CORPORATE NETWORK MANAGEMENT REQUIREMENTS

EUROPE 1992

INPUT

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Abstract

The outsourcing of network operations is becoming an increasingly attractive option for users, given the increased freedom of choice created by deregulation in Europe and the need to cut costs while maintaining and increasing network performance.

Networking outsourcing covers the management of a client's telecommunications system, whether in part or whole, through a long-term contract. INPUT's assessment of the size and expected growth of the European market for such services is given.

This report describes and analyses the opinion and experience of network outsourcing from the perspective of major users. The aspects of focus include their respective

- Network configuration and development plans
- Views on outsourcing
- Recommendations to vendors offering or planning to offer network management services.

These five case studies described in the report, emphasise the high degree of caution with which users are approaching the network outsourcing concept. The key messages arising from the research are as follows:

- The PTTs still have too strong an influence on the market for service providers to be able to provide users with the services they really need.
- Proposed outsourcing service costs by vendors are in general deemed to be much too high.

The principal recommendation for vendors is to develop a partnership of trust with the user. This is of extremely high importance in the vendor selection process.

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I
Introduction

A
Background

Vendors from all over the information systems (IS) world are making attempts to enter the market for network services. At the highest level this could potentially include the complete outsourcing of a company's network to a service provider, with the service provider taking complete responsibility for the entire communications network and its functions.

An outsourcing relationship can also involve, however, just a portion of the communications network function being contracted to a vendor in a long-term relationship. In each case the vendor is responsible for the performance of the function.

The potential in Europe for outsourcing services is very large given the current undeveloped state of the European market, which has largely been held back by PTT regulations. An organisation's data network, however, is a highly prized asset, and failure to deliver the highest level of service within many organisations is commonly regarded as disastrous.

Network outsourcing receives extremely high coverage in the trade press, which gives the distinct impression that the market is opening up considerably in terms of users' attitudes to services. The question is raised, however, as to how far a given company would really be prepared to go in terms of handing over control of its network operations.

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B

Purpose and Scope

Due to the current low level of development of the network outsourcing market, the purpose of this report was to determine the attitude of major network managers to the potential outsourcing of their own networks.

The use of services is most developed in the U.K. However, the purpose of the report was to gauge the attitude of organisations, primarily outside of the U.K., where services are less frequently used.

The study reports on each participating company's current network configuration, network development plans, and attitudes to network outsourcing.

Among the issues addressed are

- What the essential characteristics of a successful vendor would be
- Developments in technology
- PTT influence on network development.

C

Methodology

Five companies in different industries were selected by INPUT largely because of their multinational presence. All of the companies, with the exception of Amadeus, for reasons of confidentiality, expressed the wish not to be named. Disguised names have therefore been used. The pseudonyms and descriptions of the companies studied are listed in Exhibit I-1.

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EXHIBIT I-1

Case Study Companies and Descriptions

Company	Industry	Interview Location
"International General Trading Corporation (IGT)"	Major Japanese international corporation serving diverse industries, largely manufacturing	U.K.
"Energy Providers (EP)"	Germany energy production company	Germany
"Automotive Industry Manufacturer (AIM)"	Tyre manufacturer in France	France
Amadeus	Information distribution and reservation system suppliers	Germany
"Automotive International (AI)"	Automotive division of a leading German private international company	Germany

Information about these companies was collected from public sources such as annual reports and the trade press.

Interviews were arranged with personnel with the primary responsibility within the companies for the development and planning of the communications network.

The interviews were conducted face to face at the company premises, with a list of specific questions and topics for discussion. (A copy of the interview outline is included as Appendix A).

In addition, INPUT conducted 15 detailed telephone interviews with corporate network managers in the U.K. The interviews were conducted along the same lines as the face-to-face interviews, asking network planners about their network development plans and views on outsourcing services. The questionnaires used for both types of interviews are given in Appendix A.

This study reports on the information gained from these interviews.

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In addition, market forecasts and trends are supplied which are produced as part of INPUT's continual assessment of the software and services market in Europe. Trends and issues from research conducted by INPUT in the U.S., where the outsourcing market is far more developed than in Europe, have also been included in the report to provide a more comprehensive perspective of the major issues being addressed in this market.

D

Organisation of the Report

The Executive Overview provides a summary of the key observations made, and the conclusions and recommendations reached through these interviews.

Chapter III provides an overview of the outsourcing market in Europe and the U.S., together with figures of projected market size and growth over the next five years.

The next five chapters provide the results of the individual company interviews. Each chapter starts with a background of the company and its industry, and continues with a description of the company's network and plans for future development. The respondents' opinions of outsourcing and the relationship of these services to the company's requirements are given, with a final summary of the main issues raised.

The final chapter provides general observations from the managers that were interviewed by telephone. It gives their opinions and concerns on network outsourcing. Finally, recommendations are given as to the type of user organisation which is most likely to be interested in outsourcing services at the market's current state of development.

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II
Executive Overview

This report focuses on major network users' opinions on network outsourcing. The research identifies the reservations which users feel about the services on offer and their key requirements in terms of networking.

A
Network Outsourcing Vendors Must Develop User Trust

Vendor opportunities to offer network outsourcing services to users are increasing in response to the following factors:

- The corporate network environment is becoming increasingly complex, which in turn requires highly skilled and expensive personnel to support it.

- Businesses are having to operate and compete more on a global basis increasing their networking requirements.

- Organisations are under pressure to cut costs, particularly in what are regarded as non-core activities.

INPUT expects the market for such services to grow at an average annual rate of 24% up to 1997, from a 1992 market value of $410 million.

Two main factors, however, are acting to restrict the markets potential. Outside of vendor control is the restrictive influence of continuing PTT monopolies. Frequently, vendors are unable to offer a complete service lead because of these influences, e.g., in 1992 in Germany, 'data only' services can be offered.

However, vendors can exercise control over the second of the main influences, which is the negative opinions and attitudes of users to outsourcing their networks.

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In order to position themselves to satisfy user requirements and to overcome the main fears about network outsourcing, vendors need to clearly identify the following:

- What users require now, and what they expect to require in the future, regarding the efficient and effective running of their networks.

- What the main fears and opinions of users are regarding network outsourcing.

- What the characteristics are which would attract users to a particular service vendor.

Analysis of this information reveals that the most important task for vendors currently is to generate a very high level of trust through partnership or working closely with a user. It is essential, therefore, that vendors do not attempt to gain key accounts through promising services outside of their current level of capability.

B

Market Size Predictions

The management and provision of communications networks by third parties is a major outsourcing opportunity for vendors. INPUT estimates that the market for outsourced network management in Europe is currently worth $410 million. This will grow at an average annual rate of 24% to a value of $1.2 billion by 1997. A comparison of the market sizes of the major economies in Europe is given in Exhibit II-1.

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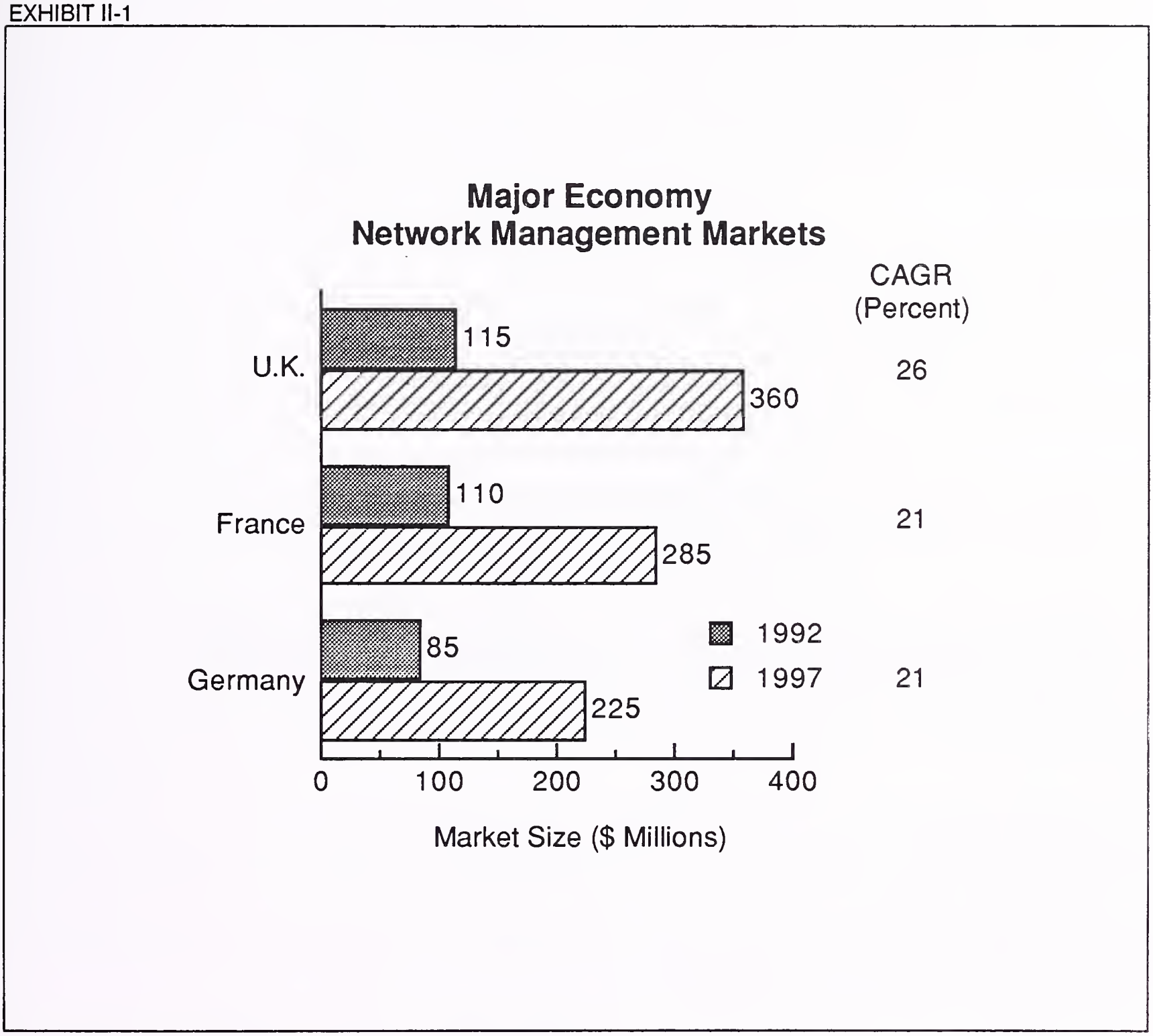
EXHIBIT II-1



There are a number of factors which are acting for and against the development of the market illustrated in Exhibit II-2 and discussed further in the following sections.

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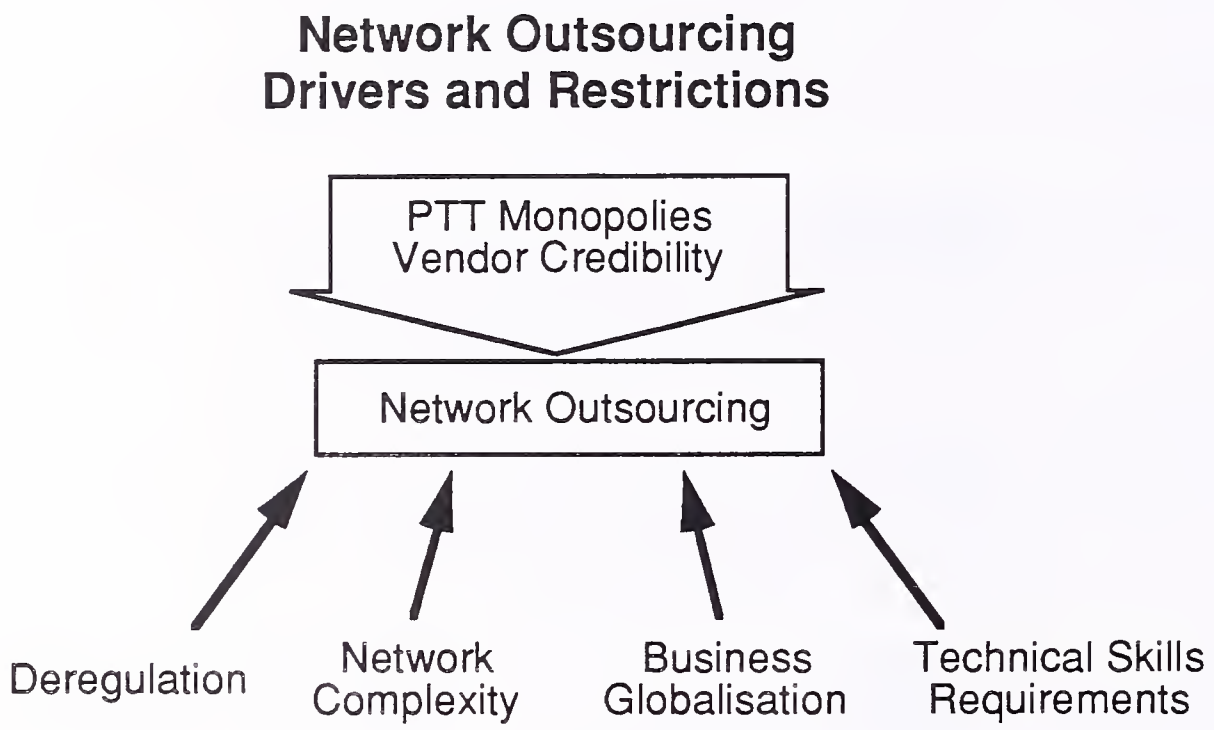
EXHIBIT II-2



C

European Regulatory Constraints

The U.K. currently leads the market in terms of size, which is a result of the combination of the openness of the market, the deep recession and the necessity to evaluate costs very closely, and the greater core business development stance of U.K. executives.

