform (SKr Millions)

	1995	1995-1996 Growth (%)	1996	1997	1998	1999	2000	2001	CAGR 96-01 (%)
System Software	612	11.2%	681	733	772	816	853	885	*5%*
- Mainframe	371	-2.5%	362	351	336	318	288	254	*-7%*
- Server	203	35.1%	274	327	374	433	499	564	*16%*
- Client	38	18.5%	44	54	61	65	66	67	*9%*
Application Software	486	7.8%	524	583	656	729	802	862	*10%*
- Mainframe	112	-11.7%	99	99	100	91	86	87	*-3%*
- Server	214	14.7%	245	281	319	382	431	468	*14%*
- Client	160	12.4%	180	203	237	256	285	307	*11%*
TOTAL Software Product Support	1,098	9.5%	1,202	1,326	1,432	1,554	1,672	1,777	*8%*

Source: INPUT

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VII

Revenue Analysis of Leading Software Product Support Vendors

This chapter lists the ten leading vendors in Europe as a whole, Germany, France, the United Kingdom, Italy, Spain, The Netherlands, and Sweden in the following markets:

- The systems software product support market
- The Application software product support market
- The total software product support market.

A
Software Product Support Vendors — Europe 1995

Microsoft and Novell do not appear in the support vendor rankings despite being prominent product vendors. Their absence can be attributed to the fact that much of their product support is provided by third parties.

Exhibits VII-1 to VII-24 show the estimated 1995 revenues which relate to systems software product support, Application software product support and total software product support, for Europe as a whole, Germany, France, the United Kingdom, Italy, Spain, The Netherlands, and Sweden.

Exhibit VII-1

Leading Vendors — System Software Product Support, Europe 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues ($ million)	Market Share (%)
1	IBM	U.S.	700	27.3
2	Digital	U.S.	400	15.6
3	SNI	Germany	400	15.6
4	HP	U.S.	300	11.7
5	Oracle	U.S.	120	4.7
6	Computer Associates	U.S.	110	4.3
7	Olivetti	Italy	89	3.5
8	Stream International	U.S.	70	2.7
9	Unisys	U.S.	50	1.9
10	NCR	US	48	1.9
	Total Listed		2,332	90.9
	Total Market		2,565	100

Source: INPUT

Exhibit VII-2

Leading Vendors — Application Software Product Support, Europe 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues ($ million)	Market Share (%)
1	IBM	U.S.	200	9.8
2	SAP	Germany	150	7.4
3=	Stream International	U.S.	90	4.4
3=	Computer Associates	Germany	90	4.4
5	SAS	U.S.	45	2.2
6	Digital	U.S.	40	2.0
7=	HP	U.S.	35	1.7
7=	Olivetti	Italy	35	1.7
7=	Unisys	U.S.	35	1.7
7=	Oracle	U.S.	35	1.7
	Total Listed		785	38.6
	Total Market		2,035	100

Source: INPUT

Exhibit VII-3

Leading Vendors — Total Software Product Support, Europe 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues ($ million)	Market Share (%)
1	IBM	U.S.	900	19.6
2	Digital	U.S.	430	9.3
3	SNI	Germany	420	9.1
4	HP	U.S.	340	7.4
5	Computer Associates	U.S.	220	4.8
6	Oracle	U.S.	175	3.8
7	Stream International	U.S.	170	3.7
8	SAP	Germany	150	3.3
9	Informix	U.S.	85	1.8
10	Unisys	U.S.	83	1.8
	Total Listed		3,123	67.9
	Total Market		4,600	100

Source: INPUT

B

Software Product Support Vendors — Germany 1995

Exhibit VII-4

Leading Vendors — System Software Product Support, Germany 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (DM million)	Market Share (%)
1	SNI	Germany	290	35.3
2	IBM	U.S.	180	21.9
3	Digital	U.S.	120	14.6
4	HP	U.S.	40	4.8
5=	Stream International	U.S.	25	3.0
5=	Oracle	U.S.	25	3.0
7	Software AG	Germany	20	2.4
8=	Computer Associates	U.S.	15	1.8
8=	Unisys	U.S.	15	1.8
10	Informix	U.S.	10	1.2
	Total Listed		740	90.1
	Total Market		821	100

