INFORMATION SYSTEMS OUTSOURCING
COMPETITIVE ANALYSIS
EUROPE 1992

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INFORMATION SYSTEMS OUTSOURCING COMPETITIVE ANALYSIS

EUROPE, 1992

INPUT ®

Abstract

The European outsourcing market continues to develop rapidly both in terms of market growth and also in terms of the range of outsourcing services being offered. This market development has attracted the attention of many new entrants ranging from the major systems vendors, IBM and Digital, to the personal computer dealerships, ICG and P&P, and from the major U.S. outsourcing vendors such as Perot Systems to subsidiaries of the European PTTs, such as Transpac and Syncordia. The activities of many of these new entrants pose a serious threat to the current market leaders.

This report analyses the major competitive trends that take place in the European outsourcing market, and provides profiles of the outsourcing activities and market strategies of fifteen vendors prominent in the European outsourcing market.

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I
Introduction

A
Purpose

The European outsourcing market has shown a high level of growth in 1992, and this trend is expected to continue for the foreseeable future. This growth has attracted the attention of the major systems vendors such as IBM and Digital and the major U.S. outsourcing vendors such as Perot Systems and CSC. These new entrants often have different approaches to the outsourcing markets from the major indigenous vendors such as Hoskyns and GSI, yet pose a real threat to the current market leaders.

The purpose of this report is to analyse the market strategies of fifteen prominent vendors in the European outsourcing market. In particular, this report aims:

· To identify the current standing of each vendor in the outsourcing market

· To identify each vendor's current outsourcing offerings

· To identify each vendor's goal and related market strategies

B

Scope and Methodology

This report is based upon face-to-face interviews with fifteen leading outsourcing vendors active in the European market.

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 I-1).

EXHIBIT I-1

**Outsourcing Components
INPUT's View**

Outsourcing

Systems Operations — Network Management — Desktop Services — Applications Management

Platform Operations — Applications Operations

Applications Maintenance — Applications Development

OE-VP2
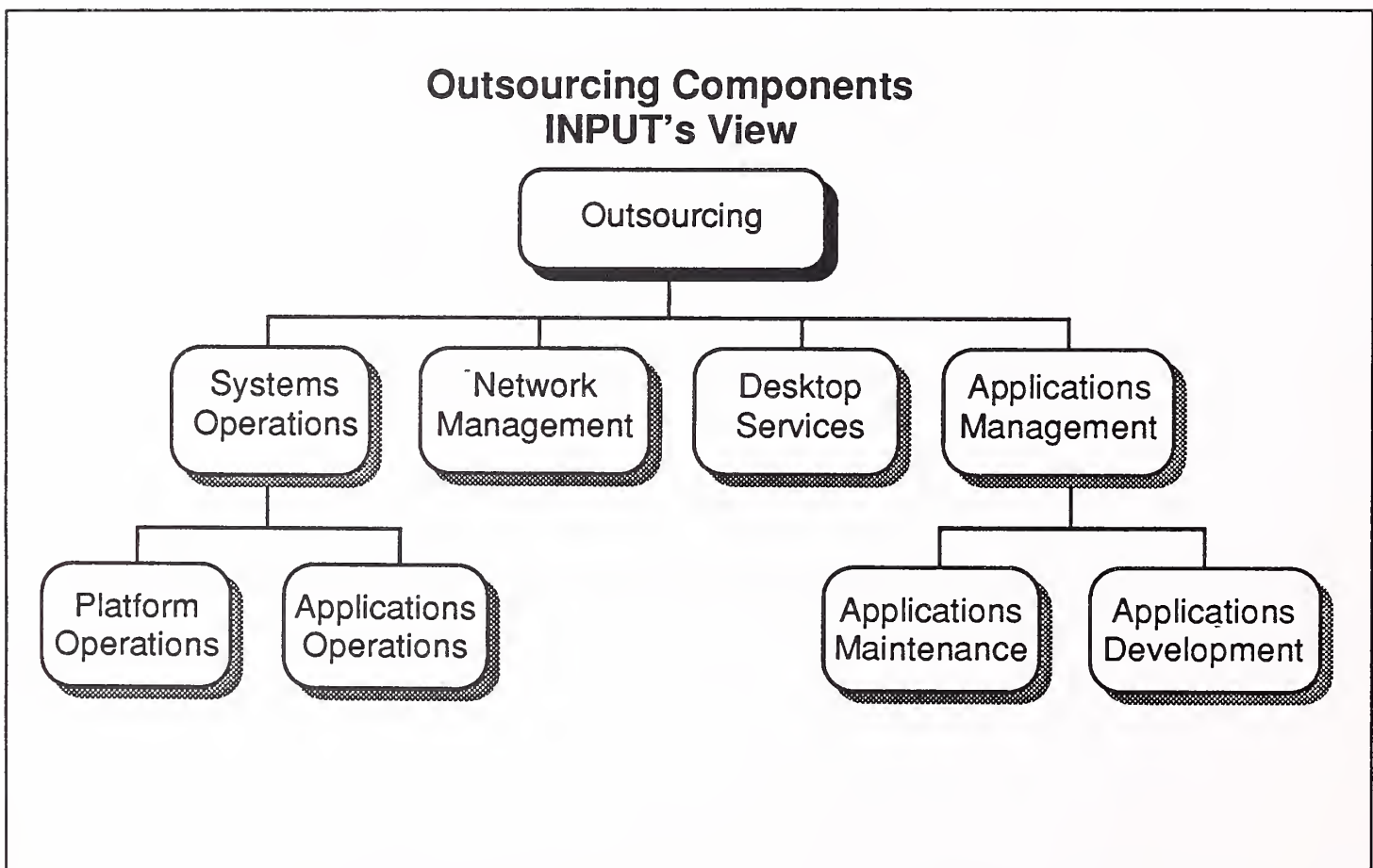
Outsourcing - Contracting for all or a major portion of an information system function or process to a vendor on a long-term basis.