Germany is still largely restricted by the strength of influence of DBP Telekom. The increasingly difficult economic conditions and concentration of effort with which vendors are approaching the market will, however, serve to drive market growth.

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German companies, despite their renowned conservatism, are also very keen to release themselves from the control of DBP Telekom. The services of the PTT are not always highly regarded, and costs, particularly on leased line provision, have been highly restrictive to private network development in the past. German users will largely welcome a greater freedom of choice of service provider, particularly within the domestic market.

Currently in Germany, within the country, DBP Telekom in effect has complete monopoly over the provision of voice services with leased lines currently only available for data traffic, unless a premium is paid to the PTT for lost revenues. This restricts alternative network providers to the provision of pure data services, which are not as attractive as voice and data services combined. France Telecom has a similar monopoly for voice services within France.

The circuit usage in Germany is open for international services, but still the proportion of bandwidth used for voice and data is fixed by the PTT, restricting the freedom of usage.

The only gradual influence of deregulation across Europe also has a countering effect on those countries where the market is more open. Even users in the U.K., where there is much more freedom, are sceptical about the provision of outsourced network services because their requirements often extend into Europe.

Even where the market is more liberalised and a network service is available through an alternative service provider to the PTT, the local connection must still be made through the PTT, which can be costly and therefore restrictive. Additionally, service levels from PTTs at this level cannot always be guaranteed; it is up to the service provider to ensure a contractual relationship with the PTT for a particular level of service, which is not always possible.

Until restrictions such as these are lessened, and even when they are, the PTT influence will still hold strong for a number of years, as has been seen with BT in the U.K.; the European users will be restricted in terms of freedom of choice, and therefore, the growth of the market will be effected.

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D

Key User Requirements

The users interviewed had a number of requirements which were considered key to the improvement of their networks; these are summarised in Exhibit II-3.

EXHIBIT II-3

Key User Requirements

- Increased geographic scope
- Freedom of voice communications
- Standardisation of traffic handling
- Simplified management
- Lower wage bills
- Maximised performance

The most frequently iterated requirement was to extend the geographic scope of their communications networks. This raises a number of problems including the following:

- The need to closely manage the network throughout the 24 hours a day, seven days a week period, in order to work to worldwide timescales.
- Inconsistency by country of service through differing levels of quality and availability, and incompatible standards.
- High turnover of skilled personnel who, although needed because of the high levels of network management quality required, become disillusioned with their less challenging tasks on remote sites.
- High cost of private equipment and circuit rental.

Another common theme raised was the desire for greater freedom of choice for handling voice communications. This is, however, largely out of vendor control in Europe, being controlled by indigenous PTTs.

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Further requirements included the maximisation of network performance in terms of network uptime, security, and inevitably cost savings.

The standardisation of network communications was an important factor. Network management is becoming increasingly complex given the plethora of technologies and standards currently in use. This breeds the need for experts with a wide range of technical skills in order to competently manage the network and its various components. The standardisation of the various modes of communications, and therefore simplified and centralised management, was seen as highly attractive. This is largely in the reduction in wage bills for competent staff, which are frequently found to be in short supply.

E

Major Reservations Concerning Outsourcing

EXHIBIT II-4

Major Reservations

- Loss of control
- Loss of creative management
- Monopoly situation
- High costs
- Unclear vendor strategic direction

The main negative theme surrounding the issue of network outsourcing was the fear of a loss of control on behalf of the organisation outsourcing the network. The main issue arising from this was the perceived inability to regain control over the network at a given point in time if desired, or if it proved necessary because of vendor inadequacy.

The major loss which would not easily be regained would be in terms of in-house technical expertise, which is becoming an increasingly crucial asset. Additionally, it was viewed that a lack of real interest on behalf of the service provider in the performance of the network, would replace in-house creative management of the network's development and optimisation.

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Users were not attracted to the idea of only one service provider being in control of the network. This brings the fear of being subjected to a monopolistic situation which simply replaces the controls imposed by PTTs.

Although the cost issue is becoming increasingly critical for users, network service providers were viewed as charging unrealistic prices for their services, and the general opinion was that costs would be lower if the management was kept in-house.

Further, there was concern about the strategic direction of potential service providers. Users want to know how vendors will develop their expertise and services in order to recognise an alignment with their own plans, and that these vendor strategies are in their own best interests.

Given the very high networking requirements, and level of mistrust in third parties of the major multinational accounts, there are organisation types which, by their characteristics, shown in Exhibit II-5, INPUT predicts are potentially more open to outsourcing their network operations.

EXHIBIT II-5

Characteristics of Potential Outsourcing Candidates

Organisation	Network
Network not core business activity	Private development low
Loss industry	Low in-house management
Strong services orientation	Nationally biased
Competitors taking lead	Limited international requirements

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F

Successful Vendor Characteristics

On the whole, the users interviewed did not believe that using a third party could facilitate a cost-effective improvement to their current situation. The idea of outsourcing to a vendor with the right credentials, however, was not excluded and most were open to the idea to some extent.

The main issue to be addressed was the credibility of the potential vendor. Amongst those which had experience of outsourcing of any kind, credibility, it was strongly felt, could only be built up through close knowledge and experience of a vendor. This enables a great enough level of trust to develop for a gradual lessening of control on the part of the in-house staff, with control gradually being relegated to the service provider. This method also facilitates a low level of disruption to the user organisation which can be controlled in a highly phased and staged process.

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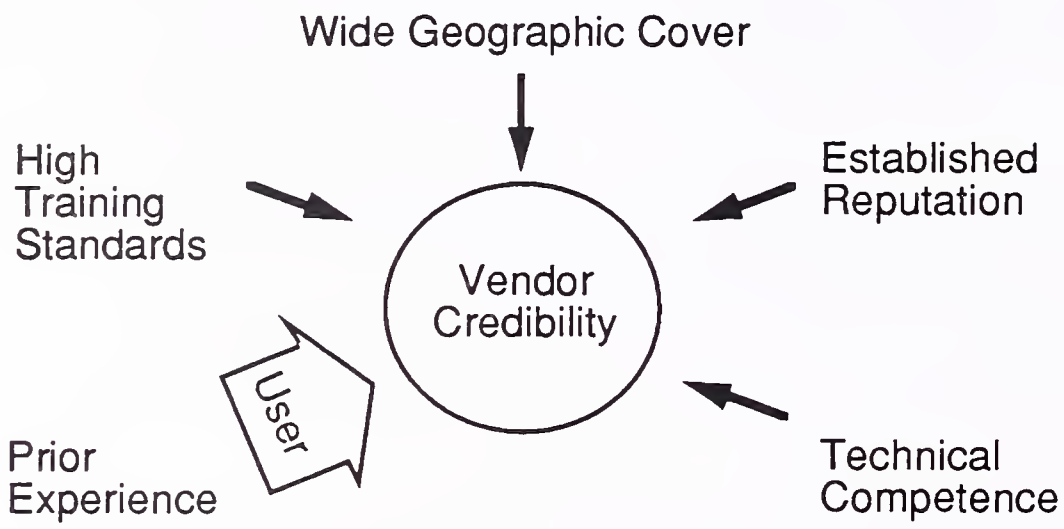
EXHIBIT II-6



No experience of a particular vendor would undoubtedly, in the majority of cases, exclude a particular vendor almost totally from consideration. The exception could be a service provider which already had a good and established reputation in the market, although this would still be approached by users with a very high level of caution.

The size of the vendor organisation was particularly important with the consideration in mind of future development worldwide, for the user.

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Additionally, expertise in terms of technical skill and competence, and a high level of vendor in-house training in order to maintain these skill levels, was very important to the users.

Cost was not raised as a major selection criteria. In terms of pricing, however, users wanted a clear tariff structure which incorporated flexibility.

G

Recommendations to Vendors

Experience from research in the U.S., where the market is more developed, has shown that users which are using outsourcing services are predominantly satisfied with the services they receive. Most of the benefits promised by vendors had in fact been realised. The main conclusions of research conducted by INPUT in the U.S. are given in Exhibit II-7.

EXHIBIT II-7

U.S. User Conclusions

- Significant cost savings
- Network reliability and availability increases
- Users satisfied
- Users can focus on core business

It is up to vendors in Europe to convince potential users that these benefits can in fact be realised. Vendor recommendations are based on INPUT's analysis of user needs and opportunities in the market.

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EXHIBIT II-8

Vendor Recommendations

- Establish close relationship/partnership with client
- Use entry-level approach
- Don't over promise
- Demonstrate clear strategic goals

In order to attract the major worldwide accounts at the market's current stage of development, the main task for vendors is to prove global capabilities and to engender a strong level of trust with a potential client. Given the market restrictions and underdevelopment of the market in Europe, this is not an easy task. Vendors are often restricted in their global capabilities end-to-end through the PTTs, and few already have major contracts for network outsourcing services by which they can prove their capabilities.

In order to make a significant impact in the future in this market, the approach to take should be through careful account management of current and potential major clients.

Vendors should take a very gradual approach and not attempt to over-promise in order to gain key accounts, which could detract from credibility with the user organisation. An entry-level approach such as simple circuit provision or node management is a very important stage in establishing credibility in the short term. This could enable a progression of commitments with increasing levels of service and control resulting.

The network outsourcing relationship should be a long-term partnership between a company and its vendor. In order to generate trust, a vendor's motivations and goals and the user's network goals should be shared and understood in the initial stages.

Currently, the greater development of the platform operations outsourcing market creates an opportunity for the major vendors in this area, having already established a working relationship, to extend their services to network operations.

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III
Characteristics of the Network Outsourcing Market

A

Network Management Outsourcing Market Value to Reach over $1 Billion by 1997

The generalised economic slowdown in Europe has severely impacted the software and services market as a whole. However, the opposite effect is being experienced for outsourcing services. INPUT predicts that the outsourcing market will achieve growth rates of 22% on average per year up to 1997, in Europe - double the rate of the systems and software market overall.

Within the outsourcing market INPUT defines four categories. These are illustrated in Exhibit III-1.

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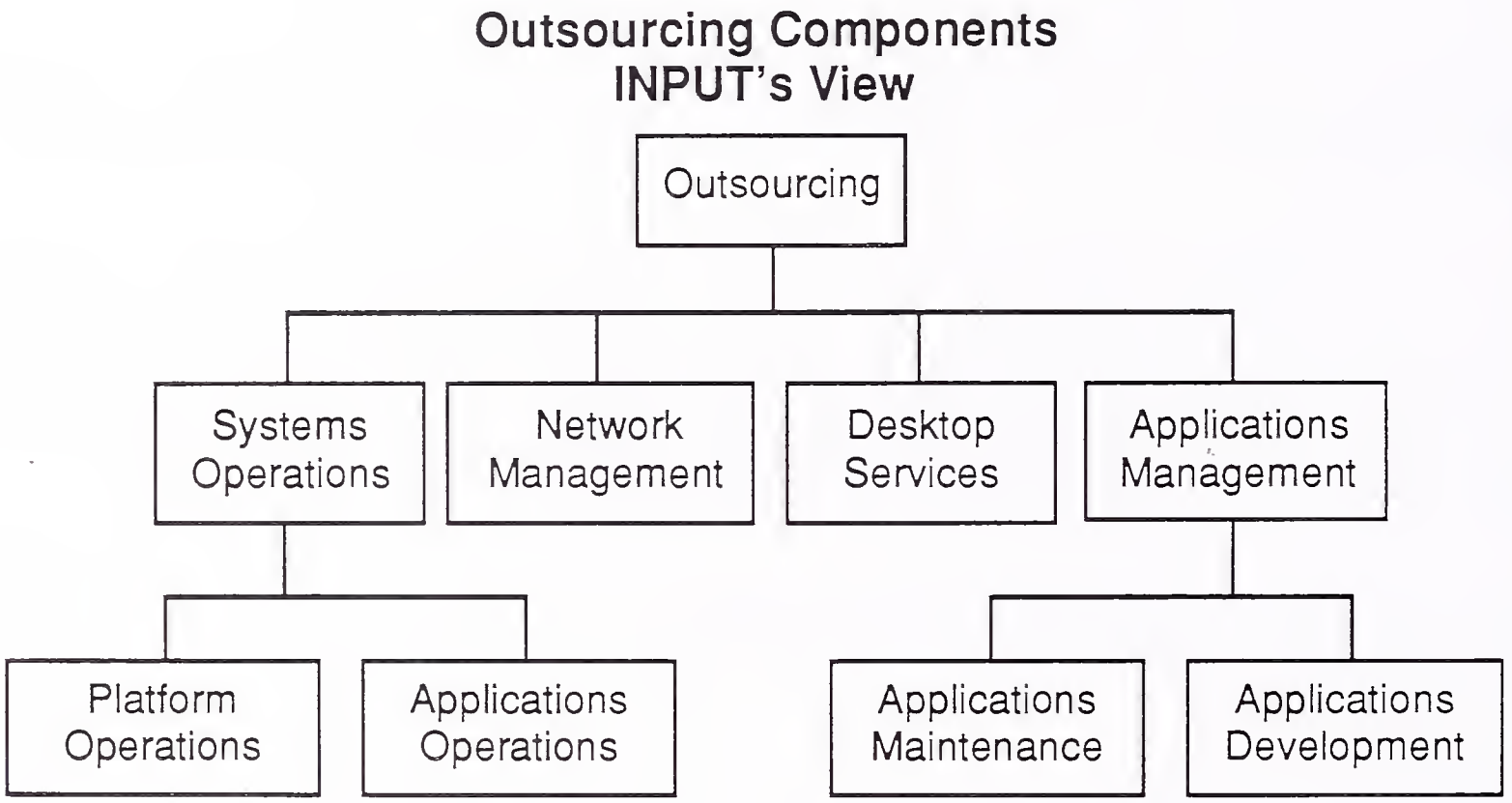
EXHIBIT III-1



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A more detailed description of the outsourcing category is given in Appendix B.