Source: INPUT

Exhibit VII-5

Leading Vendors — Application Software Product Support, Germany 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (DM million)	Market Share (%)
1	SAP	Germany	180	30.9
2	IBM	U.S.	45	7.7
3	SNI	Germany	40	6.9
4=	Compunet	Germany	30	5.2
4=	Computer Associates	U.S.	30	5.2
4=	Stream International	Germany	30	5.2
7	Datev	Germany	25	4.3
8	SAS	U.S.	20	3.4
9=	KHK	Germany	15	2.6
9=	Softlab	Germany	15	2.6
	Total Listed		430	73.0
	Total Market		582	100

Source: INPUT

Exhibit VII-6

Leading Vendors — Total Software Product Support, Germany 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (DM million)	Market Share (%)
1	SNI	Germany	330	23.5
2	IBM	U.S.	225	16.0
3	SAP	Germany	180	12.8
4	Digital	U.S.	135	9.6
5	HP	U.S.	60	4.3
6	Stream International	U.S.	55	3.9
7	Computer Associates	U.S.	50	3.6
8=	Software AG	Germany	30	2.1
8=	Datev	Germany	30	2.1
8=	CompuNet	Germany	30	2.1
	Total Listed		1,155	82.3
	Total Market		1,403	100

Source: INPUT

C

Software Product Support Vendors — France 1995

Exhibit VII-7

Leading Vendors — System Software Product Support, France 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (FF million)	Market Share (%)
1	IBM	U.S.	700	33.8
2	Digital	U.S.	270	13.0
3	Bull	France	260	12.5
4	HP	U.S.	160	7.7
5=	Oracle	U.S.	140	6.8
5=	SNI	Germany	140	6.8
7	Computer Associates	U.S.	85	4.1
8	Stream International	U.S.	50	2.4
9	Unisys	U.S.	30	1.4
10	Informix	US	25	1.2
	Total Listed		1,860	89.7
	Total Market		2,073	100

Source: INPUT

Exhibit VII-8

Leading Vendors — Application Software Product Support, France 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (FF million)	Market Share (%)
1	IBM	U.S.	270	15.1
2=	Sopra	France	110	6.1
2=	Computer Associates	U.S.	110	6.1
4	GSI	France	100	5.6
5	Top Log International	France	70	3.9
6	Fininfor	France	60	3.4
7=	Saari	France	40	2.2
7=	Alcatel	France	40	2.2
9=	Stream International	U.S	35	2.0
9=	Bull	France	35	2.0
	Total Listed		870	31.8
	Total Market		1,790	100

Source: INPUT

Exhibit VII-9

Leading Vendors — Total Software Product Support, France 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (FF million)	Market Share (%)
1	IBM	U.S.	970	25.1
2	Digital	U.S.	300	7.8
3	Bull	France	295	7.6
4	Computer Associates	U.S.	195	5.1
5	HP	U.S.	190	4.9
6	Oracle	U.S.	160	4.1
7	SNI	Germany	150	3.9
8	Sopra	France	110	2.8
9	GSI	France	105	2.7
10	Stream International	U.S.	85	2.2
	Total Listed		2,560	66.2
	Total Market		3,863	100

Source: INPUT

D

Software Product Support Vendors — United Kingdom 1995

Exhibit VII-10

Leading Vendors — System Software Product Support, United Kingdom 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (PS million)	Market Share (%)
1	IBM	U.S.	60	23.4
2	Digital	U.S.	55	21.5
3	HP	U.S.	40	15.6
4	ICL (Fujitsu)	U.K.	25	9.8
5	Oracle	U.S.	15	5.9
6	SNI	Germany	10	3.9
7=	Computer Associates	U.S.	8	3.1
7=	Stream International	U.S.	8	3.1
9	Bull	France	7	2.7
10	Unisys	U.S.	5	2.0
	Total Listed		233	91.0
	Total Market		256	100

Source: INPUT

Exhibit VII-11

Leading Vendors— Application Software Product Support, United Kingdom 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (PS million)	Market Share (%)
1	IBM	U.S.	21	13.3
2	ICL (Fujitsu)	U.K.	15	9.6
3=	Computer Associates	U.S.	14	9.0
3=	Misys	U.K.	14	9.0
5	P&P	U.K.	8	5.1
6	Peterborough	U.K.	7	4.5
7	SAS	U.S.	5	3.2
8=	Stream International	U.S.	4	2.5
8=	Oracle	U.S.	4	2.5
10	SAP	Germany	3	1.9
	Total Listed		95	66.1
	Total Market		157	100