Systems Operations - Contracting out, to a vendor, the information systems operations in either of two ways:

· *Platform Systems Operations* - The vendor is responsible for managing the computer systems and their associated networks.

· *Applications Systems Operations* - The vendor is responsible for developing and/or maintaining a client's applications software as well as operating and managing the computer systems and their associated networks.

Network Management - Contracting to a vendor for the operations and management of the computer-related telecommunications network, transmitting data, voice, image, text, local-area and wide-area networks. Voice-only network operations are not part of information systems outsourcing.

Desktop Services - Contracting out to a vendor for the deployment, maintenance, support, and connectivity of the firm's PC/workstation inventory. The service may also include performing the help desk function.

Applications Management - The vendor is responsible for the development and maintenance of all the applications systems that a client uses to support a business operation.

Applications Development - Contracting out for the design, development, and long-term maintenance and enhancement of new applications software associated with a business operation.

Applications Maintenance - Contracting out only for the maintenance of the existing applications software associated with a business operation.

C

Report Contents

Chapter II is the Executive Overview and contains a summary of the key competitive trends taking place in the European outsourcing market.

Chapter II contains fifteen profiles that describe the outsourcing activities and market strategies of leading vendors.

D

Related Reports

Information Systems Outsourcing Market Opportunities, Europe, 1992-1997
Outsourcing Systems Operations - Europe, 1992-1997
Outsourcing Network Management and Operations - Europe, 1992-1997
Outsourcing Desktop Services - Europe, 1992-1997
Outsourcing Applications Management - Europe, 1992-1997

II
Executive Overview

A

European Outsourcing -- The Level of Competition Increases

Exhibit II-1 lists the leading outsourcing vendors in Europe for 1991.

EXHIBIT II-1

Leading Outsourcing Vendors, Europe, 1991

Company	Estimated Revenues ($m)	Estimated Market Share (%)
EDS	270	12
Cap Gemini Sogeti	230	10
Sema Group	100	4
GSI	90	4
AT&T Istel	80	3
Data Sciences	80	3
Finsiel	60	3
CSC	60	3
Télésystèmes	50	2
Digital	45	2
CFM	45	2
Total Listed	**1,110**	**48**
Total Market	**2,300**	**100**

Further details of individual vendor market shares by country are provided within the report entitled, *Information Systems Outsourcing Market Opportunities, Europe, 1992-1997.*

The list of leading vendors shows a significant change from that for 1990, with the elevation of EDS to first place, following the company's acquisition of SD-Scicon and GFI.

However, the European outsourcing rankings may show even greater volatility over the next few years. The European outsourcing market continues to grow rapidly and a number of large contracts are beginning to appear, offering considerable scope for vendors to alter their market rankings significantly.