INPUT has always predicted that outsourcing will develop in three stages:

- Firstly, by outsourcing IS infrastructure management such as the operation of data centres

- Secondly, by the combination of management by external vendors of both systems development and IS infrastructures

- Thirdly, by the outsourcing of complete business functions of which IS is merely a part.

Indeed in Europe, applications operations is forecast to grow more rapidly than platform operations over the next five years as organisations increasingly accept the virtues of outsourcing development.

In other instances, the outsourcing of complete business functions (business operations) has also begun. Examples of this include the willingness of many local government authorities in the U.K. to outsource their revenue collection, and BP Exploration's outsourcing of its accounting function to Andersen Consulting.

However, many organisations are still at the stage of outsourcing their IS infrastructure management. Even here, there are major changes taking place in the nature of the services outsourced with a decreased emphasis on the outsourcing of mainframe-based data centres and an increased emphasis on the management of corporate networks and desktop services. As a result, these new forms of IS infrastructure management are forecast to be the fastest growing subsectors of systems operations over the next five years.

It is expected that infrastructure management consisting of platform operations, network management, and desktop services will continue to account for approximately 70% of systems operations revenues. However, as the importance of platform operations declines from 45% of systems operations in 1992 to 40% by 1997, so the increasing importance of network management and desktop services will fill this gap. Exhibit III-2 illustrates the relative growth rates predicted for the systems operations market subsectors.

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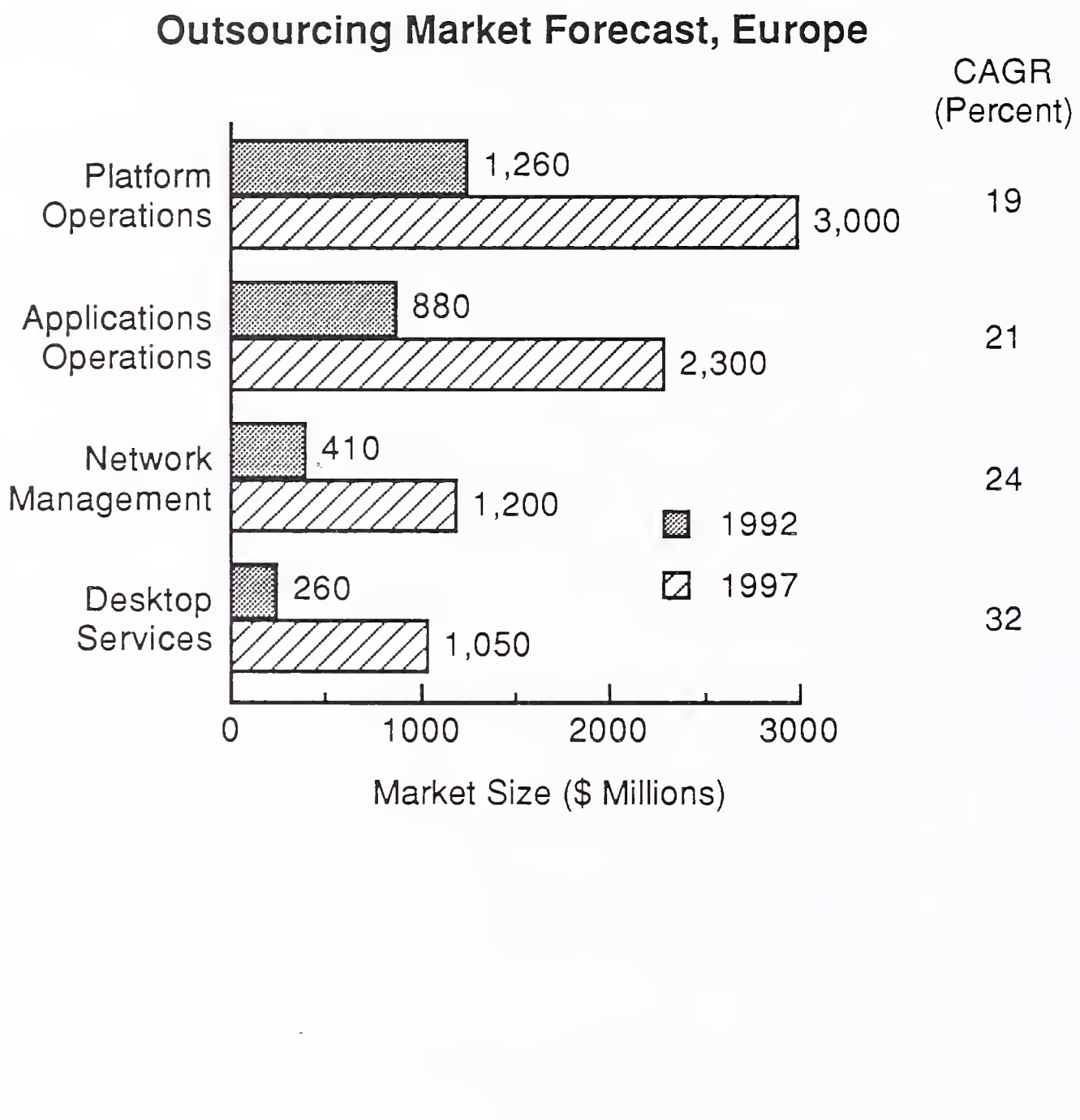
EXHIBIT III-2



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B

U.K. the Most Developed Market

The U.K. is the most developed outsourcing market in Europe and will continue to develop rapidly. This is due to the combination of the depth of the recession being experienced and the cultural stance taken towards outsourcing. Executives in the U.K. have a greater propensity to adopt a core business focus than those in many other regions of Europe.

This particularly applies to Germany where many executives are likely to oppose an outsourcing philosophy. This stance is compounded by the country's employment laws, which strongly support the employees. Nevertheless, organisations in Germany are now facing more difficult economic conditions and are taking an increasing interest in exploring outsourcing options. A number of major US outsourcing vendors are also actively targeting Germany. The concept of outsourcing is becoming widely publicised, both by these organisations and by German vendors such as Debis Systemhaus. Consequently, adoption of systems operations in Germany is forecast to grow substantially over the next five years.

The comparative growth rates and market sizes of the network management outsourcing country markets in Europe are given in Exhibit III-3.

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EXHIBIT III-3

Network Management Country Markets Europe, 1992-1997

	Market Forecast			
Country	1991 ($M)	1992 ($M)	1992-1997 CAGR (%)	1997 ($M)
France	95	110	21	290
Germany	65	85	21	225
United Kingdom	85	115	26	360
Italy	28	35	26	100
Sweden	6	8	30	30
Denmark	2	3	27	8
Norway	2	3	27	10
Finland	4	4	26	15
Netherlands	6	12	22	32
Belgium	3	4	21	10
Spain	11	17	25	50
Switzerland	4	5	29	20
Austria	2	3	30	10
Portugal	1	1	27	2
Greece	-	1	28	2
Ireland	2	2	25	5
Eastern Europe	1	2	38	10
TOTAL (Rounded)	**320**	**410**	**24**	**1,180**

Because of rounding, data does not add to totals. CAGRs calculated on pre-rounded values.

C

A Perspective from the United States

The market for outsourced network services is a great deal further in development in the U.S. than in Europe. This is largely due to the deregulation of the telecommunications market there, creating a freedom of environment which is much more closely related to the U.K. than it is to the rest of the countries in Europe.

The majority of vendors attempting to approach and develop the European market for such services have specific plans to target the worldwide 'Top 1,000' companies (according to The *Times* or *Fortune* listings). A great many of these target companies are therefore based in the U.S. or have nodes in the U.S. as part of the worldwide

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networks. The target market therefore is of an international worldwide nature, rather than purely European or North American.

INPUT in the United States recently produced a report on the network management component of the outsourcing market: *Outsourcing Network Management and Operations.* There are obviously a great many factors which are unique or specific to Europe; however, the results of the research give a perspective of user attitudes in the U.S., where companies have had much more experience with network outsourcing than in Europe.

INPUT estimates that the market for outsourced network management services in the U.S. in 1992 is worth approximately $2.7 billion. The market is projected to grow at an estimated average rate per year of 20% to reach $6.8 billion by 1997.

It was found that for users in the U.S. the main issues which have accelerated the growth of the market were as follows:

- To increase the focus on core business activities
- To reduce the complexity of the network and network management tools
- The need to reduce telecommunications expenditures
- Needing to increase staff quality while reducing the high turnover of staff
- To increase the network availability and reliability.

The research concluded that overall the users which were using outsourced network services were content with the services that they were receiving. As the results reveal, users in the U.S., partly because of the nature of their own experiences, are a great deal more positive about, and comfortable with, the idea of outsourcing services than their counterparts in Europe.

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The main conclusions of the research are given in Exhibit III-4.

EXHIBIT III-4

U.S. User Conclusions

- Cost savings significant
- Increased network reliability and availability
- Users satisfied
- Systems integrators in best market position
- Network outsourcing demand increasing
- LANs and voice networks most in demand
- Majority of network outsourcing users also outsource platform operations

The expected annual saving in telecommunications expenses ranged from 5% to 25% and averaged 16%. Actual savings reported by users averaged 21%.

Network outsourcing was found to increase control over network reliability and availability. Reliable network services available 7 days a week, 24 hours a day are being realised by customers.

All user outsourcing participants were either satisfied or highly satisfied with their network operations management vendor. These users reported that most of the benefits they anticipated were either already being met, or are in the process of being realised.

Systems integrators were perceived by U.S. users to be the best positioned to meet network operations management requirements.

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Trends in data centre downsizing, client/server LANs and interconnection of local and wide area networks will continue to increase the emphasis, in the U.S., on the network and its outsourcing alternatives.

Users ranked LANs and voice networks as their highest network requirements.

Over half of the users which responded were found to be outsourcing their data centre operation in addition to network operations. The majority of these companies used the same vendor for both arrangements. To illustrate the state of development of the services on the market in the U.S., users currently outsourcing their network functions were asked to report on which of the benefits they had anticipated had and had not yet materialised. A summary of the responses is given in Exhibit III-5.

EXHIBIT III-5

Network Operations Management Benefits in the U.S.

Benefits Realised	Benefits Yet to be Realised
Performance improvements	Multivendor management
Focus on principal business	More strategic asset use
Increased service levels	Integration of services
Cost savings expense control	Total interoperability
Headcount reduction	Use of enhanced services
Network design can transition to new technologies	No need to hire personnel with specialised skills
Higher network availability	Full cost savings
Single-source accountability	New applications
Economies of scale	

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IV
Case Study One - A Major Japanese International Corporation

A
Corporate Background

For the purposes of confidentiality, the company will be referred to as "International General Trading Corporation (IGT)".

The company was established in 1950 and is involved in a diverse range of activities worldwide. The company headquarters is situated in Tokyo with 55 offices in Japan and 107 overseas. Subsidiaries outside of Japan total 72.

Overseas offices and subsidiaries span North America, South America, Europe, Africa, the Middle East, Asia, the Pacific Rim and Australia.

The corporation in total employs over 13,500. In 1991, trading transactions totalled approximately $136 billion.

The company has several major groups which illustrate the diversity of activities:

- New Business Opportunities Group
- Information Systems and Services Group
- Fuels Group
- Metals Group
- Machinery Group
- Foods Group
- Chemical Group
- Textiles and General Merchandise Group.

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The company participates in major global liquid natural gas projects, the development of new fuels, and the manufacturing and marketing of carbon products. With a reduction in demand for steel, the emphasis of the company has changed more to higher value-added products.

A major restructuring of operations has recently taken place within the company, emphasising diversification into downstream and upstream energy-related activities.

The company has also targeted information systems and services as a key area for growth, and since 1987 has focussed on developing 'state-of-the-art' communications services spanning aerospace, medical and consumer electronics, computer systems, telecommunications and multimedia systems.

New business development activities are taking place in the production of general merchandise such as lumber and paper, cement, tyres and the automotive component industries.

B

Current Network Configuration

The current communications network in the U.K. consists of four node sites, each supporting voice, telex, fax and the company's in-house network management system.

The international network consists of two nodes in Japan, in Tokyo and Osaka; one node in New York; and a node in London. London is connected to Tokyo and New York City via 128kbps private digital circuits. There are additional digital links between Tokyo and Osaka, and New York. Connections to Continental Europe and South Africa involve the use of public networks with telex-leased line connections to some of the remaining locations. Central switching of fax and electronic mail is controlled in Tokyo.

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The outsourcing of services is currently at a fairly cautious level. There have been few major changes or upheavals for IGT with little impact on the end users. In effect, however, the network system has been expanded greatly with IGT requiring only one additional member of staff. So far the company states that the combination of outsourcing coupled with in-house management has proven extremely cost effective.

The London headquarters has a telecommunications-managed site within BT for which BT provides accommodation, support, supervision and maintenance of the equipment. Despite BT's ability to offer all of the following in terms of network management, its only role is to monitor the network, with diagnostic tests being performed by IGT. Changes in configuration are also handled in-house.

The service contract with BT involves a fixed charge for maintenance and operations management, which is set for a further three years. Charges for network use are paid on usage levels.

There is an agreement in place which guarantees response time for faults and the use of a 2- hour help desk. No reimbursement is made for late repairs or other possible failures on the part of BT's service, but to date IGT has been satisfied with the general standard of service and response times.