Source: INPUT

Exhibit VII-12

Leading Vendors — Total Software Product Support, United Kingdom 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (PS million)	Market Share (%)
1	IBM	U.S.	81	19.6
2=	HP	U.S.	43	10.4
2=	Digital	U.S.	43	10.4
4	ICL (Fujitsu)	U.K.	40	9.7
5	Computer Associates	U.S.	22	5.3
6	Oracle	U.S.	19	4.6
7	Misys	U.S.	17	4.1
8=	SNI	Germany	12	2.9
8=	Stream International	U.S.	12	2.9
10	Unisys	U.S.	7	1.7
	Total Listed		286	69.2
	Total Market		413	100

Source: INPUT

E

Software Product Support Vendors — Italy 1995

Exhibit VII-13

Leading Vendors — System Software Product Support, Italy 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Lira billion)	Market Share (%)
1	IBM	U.S.	90	20.4
2	Digital	U.S.	47	10.6
3	Olivetti	Italy	45	10.2
4	SNI	Germany	32	7.2
5	Computer Associates	U.S.	20	4.5
6=	HP	U.S.	10	2.3
6=	Oracle	U.S.	10	2.3
6=	Stream International	U.S.	10	2.3
9	Bull	France	7	1.6
10	Finsiel	Italy	5	1.1
	Total Listed		276	62.4
	Total Market		442	100

Source: INPUT

Exhibit VII-14

Leading Vendors — Application Software Product Support, Italy 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Lira billion)	Market Share (%)
1	Olivetti	Italy	40	8.1
2	IBM	U.S.	35	7.1
3	Finsiel	Italy	25	5.1
4=	Computer Associates	U.S.	20	4.1
4=	SAP	Germany	20	4.1
4=	Stream International	U.S.	20	4.1
7	SAS	U.S.	15	3.0
8=	SNI	Germany	10	2.0
8=	Digital	U.S.	10	2.0
8=	HP	U.S.	10	2.0
	Total Listed		205	41.6
	Total Market		493	100

Source: INPUT

Exhibit VII-15

Leading Vendors — Total Software Product Support, Italy 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Lira billion)	Market Share (%)
1	IBM	U.S.	125	13.3
2	Olivetti	Italy	85	9.1
3	Digital	U.S.	57	6.1
4	SNI	Germany	42	4.5
5	Computer Associates	U.S.	40	4.3
6=	Stream International	U.S.	30	3.2
6=	Finsiel	Italy	30	3.2
8	HP	U.S.	20	2.1
9=	Software AG	Germany	15	1.6
9=	Oracle	U.S.	15	1.6
	Total Listed		459	49.1
	Total Market		935	100

Source: INPUT

F

Software Product Support Vendors — Spain 1995

Exhibit VII-16

Leading Vendors — System Software Product Support, Spain 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Pta million)	Market Share (%)
1	IBM	U.S.	3000	23.6
2	Digital	U.S.	1815	14.3
3	SNI	Germany	1331	10.5
4	HP	U.S.	968	7.6
5	Oracle	U.S.	810	6.4
6	Computer Associates	U.S.	790	6.2
7	Software AG	Germany	590	4.6
8=	NCR	U.S.	484	3.8
8=	Unisys	U.S.	484	3.8
10	Bull	France	379	3.0
	Total Listed		10,651	83.7
	Total Market		12,725	100

Source: INPUT

Exhibit VII-17

Leading Vendors — Application Software Product Support, Spain 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Pta million)	Market Share (%)
1	IBM	U.S.	1000	9.9
2	Computer Associates	U.S.	700	6.9
3=	SAP	Germany	350	3.5
3=	SAS	U.S.	350	3.5
5=	Logic Group	Spain	300	3.0
5=	Stream International	U.S.	300	3.0
7	Digital	U.S	280	2.8
8	HP	U.S	270	2.7
9	SNI	Germany	260	2.6
10	NCR	U.S.	250	2.5
	Total Listed		4,030	39.9
	Total Market		10,096	100

Source: INPUT

Exhibit VII-18

Leading Vendors — Total Software Product Support, Spain 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Pta million)	Market Share (%)
1	IBM	U.S.	4000	17.5
2	Digital	U.S.	2095	9.2
3	SNI	Germany	1591	7.0
4	Computer Associates	U.S.	1490	6.5
5	HP	U.S.	1238	5.4
6	Oracle	U.S.	1010	4.4
7	NCR	U.S.	734	3.2
8	Unisys	U.S.	694	3.0
9	Stream International	U.S.	650	2.8
10	Software AG	Germany	620	2.7
	Total Listed		14,122	61.9
	Total Market		22,821	100