There has also been considerable repositioning taking place over the last year with:

· The major systems vendors, such as IBM and Digital, entering the market

· Renewed targeting of the European outsourcing market by the major U.S. outsourcing vendors such as Computer Sciences Corporation and Perot Systems

· A number of established vendors, such as Cap Gemini Sogeti and AT&T Istel, seeking to increase their geographic coverage

Further volatility in the market arises from the increasing scope of outsourcing and the emergence of new services such as outsourced network management and outsourced desktop services. This creates opportunities for new groups of vendors including:

· The personal computer dealers, e.g. International Computer Group and P&P offering outsourced desktop services.

· The PTTs, e.g. Syncordia and France Télécom offering outsourced network management.

B

Market Entry By the Systems Vendors

At present, the European outsourcing market is dominated by professional services vendors like EDS, Cap Gemini Sogeti, Sema Group and GSI. However. this situation is likely to change over the next few years. Digital has been offering outsourcing services in Europe on a reactive basis for three years, but has only recently switched to a proactive market stance. However, the bulk of the outsourcing market in Europe is still concentrated around mainframe-based data centres, and so Digital needs to enhance significantly its multivendor outsourcing capability.

A more immediate threat to the market leaders comes from IBM's market entry in 1992. Although IBM has been active in France through its Axone joint venture for many years, IBM has now established a wholly owned outsourcing subsidiary in the United Kingdom and is establishing more subsidiaries in France, Germany, Italy, Spain, Benelux, and Scandinavia.

IBM has considerable capability in the areas of platform operations and network management, and has achieved considerable success in the U.K. market, winning contracts valued at $75 million, as shown in Exhibit II-2, since the beginning of the year.

EXHIBIT II-2

IBM Outsourcing Contracts, United Kingdom, 1992

Client	Type of Service	Value (£M)
Equifax	Platform operations	20.0*
Iron Trades Assurance	Platform operations	2.0
Winchester Health Authority	Platform operations	}
Wirral Hospital Trust	Platform operations	} 1.3
U.K. Police	Applications operations	10.0*
Next	Platform operations	10.0

*INPUT estimate   Source: INPUT

Other equipment vendors now targeting the European outsourcing market include Unisys and Groupe Bull. ICL targets outsourcing

through its CFM subsidiary. CFM's traditional strengths lie in offering outsourcing to the public sector. However, the company wants to develop its presence in the private sector and establish a leading position in the outsourcing market.

The systems vendors pose a serious threat to the present market leaders because of their financial strength and large user bases.

C

Major U.S. Outsourcers Target Europe

The major U.S. outsourcing vendors are targeting the European market more often, and have achieved some notable successes during 1992. Details of major contracts won during the year by Perot Systems and Computer Sciences Corporation are shown in Exhibit II-3.

EXHIBIT II-3

Major Outsourcing Contracts, 1992
U.S. Vendors

Client	Vendor	Contract Value ($m)	Number of years
East Midlands Electricity	Perot Systems	600	12
Europcar	Perot Systems	400	10
BHS	CSC	200	11

The approach of vendors, such as Perot systems and CSC, remains fundamentally different from those adopted by the leading European vendors like Cap Gemini Sogeti/Hoskyns and Sema Group.

Until recently the majority of Hoskyns outsourcing contracts have dealt with transition outsourcing of mainframe operations. Presently, the company is seeking to diversify into outsourcing desktop services and application management. These services are comparatively non-threatening to in-house IS managers, enabling them to outsource functions that they either no longer wish to manage, or are having difficulty in resourcing.

On the other hand, vendors such as Perot Systems and CSC show comparatively little interest in these types of offerings. Their market approach is to target the major European organisations by offering a combination of business process re-engineering, systems integration and outsourcing. There are signs in 1992 that some European organisations may be more receptive to this style of approach.

D

Outsourcing Evolution Encourages New Entrants

1. Vendors Expand their European Coverage

Major U.S. outsourcing vendors, like CSC and Perot Systems, adopt a global approach to outsourcing and target outsourcing contracts across a number of European countries on a transnational basis. In addition to its major data centre in Brussels, CSC will soon open more data centres in Germany and London.