There is direct access to the company's equipment at the BT site from the London headquarters, with public network access from South Africa and the rest of Europe, and telex-leased lines to other locations. Exhibit IV-1 maps the current international network configuration.

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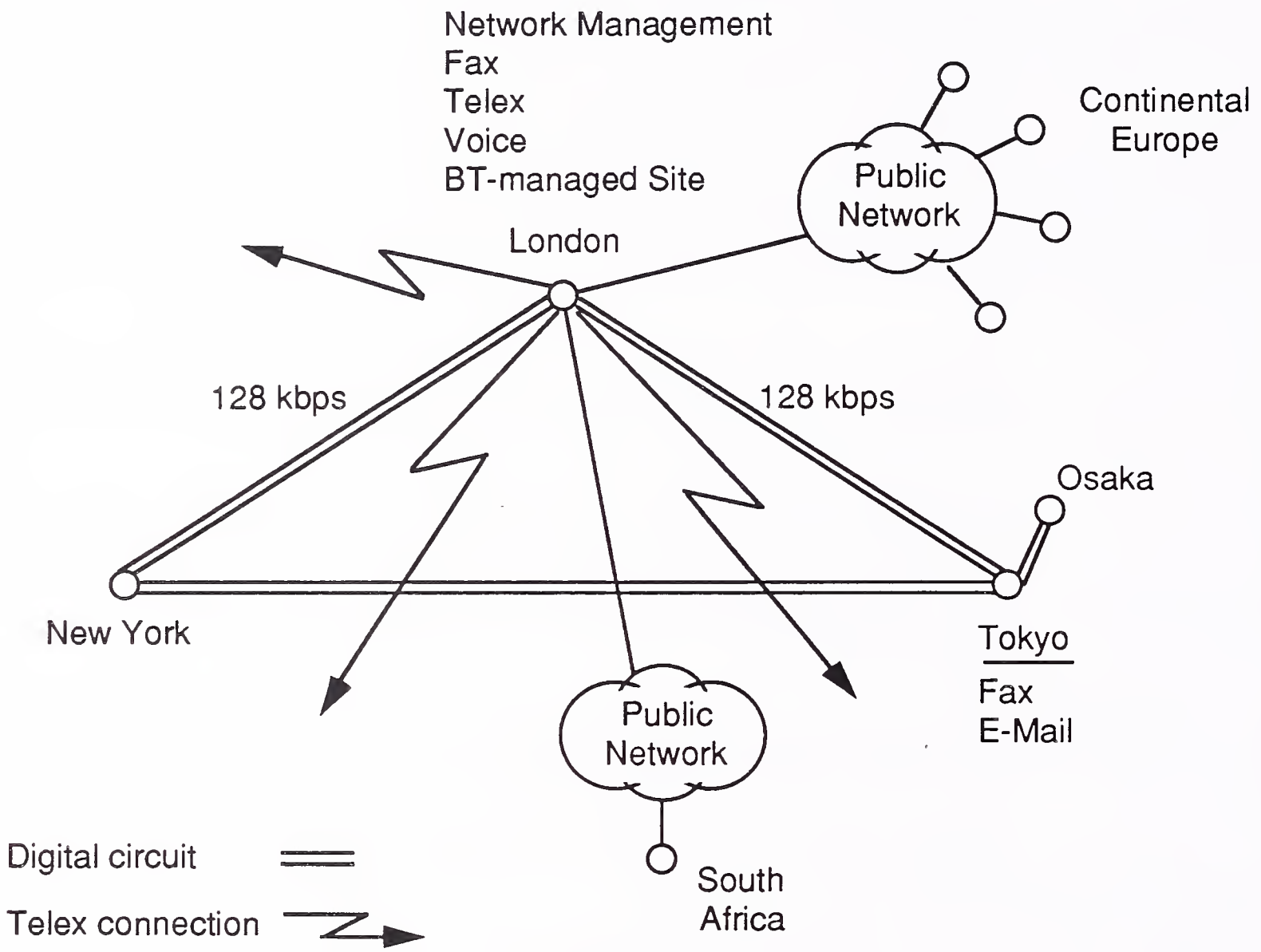
EXHIBIT IV-1

"IGT's" International Network



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C

History and Justification of Outsourcing

The decision to outsource to BT was a slow and carefully managed process. The network developed through the use of public services from BT, which began in 1970 when BT first provided support to the communication system by supplying telex lines.

The network developed through the company's increasing its purchase of private equipment as communications requirements increased.

The realisation for the necessity to outsource arose for two particular reasons:

- The lack of space on company premises
- Ever increasing skill level requirements.

Both factors were becoming critical as the company's communications network developed, and was expected to further develop in the future.

To have expanded premises to accommodate the network in London would have been cost prohibitive. The outsourcing option was viewed as particularly attractive as it would alleviate the need for space allocation and any in-house addition to network support resources.

Another factor of particular importance was the need for 24-hour support services, required because of the international nature of the company, spanning a 24-hour business time.

The company made the decision in 1990 to investigate the outsourcing options available. The task was to determine which vendor could provide the best service and where the best locations would be. The initiative at that time was from Japan where the central systems site is located. The research was conducted globally, however, with personnel in London, Japan and New York investigating their own regions concurrently. Each region reached the independent conclusion that indeed outsourcing would be the optimum move in the development of a world network service. A main factor of consideration was the standardisation which such a system would provide.

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The changeover was very gradual and spanned a two-year time period. At the pilot phase and implementation IGT did not use BT consultancy or installation services, preferring to rely on its own in-house resources.

The gradual change began with equipment on the company premises which needed updating or replacement. The company purchased its own equipment gradually and arranged for it to be installed on the BT site. The telex system which was originally half leased and half rented was replaced by the company purchasing its own equipment. Fax was also updated, whereas the voice services remained, managed by BT.

BT has provided equipment to some degree, but the majority has been purchased directly from Japan at considerable cost savings to IGT. BT has played no advisory role in the equipment procurement procedure.

D

Vendor Selection Criteria

The final decision as to which company would provide outsourcing services and to what extent the outsourcing should take was made using the recommendations by the London telecommunications department.

The telecommunications department in London investigated options and services in Continental Europe, specifically in the Netherlands, France and Germany, but concluded that BT provided the best service. This choice was further supported by the fact that the established node was in London. Final authority lay with personnel in Tokyo who visited potential sites in the U.K. and agreed on the choice made in London.

Six companies were under consideration at that time and although it was felt that most were capable of providing the equipment and services, the final decision was made predominantly as a result of the amount of experience IGT had had with the various companies. Two other key considerations were taken into account:

- One was the size of the vendor organisations in question and therefore its ability to provide global coverage.

- Additionally of prime importance was the question of support and maintenance capabilities and whether the company was continually developing its training, and therefore specialism, in new equipment

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and technologies. Particularly high emphasis was placed on standards of training within the vendor organisation.

The final choice was made to use BT, as dealings over a number of years with the company led IGT to believe that it could expect a very high level of support and commitment. The company feels that since the decision was made, this has proven to be the case.

E

Network Development Plans

Despite the close connection currently with BT, IGT is planning to develop the network in-house and not through BT. Even if EDI (electronic data interchange) were to be utilised this would be developed in-house and not through the use of a third party.

The primary objectives overall are to improve international communications, in particular to Europe and South Africa. This will involve the use of more and higher speed leased lines. Additionally, the company wants to increase the number of LANs which are interconnected.

In the longer term, the facility for video conferencing and widespread use of electronic mail will take priority.

In terms of projected expenditure, currently the telecommunications budget for the London operations is in the region of £2 million per year. Approximately 15% of this total is outsourcing expenditure. Only a slight increase, of between 5% and 10%, in this type of expenditure is predicted by 1997.

The increase will be in terms of maintenance and support following a similar path to what is currently in place with BT. IGT expects that the increase will be a result of the additional services, which it expects will be made available by BT, paralleling technical and equipment developments generally. The company feels it is reliant to a large extent on the decisions made by BT and the services which it plans to offer.

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F

Summary and Conclusions

The most important consideration for IGT in the decision to use BT's services was the relationship which the company had had previously with BT and the resultant trust in BT which had developed.

However, despite the availability of further services from BT, the company elected to keep a very high level of control in-house in order to minimise the perceived risk involved.

The main task of the vendor was to offer strong reassurances in the form of guarantees of back-up capabilities and strong staff skill levels.

The company feels that the relationship between the outsourcing company and the customer is all important. Firstly, an established reputation on the part of the vendor is crucial with the customer looking for no risk, safety and security. It was felt that this level of credibility would be almost impossible to achieve, for a vendor which was attempting to offer new services without strong reference sites.

Relative costs of vendor services was not an element originally considered when investigating various vendors at the decision-making stage. This would only have been an important consideration at final selection if a decision between vendors based on superior services and reputation could not been reached.

In summary, the company felt it was buying into a partnership and a successful vendor should place maximum importance on high-quality staff, good facilities, and an appropriate level of cost. Above all, vendors should be able to offer, and at best illustrate, minimum risk to the potential customer.

In an ideal world the company would like to see the entire set of networking expertise within one vendor company. Currently BT does not have all the skills required to maintain the entire range of equipment on the network. This means that other maintenance companies have to be routed through BT. Despite creating more complexity, however, this does not pose the company any significant problems at the moment.

Exhibits IV-2 to IV-4 lay out the key points in the "IGT" case study.

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EXHIBIT IV-2

Factors Influencing "IGT's" Decision to Outsource

- Standardisation of service for the development of the network globally in the future
- Space allocation in London too costly for in-house expansion
- Support required on a 24-hour basis for worldwide timescales
- In-house additional personnel too costly to service expanding network requirements

EXHIBIT IV-3

Factors Influential in Choice of Vendor

- Size of vendor organisation and ability to provide global cover
- Standards of in-house training
- Established reputation
- Previous knowledge of vendor

EXHIBIT IV-4

Key Network Developments Planned

- Increased international network expansion
- LAN interconnection
- Electronic mail
- More flexible relationship established with BT

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V
Case Study Two - The Automotive Division of a Private German International Company

A
Corporate Background

For the purposes of confidentiality the company will be referred to as "Automotive International (AI)".

The automotive division consists of two branches:

- Private cars which had a turnover in 1991 of over DM 39.5 billion and employs approximately 99,000
- Commercial vehicles which had a turnover in 1991 of over DM 27.5 billion and employs approximately 93,000.

The company is at the forefront of the motor industry, producing Japan's top import brand, and has continued to sell successfully in Europe despite economic pressures.

Taking high priority in the company's development plans is technical innovation coupled with environmental considerations. Microtechnology, new manufacturing methods, traffic control and energy considerations are all part of AI's strategy to provide the customer with a product fitting the general increased awareness of such issues.

The automobiles are sold worldwide; in 1991, 10,000 commercial lorries were produced for the East German region and the manufacture of buses is also proving a successful business line. The company is also increasing its international manufacturing presence continually. There is an assembly plant planned for Eastern Germany, and currently factories are planned for Russia, Mexico and South Korea.

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Increased global presence is deemed of very high importance for the company's overall strategy, which is to offer a product which is in demand worldwide as the best of its kind.

B

Current Network Configuration

Currently the network backbone consists of three major nodes in Stuttgart, Montvale on the East coast of the U.S. and Portland on the West coast. The connections are digital 1.5Mbps. Nationally in Germany, there are three productions sites in Stuttgart, Bremen and Raststatt. Currently the company uses a metropolitan area network (MAN) within Stuttgart spanning 30km. The MAN is used for high-speed data transfer between the Stuttgart factory sites.

C

Networking Requirements and Vendor Selection

Currently AI's sister company is responsible for the management of its computer centre. This situation has developed for historical reasons and existed before reorganisation by the parent company.

At an earlier stage AI received network services from this sister company (which will be referred to as SC), but because of what AI felt were unreasonable repair times, AI resorted to its original in-house provision. AI's reluctance to use an outside service provider, despite the freedom to use any vendor it wants to, means that AI hopes to increase its use of SC's services in the future, with the possibility of handing over to it responsibility, initially, for the national network.

Currently the restrictions imposed by and lack of technical and service developments available from the still monopolistic DBP Telekom are large factors in the desire and need in Germany to outsource to private network providers.

The feeling is that DBP Telekom's tariffs are bordering on extortionate; technical expertise is in short supply and the availability of management, only spanning 08.00 to 15.30 from Monday to Friday, is highly unsatisfactory.

Additionally, the option to use public services such as integrated services digital network (ISDN) is not attractive because of very high costs.

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The company is currently conducting market analysis to determine the capabilities of outsourcing vendors in the market. AI will produce documentation of its networking needs and follow this by an invitation to tender. The decision of which company to use will be based primarily on technical competence and skills, realistic pricing and the lowest level of disruption on the part of AI.

The company is particularly looking for the ability to offer high speeds, standardisation of network connection and good network management. Reaction time to problems is required to be at least between one to two hours.

The current economic climate in Germany is generating a general fear of taking risks of any kind, which also applies to the fear of losing control of the network. The company, therefore, feels it needs extremely high guarantees of security when considering a tender.

D

Future Development

The strength of international business, in particular in Mexico, North America, South America and Turkey, means that the requirement for efficient global communications is on the increase.

In the short term, the company is hoping to extend the network to install a fourth node in Tokyo, where it also plans to have a management centre. The long-term projected plans are for worldwide cover, as illustrated in Exhibit V-1, with backup routes possibly from Montvale or Portland to Brasil, or from Seoul to Melbourne. These sites were chosen in particular to minimise rerouting distance.