Source: INPUT

G

Software Product Support Vendors — The Netherlands 1995

Exhibit VII-19

Leading Vendors — System Software Product Support, The Netherlands 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Dfl million)	Market Share (%)
1	IBM	U.S.	69	23.6
2	Getronics	Netherlands	65	3.0
3	Digital	U.S.	60	14.3
4=	SNI	Germany	13	10.5
4=	Oracle	U.S.	13	6.4
6	Computer Associates	U.S.	11	6.2
7	Unisys	U.S.	10	3.8
8=	HP	U.S.	8	7.6
8=	Olivetti	Germany	8	4.6
10	NCR	U.S.	5	3.8
	Total Listed		262	92.5
	Total Market		283	100

Source: INPUT

Exhibit VII-20

Leading Vendors — Application Software Product Support, The Netherlands 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Dfl million)	Market Share (%)
1	Getronics	Netherlands	30	13.3
2	IBM	U.S.	20	8.9
3	Baan	Netherlands	18	8.0
4	Computer Associates	U.S.	15	6.7
5	SAP	Germany	13	5.8
6	Digital	U.S	12	5.3
7	HP	U.S	8	3.6
8	Stream International	U.S.	6	2.7
9	SAS	U.S.	5	2.2
10	Unisys	U.S.	4	1.8
	Total Listed		131	53.7
	Total Market		225	100

Source: INPUT

Exhibit VII-21

Leading Vendors — Total Software Product Support, The Netherlands 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (Dfl million)	Market Share (%)
1	Getronics	Netherlands	95	18.7
2	IBM	U.S.	89	17.6
3	Digital	U.S.	72	14.2
4	Computer Associates	U.S.	26	5.1
5	Baan	Netherlands	18	3.5
6=	SNI	Germany	16	3.1
6=	HP	U.S.	16	3.1
6=	Oracle	U.S.	16	3.1
9	Unisys	U.S.	14	2.8
10	SAP	Germany	13	2.6
	Total Listed		375	73.8
	Total Market		508	100

Source: INPUT

H

Software Product Support Vendors — Sweden 1995

Exhibit VII-22

Leading Vendors — System Software Product Support, Sweden 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (SKr million)	Market Share (%)
1	IBM	U.S.	200	32.7
2	Digital	U.S.	172	28.1
3	SNI	Germany	46	7.5
4=	Oracle	U.S.	20	3.3
4=	Unisys	U.S.	20	3.3
4=	HP	U.S.	20	3.3
4=	ICL (Fujitsu)	U.K.	20	3.3
8	Computer Associates	U.S.	18	2.9
9=	Bull	France	13	2.1
9=	NCR	U.S.	13	2.1
	Total Listed		542	88.6
	Total Market		612	100

Source: INPUT

Exhibit VII-23

Leading Vendors — Application Software Product Support, Sweden 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (SKr million)	Market Share (%)
1	Celsius	Sweden	120	24.7
2	IBM	U.S.	70	14.4
3	WM-Data	Sweden	60	12.3
4	Computer Associates	U.S.	35	7.2
5	SAP	Germany	15	3.1
6	SAS	U.S.	10	2.1
7=	Digital	U.S	8	1.6
7=	Stream International	U.S.	8	1.6
7=	P&P	U.K.	8	1.6
10	SNI	Germany	5	1.0
	Total Listed		339	69.7
	Total Market		486	100

Source: INPUT

Exhibit VII-24

Leading Vendors — Total Software Product Support, Sweden 1995

Rank	Vendor	Country of Origin	Estimated Sector Revenues (SKr million)	Market Share (%)
1	IBM	U.S.	270	24.6
2	Digital	U.S.	180	16.4
3	Celsius	Sweden	125	11.4
4	WM-Data	Sweden	65	5.9
5	Computer Associates	U.S.	53	4.8
6	SNI	Germany	51	4.6
7=	HP	U.S.	24	2.2
7=	ICL (Fujitsu)	U.K.	24	2.2
9=	Unisys	U.S.	23	2.1
9=	Oracle	Germany	23	2.1
	Total Listed		838	76.3
	Total Market		1,098	100

Source: INPUT

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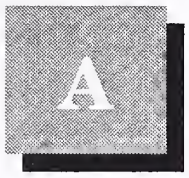

Exchange Rates

Exhibit A-1

US Dollar and ECU Exchange Rates 1996

Country	Currency	US Dollar	ECU
Europe	$	1	0.781
France	FF	4.89	6.27
Germany	DM	1.43	1.83
United Kingdom	PS	0.644	0.825
Italy	Lira (K)	1.59	2.03
Sweden	Sek	6.63	8.49
Netherlands	Dfl	1.6	2.05
Spain	Ptas	121	155.00

Source: Financial Times January 1996

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