On the other hand, many of the established European outsourcing vendors such as Hoskyns, Data Sciences, GSI, Télésystèmes, tds, and Alldata have traditionally focused their outsourcing activities within a single country, or a small number of countries. Many of these vendors seek to expand their European market coverage, for example:

· Cap Gemini Sogeti endeavours to apply Hoskyns' expertise in France, Germany, Benelux, and Scandinavia.

· AT&T Istel has acquired Dataid in France and actively seeks further acquisitions.

Major systems vendors as Digital and IBM will also establish outsourcing capability across Europe. IBM is on the point of establishing a number of wholly owned outsourcing subsidiaries, following the creation of IBM ISL in the United Kingdom.

Digital wants to develop its outsourcing presence in the United Kingdom, France, the Netherlands and Sweden.

In the near future, this will create an elite of outsourcing vendors with the capability and credibility to provide transnational outsourcing services to the major corporations.

2. The Scope of Outsourcing Increases

The evolution of the European outsourcing market is illustrated in
Exhibit II-4.

EXHIBIT II-4

Evolution of European Outsourcing
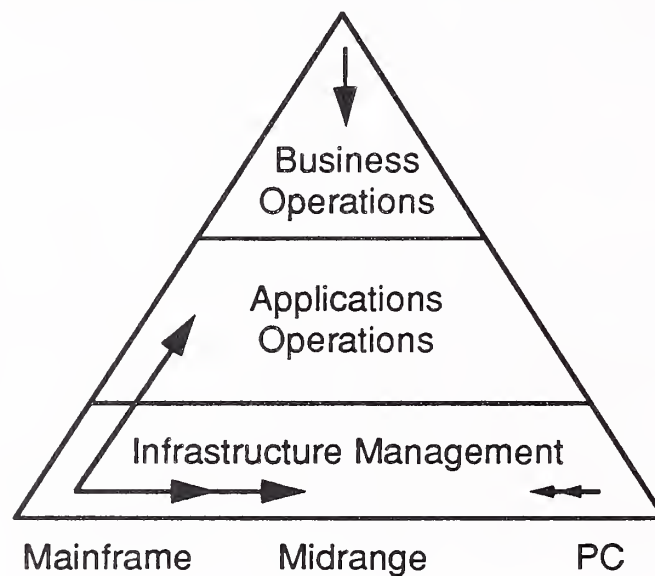
The nature of the outsourcing of infrastructure management will
change over the next five years as there is a change of emphasis from
mainframe platform operations to the management of client/server
architectures and desktop services. A number of established
outsourcing vendors, such as Hoskyns and Data Sciences, are already
targeting these opportunities. Others like Andersen Consulting,
AT&T Istel and IBM recognise that the future may offer increased
opportunity to manage the "new" infrastructures, rather than the "old"
systems.

However, the group of vendors who have achieved the most success in offering desktop services have been a new entrant to the outsourcing market (the major personal computer dealerships led by organisations such as the International Computer Group and P&P). It is probable, over the next few years, that these vendors will team up with other outsourcing vendors to offer a full-service capability. For example, IBM is likely to develop partnerships to supplement its own outsourcing offerings with AS/400 and personal computer outsourcing capabilities.

Similarly, the increasing demand for outsourced network management has led organisations, such as the PTTs, to enter the outsourcing market.

The capability of vendors in this new area is contrasted with their platform operations capability in Exhibit II-5.

EXHIBIT II-5

Infrastructure Management Capability

Vendor	Platform Operations	Network Management	Desktop Services
Alldata	Strong	Low	Low
Andersen Consulting	Medium	Medium-Strong	Medium-Strong
AT&T Istel	Medium	Strong	Medium
Axone	Strong	Strong	Low
BIS	Medium	Low	Medium
CFM	Low	Low	Medium
CSC	Strong	Strong	Medium
Data Sciences	Strong	Medium	Medium-Strong
Digital	Low	Very Strong	Strong
EDS-GFI	Strong	Strong	Strong
GSI	Strong	Medium	Medium
Hoskyns	Strong	Medium	Medium-Strong
IBM	Very Strong	Very Strong	Low
tds	Strong	Medium	Low
Télésystèmes	Medium	Medium	Low

Of course, price competitiveness remains a major determinant of success in the European platform operations market, and many vendors continue to rationalise their own data centres. Although there is some resistance from clients to remote data centres, particularly among organisations in the regions of France and among local authorities in the United Kingdom, many vendors will eventually concentrate their mainframe platform operations activities around a small number of "mega-centres", serving the whole of their European client base.