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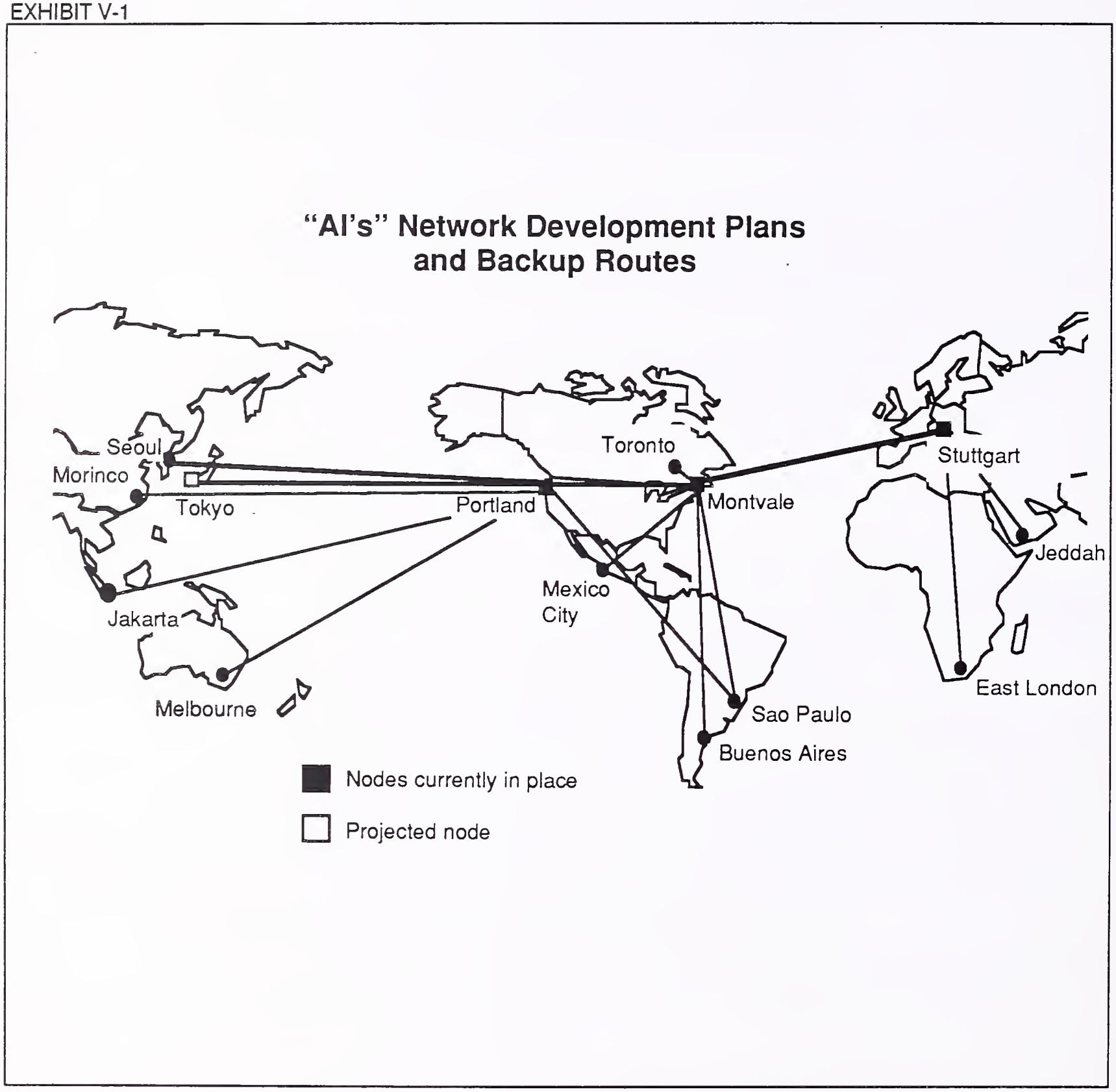
EXHIBIT V-1



The company is very keen on the potential use of fully integrated, high-speed (i.e., 2 to 140 Mbps) voice and data services based on asynchronous transfer mode (ATM) technology, for national as well as international communications. The ultimate goal being to have the same standard used for national and international communications.

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One particular problem which the company foresees with outsourcing is on the potential loss of in-house personnel. On the employee side, the technicians' views at AI are that outsourcing will not give the same high level of service, and few wish to continue their current services by moving to the outsourcing company. This is partly due to concessions on purchase of the company's cars which would be lost and the loss of strong union backing, both of which are currently enjoyed at AI.

E

Restrictions in Germany

Currently only international voice and data integration on the network is allowed. Within Germany, voice traffic is still the monopoly of DBP Telekom. The likelihood is that eventually the restrictions will be lessened. However, it is probable that this will involve compensation to DBP Telekom for lost business, thereby negating much of the benefits.

Additionally, on international connections the proportion of the link used for voice and that for data is currently fixed. AI wants a more flexible option where the proportion of the link used is able to change with traffic requirements. For example, for connections to the U.S., after 14.00, more of the bandwidth is required for voice and less for data. Again, the ability to do this is controlled by DBP Telekom.

SC is currently negotiating for data and voice integration on its network and is in the process of deciding whether to install or rent further developments to its outsourcing network, which it will subsequently sell to other customers as well as AI. When these factors are solved, AI expects to use this network, for which it will receive a 30% discount on services because of the relationship.

F

Summary and Conclusions

The regulatory environment in Germany is currently having a strong restrictive effect on the provision of network services. Data network services are the only service options available to outsourcing vendors. This means that at the present time, AI does not feel it is able to fully investigate outsourcing as an option, i.e., given the restricted level of service available to it.

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The ability to utilise the services of a sister company undoubtedly will be the strongest influence on the choice of outsourcing vendor and will continue to be for the company's communications infrastructure developments in the future. The natural relationship between the two companies provides a comfort factor in the decision-making process.

EXHIBIT V-2

Key Networking Requirements

- High-speed, fully integrated voice and data
- Standardisation for national and international communications
- Flexible bandwidth allocation

EXHIBIT V-3

Requirements of a Potential Outsourcing Vendor

- Technical competence and skills
- Realistic pricing
- Provision of low disruption level for AI
- Reaction to problems within 1 to 2 hours
- Very strong guarantees of security

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VI
Case Study Three - A German Energy Production Company

A
Corporate Background

For the purpose of confidentiality, the company will be referred to as "Energy Providers (EP)".

EP is one of Germany's most important energy producers. The energy production ranges from electricity, gas and nuclear, to experiments in wind power.

The company supplies a third of Germany's energy and is currently striving for a more international image and outlook.

The European Community Energy Charter drawn up in December 1991 emphasised cooperation with other nations and, therefore, the exchange of expertise, support and modernisation of the Eastern European countries and former Soviet Union. The ultimate aim being to coordinate Europe's energy policies, and EP feels it has a great deal to offer. Since 1989, EP has been active in the new orientation of European Energy. This includes the support of projects in the Eastern region. The company is in a favourable position geographically to increase activities, in particular in the Eastern European region and Scandinavia.

The company employs over 17,000 and in 1991 had a turnover of DM 9.6 billion.

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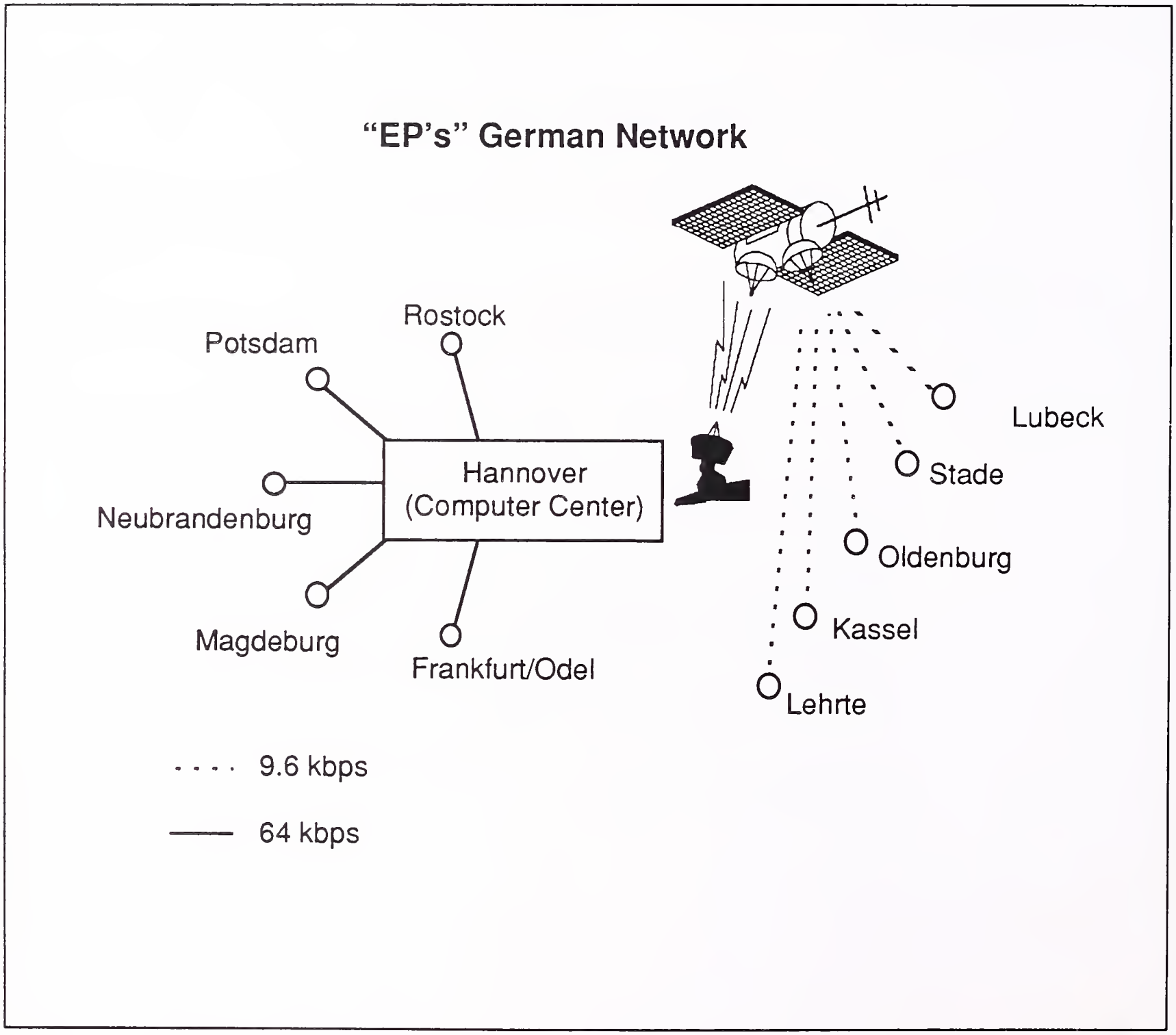
B

Current Network Configuration

The computer centre is situated in Hannover, which is the central point for the communications network. There are five nodes in Germany, which are connected to Hannover by 64kbps links covering an area of 600 kms. In addition, the company has its own satellite. It was the first German company granted a licence to transmit voice traffic via the satellite, which is used for connections to the Eastern region. The network is illustrated in Exhibit VI-1.

EXHIBIT VI-1



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The network is totally private including the ownership of the cable. The network was legally allowed to be developed because, historically, DBP Telekom was not in a position, technically, to supply the data transfer necessary for the energy industry's requirements. The network is, however, only legally available for data traffic.

At the local area network (LAN) level, in 1990, high-speed LANs of up to 16 Mbps were used to completely update the local communications. The network structure was entirely built and managed in-house. When updating the technology, international networking considerations were kept in mind.

At the headquarters in Hannover, the network covers the entire floor area using fibre optic cabling. This has provided far in excess of the current requirements but has provided for any future developments in cabling capacity requirements.

Entirely new cabling has been laid to provide for Eastern German and Russian connections on the network. The satellite connection provides links to the main centres of communication in these regions, and from there the centres are further linked via 9.6kbps circuits.

Speech communications is achieved over private lines rented from DBP Telekom. Currently there are five 64kbps circuits with approximately 30 connections charged at a distance rating. This involves very high costs.

Overall, the network has its own network backup system in case of any failure. Every circuit connection is doubled therefore. This means that in the case of a failure of any kind, the company can deal with it instantly, without having to worry about help line delay or an outside source.

All planning and management is handled centrally in Hannover. Changes in configuration, the planning operations and remote diagnostics are steered from a central point with the satellite providing the link to the Eastern European countries. Systems management at each node is constantly monitored from the central point.

The total budget for the telecommunications network was not known; however, the speech communications alone cost in the region of DM 1.2 million per year.

The private data network which the company has developed is legally only available to serve its own communications needs. The company

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is currently unable to provide a network service to any other company, it can, however, cooperate with another party for data communications. Currently a partnership is active in this way with Meganet in Cologne to run a German-wide data network.

C

Network Development/Plans

The greatest levels of development are and will continue to be taking place in Eastern Germany. The technical developments have been handled competently at the local level and training has been highly intensive. This high level of training is seen as very much a continuing process following the increasing level of technical developments which will be taking place on the network.

Further development of the network geographically will be to Scandinavia and throughout Eastern Europe, providing higher speed connections.

The experience which the company has in network communications means that there is the future possibility that it will develop a consultancy service for other companies.

D

Opinion on Outsourcing

The feeling was that in an environment where DBP Telekom has such a strong monopoly it was unrealistic to consider network outsourcing as a realistic option at the present time. It was felt that the market needs to be more open with costs and services following free market forces.

The company itself has a vast communications network of channels in place for the monitoring of energy levels. The technical investment has already been made and the future has been provided for, to a large extent, with extra capacity being built in. This means that handing over the control of the communications network was not a likely scenario, even if the company felt that costs of these kinds of services were in any way realistic.

The company could see a market for such services in other organisations. However, this would also very much rely on the ability of service providers to deliver services at a reasonable price level.

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The fact that DBP Telekom currently still has the total monopoly on national voice traffic means that only data services are possible. It was felt that it would be an unrealistic investment to use a pure data service.

Only when all companies are able to legally supply all of the necessary services for a company's communications network, it was felt, would it be possible to make a realistic decision as to which vendor is the most appropriate to a particular company's needs.

The second most important consideration after cost was the issue of security, particularly in terms of network availability. This would be the first priority for EP. Currently DBP Telekom does not guarantee 100% availability to its customers but will only offer 97%, which was felt to be an unacceptable level, particularly for the kind of company which EP is where they themselves need to provide a service level to customers of 100%.

E

Summary and Conclusions

The unusual circumstances of EP have enabled it to develop a network which best fits its requirements, avoiding reliance on and payment to DBP Telekom for much of its network services. This excludes voice services; the ability to use its own network for voice was of the most interest to the company. The network which has been developed could in fact potentially be used as a service network in the future as regulations become more relaxed in the home market. The company is considering this as an option in the future.

A summary of EP's opinion on outsourcing is given in Exhibit VI-2.

EXHIBIT VI-2

Opinions on Network Outsourcing

- DBP Telekom monopoly too strong to allow comprehensive enough services
- Costs of outsourcing services are too high
- Security and network availability are most important factors for vendors to offer

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VII
Case Study Four - Amadeus Data Processing

A
Corporate Background

Amadeus Data Processing is a subsidiary of Amadeus Global Travel Distribution SA. Formed in 1987, Amadeus is a privately held, computerised distribution and reservation system for the travel industry. Through a centralised database and processing centre, travel agents are linked with travel service providers worldwide.

The headquarters and marketing subsidiaries are in Madrid, the development subsidiary in Nice, and operations are in Erding (Munich).

Amadeus is present in 13 European counties and 5 non-European.

Amadeus aims to offer travel service providers a broad-based, efficient and effective distribution network, giving access to the largest travel agency client base in Europe. All types and sizes of providers - airlines, railways, hotel groups, car rental firms, tour operators and ferry and cruise lines - will be linked with travel agencies and airline sales offices in a worldwide network.

There are more than 370 travel service providers with 26,500 airline sales terminals, and more than 60% of Europe's automated travel agencies covering over 17,000 locations with more than 39,000 terminals, connected to the Amadeus network.

The data processing centre of Amadeus employs more than 300 people, to operate, maintain and further develop the system and network.

The network is owned by Iberia, Air France and Lufthansa. It is also attached to Finnair and SAS. However, these companies are not equity investors.

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B

Current Network Configuration

The Amadeus project was initiated in Europe in Munich in 1990, following a test site in Stuttgart in 1989. This followed initial development in Miami in 1989.

The first international link from Germany was to Spain, closely followed by a link from Germany to France. Access to France and Spain is via public X.25 networks with access the Germany and Scandinavia via private lines.

The development of the network to date is illustrated in Exhibit VII-1.

The airlines generally have 2Mbps connections to the network with travel agents needing only 9.6kbps.

The equipment on the network is a combination of IBM and Unysis.

The network was developed with the overriding principle to use whichever communications method available was most cost effective.

One of the main problems which the company is currently facing is the cost of running the network, paying the various network providers, adding value to the network for its customers as well as managing to maintain a profit level.

One of the most crucial considerations is the maintenance of the network, which for normal service from providers is only covered from 09.00 to 17.00. A premium is paid within special contracts for 24-hour maintenance of the network.

C

Current Use of Outsourcing

BT has been used in London since 1990 to provide facilities management of the London and Atlanta nodes. The equipment is owned by Amadeus. However, a service-level agreement is in place with BT for the monitoring and diagnosis of the network and problems associated with it. BT was not required to configure the network or act in an advisory capacity for planning. Amadeus takes a complete service package from BT which includes the following: BT providing the infrastructure, the ordering and installation, single-end billing and provision of 64kbps circuits, e.g., from London to Thailand.

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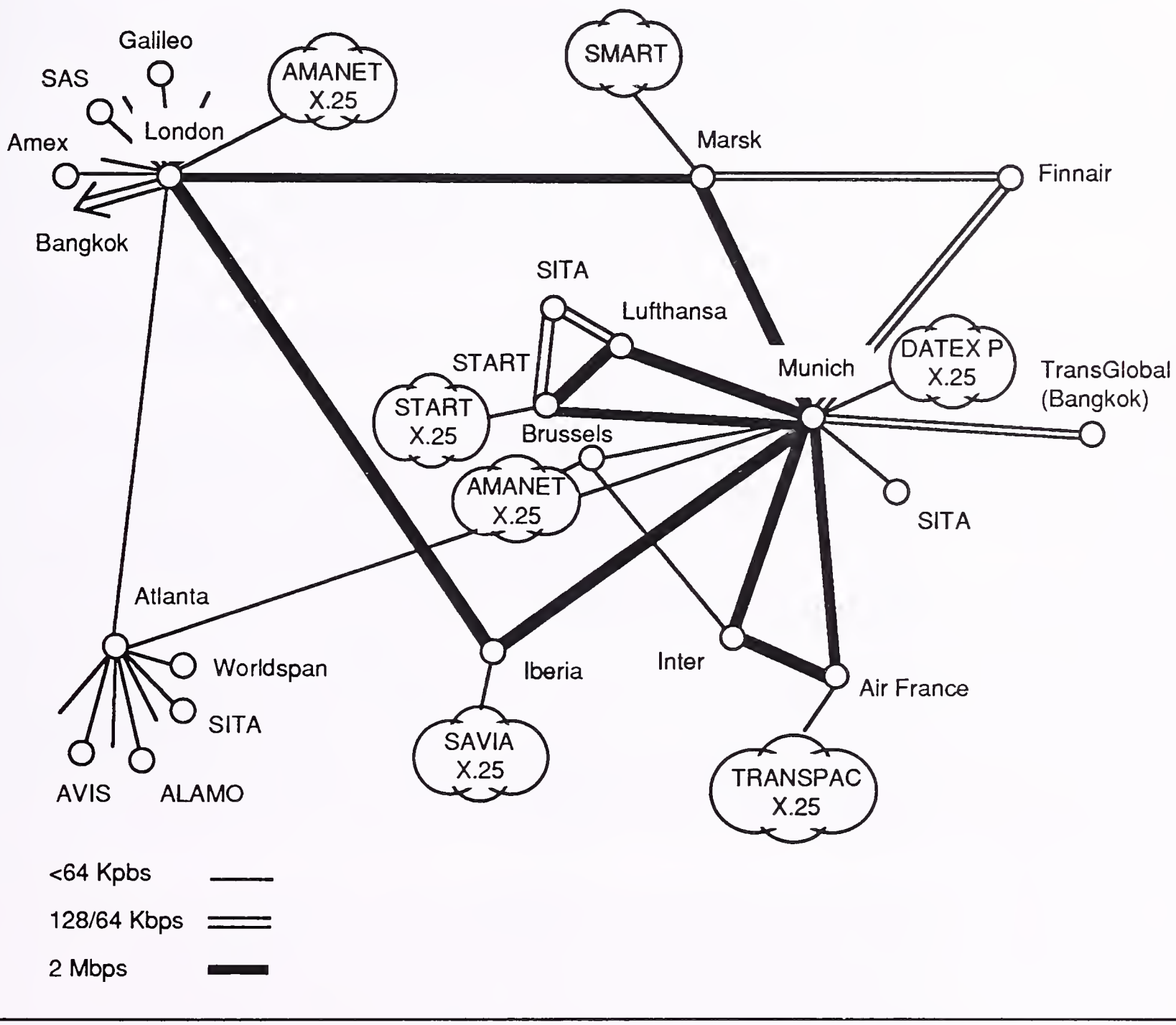
EXHIBIT VII-1

Amadeus' International Network



In the U.S., Amadeus is currently using services provided by Syncordia (a BT subsidiary). Syncordia was deployed to handle the expansion into North America, preventing the need for Amadeus to increase staffing.

Under a three-year service contract, Syncordia is providing a network hub to link North American travel-related database services to the centre in Erding. Syncordia provides and manages two transatlantic circuits to Erding and London. The company also houses and maintains multiplexers in its Atlanta network control centre to support the Amadeus network in the U.S.

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D

Network Development

The company wishes to expand its services internationally. Current domestic services are at a sufficient level and the company needs a truly international basis. This is foreseen in particular for the Far East and South America.

Currently Amadeus has no specific problems with the network. The aim, however, is to retain a high-quality service for its clients and to reduce costs in order to pass this saving onto customers.

E

Major Issues When Considering Outsourcing Further

The company would be willing to spend its total networking budget on outsourcing for the right service, but currently costs and service availability in Europe prohibit this. Even if a vendor was seen as capable enough, the company would not be willing to exchange what it sees as one monopoly for another by using only one supplier; at least two would be more acceptable.

Outsourcing, it was felt, should be a carefully managed and phased process, involving a test phase for the vendor before handing over further responsibility. The feeling is that it is too risky a step to take too quickly and that only experience with a vendor can prove its worth, no matter how confident the customer is in the vendor's abilities.

Advice to a new vendor attempting to enter the market was that the most positive offering they could have would be bandwidth-on-demand, with a great deal of spare capacity and the assurance of maximum security levels. There should also be no single point of failure. For video, image perfection was of great importance. Additionally, billing should be clear and concise.

The most realistic phasing in of network outsourcing, it was felt, would be through facilities management.

Network outsourcing could, however, help to alleviate the problem of losing skilled personnel. The company needs to have highly skilled personnel at each site in case of emergencies. Amadeus was finding, however, that these staff tended to be underutilised and therefore were easily lost to more challenging positions.

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A further consideration was the lasting effect which outsourcing could have on in-house personnel. Because outsourcing, the skill requirements and responsibilities change, thus creating a less stimulating environment for the personnel which remained. The main fear expressed was the inability to regain control should it be necessary once the network has been handed over to a third party.

The reluctance to consider outsourcing much further was also largely a result of costs. Additionally the vendors were found to be giving unclear indications of strategic direction which creates confusion for the user.

F

Summary and Conclusions

Amadeus is open to the idea of outsourcing and has used such services to a modest extent for connections from Germany to the U.S., and in London. The company would be willing to use further services but felt that what it required was not available at a reasonable enough cost in the market.

Summaries of the main points raised are given in Exhibits VII-2 and VII-3.

EXHIBIT VII-2

Key Requirements for Service Provision

- There should be no single point of failure
- Bandwidth should be available on demand
- Vendors should offer clear/concise billing

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EXHIBIT VII-3

Concerns About Outsourcing

- Two suppliers should be used to prevent a monopoly situation
- Slowly phased test periods should be used
- Currently costs are unrealistic
- Vendors have unclear strategic direction

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VIII
Case Study Five - A Major French Tyre Manufacturer

A
Corporate Background

For the purpose of confidentiality, the company will be referred to as "Automotive Industry Manufacturer (AIM)".

AIM has more than 55 industrial plants and a commercial network which spans over 140 countries. The company employs over 100,000 and to give an indication of the size of its operations, produces 645,000 pneumatic tyres, 50,000 wheels, 170,000 air chambers and 60,000 maps and guides every day.

The turnover in 1988 was FF 51,82 billion.

The company's main centre of activity is in Clermont-Ferrand in the south of France. At this centre are the workshops, laboratories, administration activities and 500 hectares of test track to aid the research and development teams.

The company is intent on the uniformity of its product and regularity in manufacture. It designs and manufactures much of its own factory robots and microprocessors, with the complexity of the tyre manufacturing process requiring a high level of precision and control.

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B

Current Network Configuration

The company has two networks currently in place. One is industrial for the factories, and a commercial network for connections to the sales outlets.

The Industrial Network

There is currently a time division multiplexer (TDM) based digital 512kbps link to the Paris office. The link supports 15 compressed voice lines, plus data. The Paris office is the centre for advertising, finance and sales for the company. It is also the main site for contact to the major French car manufacturers. This link is backed up by an ISDN and a Transpac X.25 connection.

In addition, the various factories around Clermont-Ferrand are connected to the central office for data communications based on IBM front end processors (FEPs), which are backed up over the French public Transpac network. The larger factories are in the process of having voice connections added to the network.

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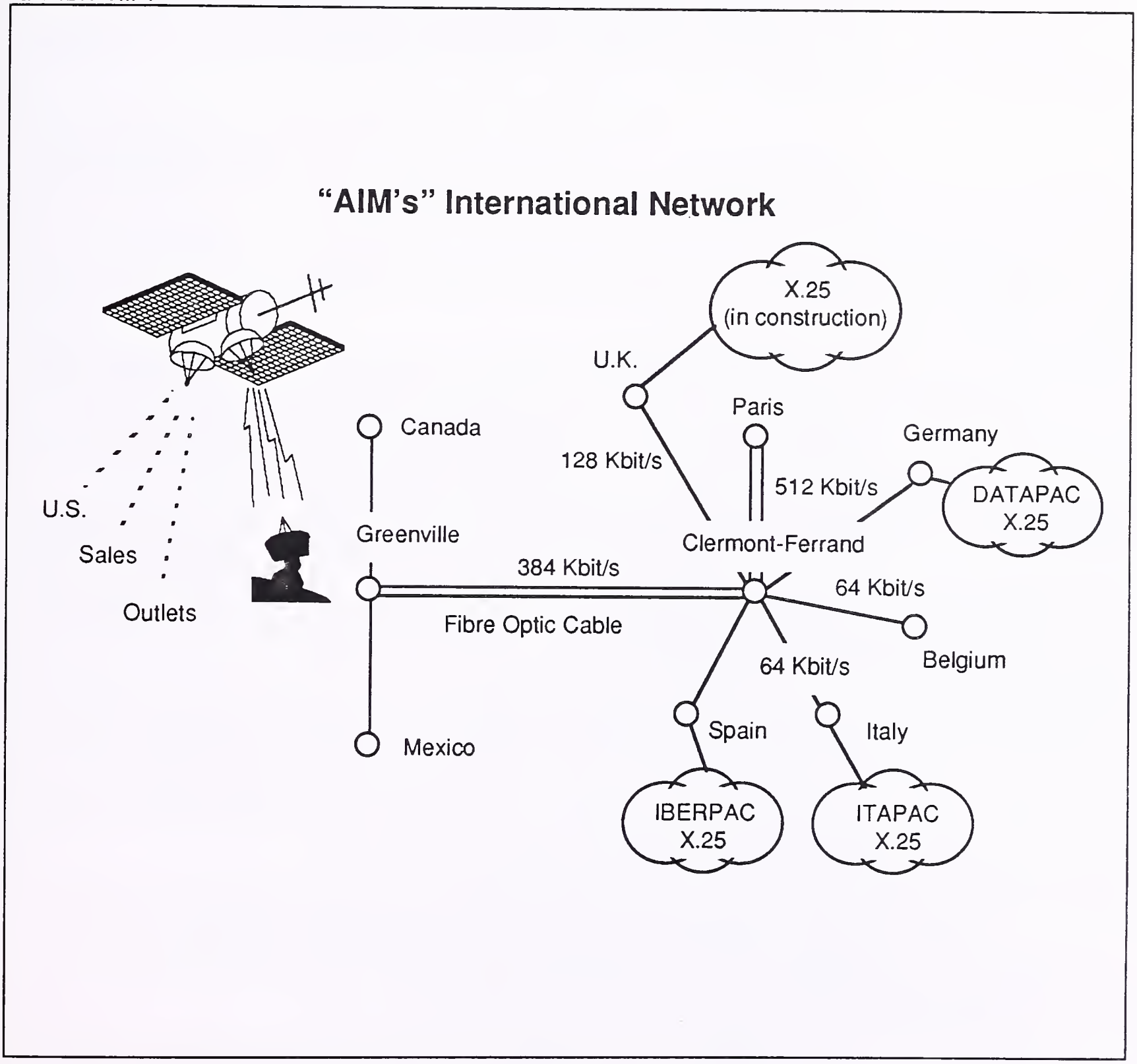
The Commercial Network

A diagram of the international network is given in Exhibit VIII-1.

EXHIBIT VIII-1



The commercial network connections comprise 50 sales offices, the majority of which are linked to the Transpac X.25 network at 19.2 kbps. This is mostly as a backup to the private circuits which form the front end processor (FEP) network. The smaller plants currently are not connected by private lines but use Transpac.

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Internationally the network is connected by private leased lines to Germany, the U.K., Spain, Italy, Belgium, and the U.S. In each country the node consists of NET multiplexers. There is a 128kbps connection to the U.K. and 64kbps leased lines to Belgium and Italy. The connection to Greenville (South Carolina) in the U.S. is via a 384kbps fibre optic cable. From Greenville the network is extended with connections to Mexico and Canada. A satellite is used from Greenville for connection to the sales outlets and agencies throughout the U.S.

Within the European countries X.25 public networks are used for communications. In Germany Datapak is used, in Italy Itapac, and in Spain Iberpac.

C

Network Developments Planned

The overall tendency in the future development of the network will be the increase in the use of private lines. This will be a result of two factors: the increased integration of private voice communications over the network and the greater levels of data traffic handling.

The connection to Paris will be enhanced to allow for communication of image traffic. Additionally, the high number of Transpac 19.2kbps lines which enter the Clermont-Ferrand site will probably result in a necessary increase in the bandwidth from this central site to the local Transpac office.

For voice the company will continue to use the public network. It is investigating the possibility of installing digital private links for voice, but only where the amount of voice traffic can justify the expense. The company finds that the cost of lines and installation in this way is less than that charged by outsourcing vendors.

In Italy, the company is planning to extend its international network. There are also plans for extension of the network within the U.K. in addition to the continuing construction of a private X.25 network there.

In the future the company does not expect its communications budget to increase significantly. Rather, the aim is to develop a networking system which will handle greater levels of traffic without the need to increase costs.

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D

Opinion of Outsourcing

The various worldwide offices within the company act very much as separate entities and therefore it is difficult for the company to cultivate a realistic global vision. Despite the fact that the operations at Clermont-Ferrand are responsible for the monitoring of the networks in Italy, France and the U.S., each country on the network is responsible for the justification and financing of the development of its own portion of the network.

An example of the level of autonomy involved is that Italy is looking to buy equipment from an independent local company. As long as the equipment is compatible with the Clermont-Ferrand system and the company is able to offer a high level of local support, the decision is free to be made at the local level.

The company feels that this spread of decision making is an important factor in keeping creative management within the various sites.

This is one of the factors which would be strongly considered in investigating outsourcing possibilities. The lower levels of responsibility which would result from using such services would mean that creativity would be lost.

Generally the company feels one of the problems which faces the outsourcing market is that users generally feel satisfied with the services which they use but are often unaware of what the costs actually are. This means that the user is not really in a strong position to determine whether a service can provide better results on a quantifiable basis.

Another perceived problem with the outsourcing of telecommunications services was the differences worldwide in the advancement of technology and services. France, for example, is very advanced for X.25 networking, and Scandinavia for mobile technology, but it was felt that to create a homogeneous network would necessitate the adoption of the lowest level of development to enable the development of a standardized worldwide network.

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The company believes that each country, because of their idiosyncrasies in the telecommunications environment, should be given as much flexibility as possible to install the network which best suits and makes use of the telecommunications environment within each country. Each node site should also take responsibility for its own costs and administration of the network. In this way every country is able to optimise its networking capabilities.

The company, overall, believes in promoting internal competitive management which leads to improvements in the business, by allowing creative development of solutions to problems. All the time leaving the option open to managers to change a current system if a good proposal is made.

The company was approached by Transpac, which offered it a single point of contact with the guarantee that this would allow a better level of service. This would eliminate local connections which the company felt would be the end of a personal service for the end user, which was seen as highly negative. Despite AIM not believing in the benefits of a single contact point, it was felt that centralised services would always be more costly. Transpac also offered to manage all of the company's services, but the costs were felt to be unrealistic and the service unnecessary because AIM is satisfied with its own system.

Another consideration is that outside management of the network often involves 24-hour support. The company felt that this was not necessary for its purposes. Currently it is investigating the possibility of optimising the network supervisory function by using a method where the various network centres worldwide take a certain amount of time to supervise the entire network. This would be between the hours of 09.00 to 17.00 local time for France and the U.S., with the possibility of Japan at a later stage to complete the 24-hour period. The arrangement would enable a huge saving on the cost of personnel.

For the company to consider an outsourcing option, the vendor would need to be able to take over the whole or part of the business in a cost-effective way. The company could envisage that it may need, for example, an entire part of a plant managed and would want the whole of the network taken over, but this would have to be at a competitive level in terms of cost. The vendor would be required to have a very high level and wide range of expertise to cover, for example, equipment ranging from LANs to microcomputers and PBXs.

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Currently the company is experiencing the problem of managing all these levels of equipment. It is finding, for example, that full-time staff for just the management of LANs is no longer viable. Fewer problems had been arising from different equipment types due to better technology, which leaves the staff with a lot of spare time. However, they do need experts to be on hand in case of emergencies, which is very costly. A management company therefore could be of real benefit if the expertise in all of these various areas was of high enough quality.

The company could envisage the outsourcing initially of a small part of the business operations; however a development like this would involve a very high level of caution.

The only acceptable criteria for a vendor would be 'are they competent enough to deal with the whole operation?' This would therefore involve all domains, i.e., local, national and worldwide.

The company has advanced fibre optic digital systems and is confident that few outsourcing companies would have the expertise and knowledge of this type of system to be able to manage it effectively. The company believes that PTTs would not have the expertise, and that few competent enough outsourcing suppliers exist.

Another reservation was the necessity to lease a line to the source of a third-party network. This would, it was felt, necessitate the leasing of a line to Paris which would be so costly that a private network could be installed at the same cost and with less risk.

The cost of switching to an outsourcing supplier was envisaged to be high, because of the probability of requiring new technology and developing an alternative way of running the network.

A further fear was the inability to reverse the process once the network had been outsourced. This could be manageable on a small scale, but could not be envisaged if a total network solution was used. Part of the reason for this would be the loss of in-house expertise, which would render the taking back of the network impossible, after the termination of a contract. A further sense of being locked to the outsourcing company would be created because of the difficulty of recruiting personnel with the right experience necessary for AI's particular requirements.

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E

Summary and Conclusions

The main theme arising from this case study is the management philosophy and culture of the company, which is designed to stimulate creativity. The company is not totally closed to the idea of outsourcing some of its services, but would prefer the idea of outsourcing entire business units rather than communications functions.

The main issues and concerns which were expressed are given in Exhibit VIII-2.

EXHIBIT VIII-2

Opinions on Outsourcing Network Services

- Loss of autonomy therefore loss of creative management
- Current costs unknown therefore cannot compare with vendor offerings
- Europe patchwork of telecomms developments therefore countries should retain flexibility to gain most benefits
- Business operations outsourcing more attractive
- Vendor expertise should be at all levels, by technology and geography

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IX
Summary and Recommendations

A
Service Specialisation the Key to Corporate Network Outsourcing

Network managers within major corporations are under opposing pressures both to cut costs and to provide high-performance networking. To fulfil these requirements, organisations are increasingly reviewing the potential for utilising service solutions. Services range from a simple geographic extension of the network through a private service provider to handing over the entire management and control of the network to a third party.

This report has so far described the attitudes of five major network users on the possibility of outsourcing their network services to outside suppliers.

The results of this research and previous interviews which INPUT has conducted on the subject of outsourcing with a number of major network users in Europe has highlighted a number of issues and concerns common to many of those consulted.

The main conclusions of the analysis reveal that despite significant commercial pressure, the decision to outsource is not, as would be expected, primarily dependent on cost savings. Indeed, the research has shown that frequently the complexity of network operations within large companies often means that users find it difficult to estimate the cost of various aspects of the networking function. Without this information it is very difficult to compare costs with those proposed by outside suppliers to show any true cost savings which could be achieved.

The overriding requirements from network planners and telecommunication managers in these organisations are those of service quality and the provision of global networking capabilities. Given the inherent restrictions in Europe on extensive geographic

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coverage created by PTT controls, global services which fully meet user requirements are more of a desire than a realistic possibility in the short term.

Therefore the ability of vendors to provide an extremely high quality of service is deemed far preferable to an attempt to provide single-vendor solutions. Users feel that single-vendor solutions cover areas in which the vendor is not a proven expert, thereby threatening the overall quality of service offered. 'One-stop shopping' despite being one of the major goals and buzz words of vendors, is not of particular importance to large users. Indeed, in many cases the use of one vendor was viewed as potentially threatening, and users are reluctant to exchange PTT monopolies with a similar vendor monopoly in the marketplace.

Vendors should either specialise in a niche market service offering or seek outsourcing candidates with alternative organisational and network requirements to those of the major corporations. This chapter gives an overview of current plans of the companies analysed in terms of network development and cost-cutting measures. From this the key concerns about outsourcing are raised, which centre largely around the quality of services on offer. Corporate users are in a very strong position to make demands on vendors, given the high level of competition in the market. The two most frequently cited demands are global coverage and proof of service quality. The current market dictates that both of these are difficult issues for vendors to address. The characteristics of potentially more promising outsourcing prospects have been suggested.

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B

Current Corporate Network Planning/Positioning

Central to the vast majority of large organisations' concerns is the need to cut the costs of running the network. This is supplemented by the overriding necessity of developing a networking environment that facilitates simple and fast inter- and intracompany communications.

Greater levels of intra-organisational interconnectivity are planned to be achieved in the main through the interconnection of disparate LANs and more open, UNIX-based computing environments.

The main thrust of inter-organisational communications will be through increased use of EDI. This was a confident prediction despite the uncertainty of the telecommunications environment, where network planning is often put on hold pending technological developments and service promises from PTTs and private service providers.

On a different perspective, cost-cutting measures, which are by nature easier for companies to predict, included most predominantly the following:

- The optimisation of the existing network infrastructure, with the main theme being to reduce circuit rental through voice/data integration, voice compression, dynamic bandwidth allocation and investigation of ISDN
- Downsizing of central computing resources
- Reviewing outsourcing benefits, or the renegotiation of tariffs and contracts with currently established service providers.

C

Key Outsourcing Concerns

Faced with a labour market that is short on networking skills and that demands high prices for experts in the field, the decision to outsource is becoming an increasingly attractive option. Large companies, however, have a number of major concerns when considering the decision to outsource network services: these are listed in Exhibit XI-1.

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EXHIBIT IX-1

Key User Concerns When Considering Outsourcing

- Network quality and performance
- Tariffs and network flexibility
- Protection of private network investment
- Reluctance to remove in-house management
- Confidentiality

There exist enormous vested interests in installed networks, which many network planners are anxious to protect along with their own positions and those of the established network management teams. Outsourcing networks is therefore often an emotional consideration rather than a practical one.

Large users are primarily concerned with the resilience of the network and achieving the maximum performance standards. For this reason, a great many managers are not prepared to trust their networks to outside vendors. The main requirement here is proof of successful service, preferably involving a competitor's network and therefore vendor expertise in the field. Or, as was strongly illustrated by the "IGT" case study, very close previous relations with the outsourcing company where a high degree of trust, and commitment on the part of the outsourcing company, has successfully been established in the past. This is a crucial factor and could feasibly include services not related to network services. The ability to trust the supplier was the prime consideration.

Flexibility in terms of tariffing and use and development of the network itself is another key requirement. In a market that is gearing toward open rather than restricted proprietary vendor solution, the same concerns apply when considering outsourcing of management functions. Tariffing is a particularly difficult issue, given the requirement from users for both set tariffs to enable realistic financial budgeting and a flexible arrangement that does not tie them into bundled services.

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Security is another major issue which is frequently raised and must be addressed by potential vendors. This covers two issues: namely, network security in terms of backup in case of circuits failure, and security for the business in terms of confidentiality of information.

D

User Bargaining Strength

Corporations are currently in a very strong position to make demands of outsourcing vendors, given the changes occurring the telecommunications market in Europe.

A plethora of potential service vendors have been attracted to the market from a wide range of areas of the telecommunications market. This is a result of three main factors:

- The lessening of the PTT's monopolistic constraints and the resultant increasingly competitive network service environment.

- The maturity of the traditional telecommunications product markets, where the vendors are now attempting to find alternative revenue streams.

- The computer and software service vendors entering the market to supplement systems integration skills and to retain major accounts.

The degree of competition and resultant public network tariff decreases, and predicted further decreases, have pushed network service quality to the top of user selection criteria. This contrasts strongly with the former situation in which the availability of particular network services was more of a key issue.

Additionally, the competitiveness amongst private network product vendors has fueled a stream of recent technical developments in an attempt to steal market share. This, combined with the development of technologies that are full of promise for the user although still very much on the horizon, such as asynchronous transfer mode (ATM) is facilitating a situation in which users are highly confused by what is on offer and are preparing to sit out the current turbulent market situation.

The strong bargaining position of users means that although in practice cost reduction is undoubtedly the major stimulus for users to investigate the outsourcing alternative, it is not the deciding factor.

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Vendors cannot therefore hope to attract business through cost cutting alone. They often have their hands pretty much tied concerning the two most frequently iterated user requirements:

- Increased geographic cover
- Proof of service quality.

The former is frequently made problematic by PTT competition in Europe and resultant restrictions on geographic cover. Additionally, lack of experience with test sites and therefore proof of expertise are hurdles which will frequently be met when approaching corporations.

As geographic coverage is largely out of vendor control, to gain initial credibility vendors should offer restricted service products for niche market entry.

E

Characteristics of Key Outsourcing Candidates

Learning from the comments and concerns of corporate network planners, the following list of potential user characteristics has been compiled and summarised in Exhibit XI-2.

EXHIBIT IX-2

Characteristics of Key Outsourcing Candidates

Organisational	Network
· Network not core business activity	· Private network development low
· Loss industries	· In-house management team not strongly established
· Strong service orientation	· Nationally biased
· Competitors taking the lead	· Limited international requirements

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Although they are obviously not exclusive, and attracting the most promising opportunities is also strongly dependent on vendor capabilities, the following illustrate the main factors that will render a user a more promising outsourcing prospect:

- The network should not be central to the main business activity of the company. Non-core business activities are the first to be considered for outsourcing.

- The organisation should not have invested heavily in a private network development . Consequently, the user is unlikely to have a strongly established in-house team.

- If a company is making a loss or has a low return on investment, it is likely to be seriously looking to cut costs in non-core activities.

- Medium-sized companies where network demands are not as inherently complex as the major multinationals are more likely to have requirements that can be met by the current services available.

- Organisations that have a strong, service-oriented culture are more likely to be open to outsourcing as part of an overall policy decision.

- Nationally biased organisations (particularly for total network solution services) are unlikely to require large-scale international networking.

- Organisations that only require sporadic or restricted international connections are good candidates for services that will simply facilitate a geographic extension to the network but not management control. Frequently in these cases a private network cannot be cost justified and alternative services are sought.

- It is to the advantage of vendors for the target company to be in an industry where competitors have already led the way by successfully outsourcing all or part of their networks.

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A
INPUT Outsourcing Case Study Outline and Questions

The full questionnaire was utilised for those companies which were using outsourcing service. For those which were not, questions A, B, D-5, E and F were used.

Corporate Background

A-1. Functional business description

A-2. Business parameters (sales, employees, locations)

B-1. Could you give a brief overview of your company's communications network and the service types which you have outsourced to a service provider?

- Brief history of development

· integrated voice/data
· number/location of nodes
· DP centre locations
· leased lines bandwidth and supplier
· public network services used: CSDN, PSDN, ISDN, PSTN, and supplier
· traffic types

B-2. Which vendor/s provide your network services, and what types of network service do you use?

· backup to the existing network
· extension of the existing network
· replacement of the existing network
· new network - no existing network was in place

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B-3. What sort of access do you use?

- dial-up access (what speed)
- dedicated access (what speed)
- what protocols are supported on the network?

B-4. How is the billing/costing arranged?

- fixed by distance
- rental charges
- customised tariffs
- fixed charges/flat-top charges
- flexible arrangement/tailored
- monthly/yearly/quarterly
- additional charges for services over and above the basic, e.g., for backup over the PSTN/ISDN

B-5. What is your communications networking budget, now and in 5 years time?

- What percentage of the budget is spent on outsourcing network services, now and in 5 years time?

C-1. How did the decision to outsource come about?

- First mentioned as a possibility and why?

- vendor pressure/marketing
- press coverage
- user pressure

- What were the primary/key motivators for the decision, i.e., why did your organisation decide to outsource?

  - cost savings
  - enhanced technical capabilities
  - geographic spread
  - policy decision

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C-2. How was it justified?

- What were the tangible/quantifiable benefits?
- What were the intangible/unquantifiable benefits?
- Who received these benefits?
- How were the time and expense of the implementation traded off against the benefits?

C-3. Describe the analysis/decision making process.

- What was the process used to analyse costs and benefits?
- What was the process used to arrive at decisions regarding implementation/service types considered?
- Who participated?

  · How was the process steered/managed?
  · What levels of review/approval were required?
  · How were the decisions communicated to participants?

D-1. What were the most important factors which influenced your organisation to select the particular service(s)/vendor(s) which you are using?

  · service specialisation
  · incumbent supplier (e.g., bandwidth-PTT, networking hardware vendors, DP supplier)
  · cost/tariffing structure
  · service quality
  · recommendation
  · geographic coverage
  · high/good industry profile
  · size of vendor organisation
  · availability, i.e., lack of choice in the market with your particular requirements.

D-2. How did you arrive at the final decision?

- Was it a compromise?
- Was it market led?

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D-3. Does your service provider offer the following and how important are they/would they be to you?

- Service level agreement(what is in the agreement)

  · guarantied dates for installation
  · guarantied response time for faults
  · reduced charges in case of network downtime/late responses/late installation and repairs

- Help desk

  · What hours is this available
  · What is the response like generally

- Network management

  · remote
  · on-site
  · monitoring
  · diagnosis
  · reconfiguration

- Consultancy

  · at pilot phase
  · at implementation

D-4. What have been the most significant changes to your organisation since the use of the service/s, please explain?

· cost savings
· fewer technology worries
· less in-house personnel needed
· network performance improved

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D-5. What would have been the ideal scenario for your organisation in particular in terms of a service provision which would exactly fit your requirements?

- to use the PTT/equipment supplier/DP supplier/in-house, if they could have provided the right services.
- different protocols supported
- higher speeds
- LAN interconnection
- connection with other services
- global cover (which countries)

E-1. what are the plans for the development of the communications network?

- in the short term
- in the long term

- in general

  - higher speeds
  - more nodes
  - new technologies
  - new applications

- with particular regard to outsourcing

  - increase/decrease in the use of services
  - higher speed networking
  - greater geographic cover

- renegotiation of the contract which could include:

  - cost reduction
  - new services
  - increased flexibility
  - greater geographic cover
  - new service vendor (why?)
  - inclusion of further functions, e.g., DP services

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F-1. What would be your advice to a vendor planning to offer services either new or expanded, in this area?

- specialise
- don't over promise
- offer more comprehensive services
- concentrate on vertical/geographic markets

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B
Definitions

Outsourcing

Over the past few years a major change has occurred in the way clients are buying some information services. The shift has been labeled *outsourcing*.

INPUT views outsourcing as a change in the form of the client/vendor relationship. Under an outsourcing relationship, all or a major portion of the information systems function is contracted to a vendor in a long-term relationship. The vendor is responsible for the performance of the function.

INPUT considers the following submodes to be outsourcing-type relationships and in aggregate to represent the outsourcing market. See Exhibit B-1.

Changes from the 1991 INPUT's *Definition of Terms* are indicated with an asterisk (*).

- *Platform Systems Operations* - The vendor is responsible for managing and operating the client's computer systems.

- *Applications System Operations* - The vendor is responsible for developing and/or maintaining a client's applications as well as operating the computer systems.

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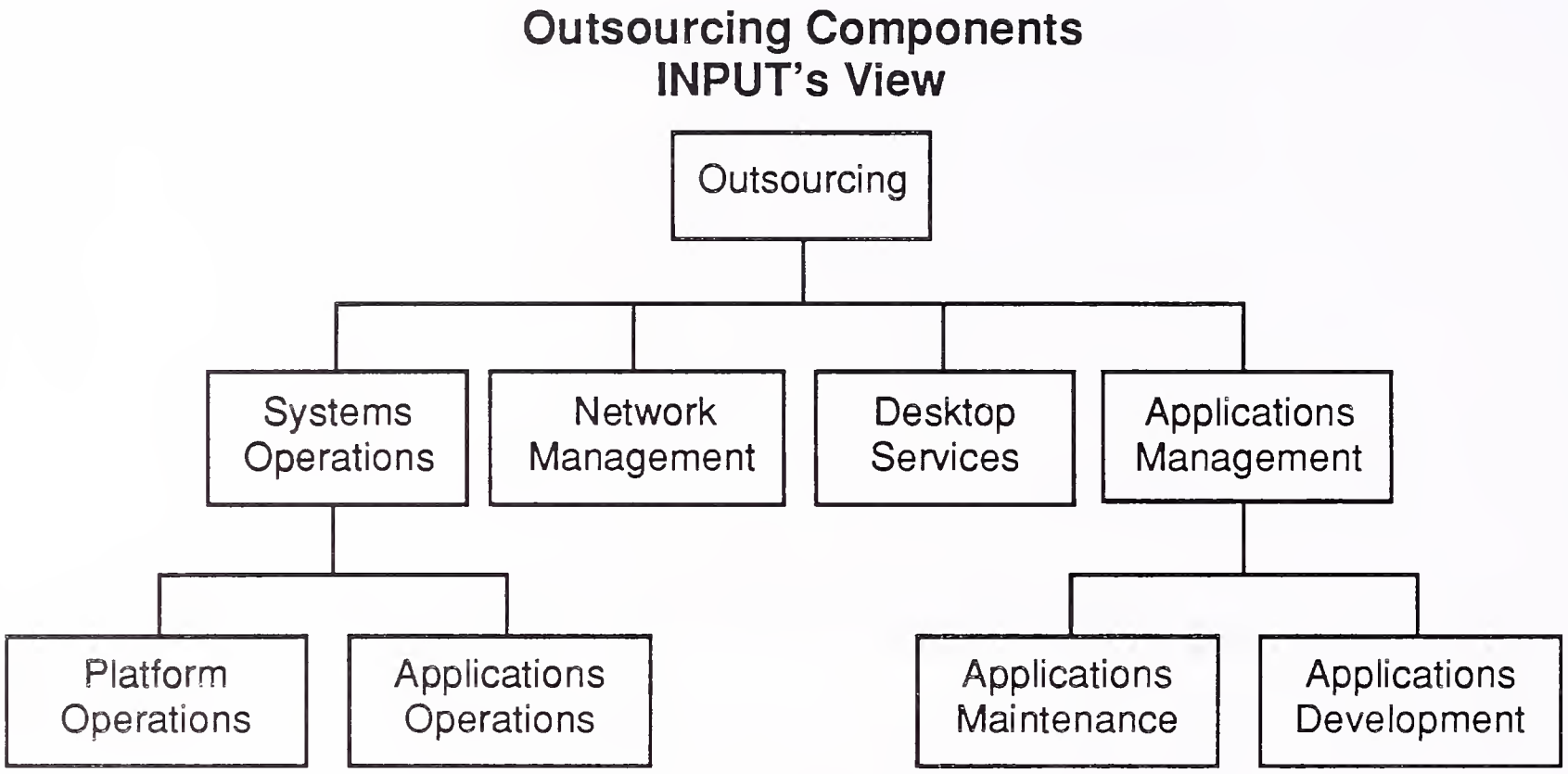
EXHIBIT B-1



* *Network Management* - The vendor assumes full responsibility for operating and managing the client's data communications systems. This may also include the voice communications of the client.

* *Applications Management/Maintenance* - The professional services vendor has full responsibility for developing and/or maintaining some or all of the applications systems that a client uses to support business operations. The services are provided on a long-term contractual basis.

* *Desktop Services* - The vendor assumes responsibility for the deployment, maintenance, and connectivity between the personal computers and/or intelligent workstations in the client organization. The services may also include performing the help-desk function. The services are provided on a long-term contractual basis.

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