Another trend is the evolution of outsourcing towards higher value-added activities such as applications operations and business operations. One strand of this development is the targeting of multinationals with applications operations by vendors such as EDS and CSC.

However, other vendors including Andersen Consulting, Axone, and Digital see increasing potential to target small to medium-sized organisations with applications operations. The rationale is that these smaller organisations cannot afford to support a critical mass of in-house development personnel and so need to outsource the development and the operation/support of their IS systems.

Andersen Consulting has demonstrated the potential for business operations outsourcing with its contract to manage the accounting function of BP Exploration. However, although the company is increasing its focus on offering business operations, there have been few other business operations contracts awarded in the private sector. Nonetheless, EDS and CSC are keen to develop into this sector of the outsourcing market.

The company that has achieved the most success in offering business operations outsourcing is Telecom Capita, which provides revenue collection services to local authorities in the United Kingdom.

The vendor's systems integration capability is one of the major determinants of success in the applications operations sector.

III
Vendor Profiles

A

Alldata -- Targeting Small Financial Services Organisations

Alldata estimates that systems operations accounted for DM90 million of the company's 1991 revenues.

A breakdown of the company's current customer base by industry is shown in Exhibit A-1.

EXHIBIT A-1

Alldata, 1991 Outsourcing Customer Base

Sector/Service	Number of Clients
Banking	3
Insurance	7
SAP-based	10
TOTAL	**20**

The company has historically concentrated on the banking and insurance sectors, but also offers an outsourcing service based on SAP's R/2 software.

Alldata targets small to medium-sized financial services organisations, which lack the resources necessary either to develop their own applications software or to finance their own data centre. Alldata's clients typically have no in-house IS personnel and are fully dependent on Alldata for all of their IS provisions.

Accordingly, Alldata places considerable emphasis on the ability of its sales force to negotiate at board-level, and the necessity for good knowledge of the banking sector. Alldata has an active outsourcing sales force of 10-15 personnel. These are organised by industry and sell application software packages and systems development in addition to systems operations.

Alldata perceives its ability to provide applications for its outsourcing clients as a key component of its service. Accordingly, the company has acquired two application software product vendors - Banken-Orga and SDV - recently to provide Alldata with a range of applications relevant to organisations in the banking and insurance sectors. Alldata's principal products for the banking sector are:

· MBS- modular banking system used by 20 banks

· Melba- used by 16 banks

· MTS- front-office banking system

Alldata's products for the insurance sector include:

· ADIS & Aktiva- for use by insurance sales personnel

· VM/AS- for administration of agency sales processes

· Depot-V- for deposit processing

The locations of Alldata's data centres are listed in Exhibit A-2.

EXHIBIT A-2

Location of Data Centres

· Dusseldorf
· Sachsen
· Brandenburg
· Mecklenburg-Vorpommern

Alldata has recently merged its former three West German data centres into a single large data centre, based in Dusseldorf, and recognises that some rationalisation of its recently-acquired east German data centres may also be necessary. Alldata estimates that the consolidation of its three West German data centres is saving the company approximately DM 2 million per annum.

Alldata may increasingly target network management in the future in addition to its present systems development and computer operations activities.

B

Andersen Consulting -- Emphasis on Customer Service

Andersen Consulting perceives that in-house IS departments have typically had a "resource focus" in the past. However, this has led to a widespread need to improve the quality of service provided by IS departments. Andersen Consulting's approach to outsourcing is to assist organisations in re-engineering their computer operations to maximise the IS impact on their business. Andersen Consulting is approaching this challenge by:

· Levering its traditional strength in operations engineering
· Targeting business operations
· Endeavouring to outsource the "new systems" instead of the "old systems"

Leveraging its Strengths in Operations Engineering

Andersen Consulting's systems management service lines include:

· Operations Strategy
· Operations Engineering
· Applications Engineering
· Managed Network Services
· Outsourcing Services

Andersen differentiates between its engineering lines such as "operations engineering" and their "outsourcing under contract" services. The engineering lines provide consultancy and project-based services rather than outsourcing. However, these engineering lines do lead to significant outsourcing opportunities.

For example, the provision of operations engineering services to the London Stock Exchange led to a $100 million outsourcing contract. Furthermore, Andersen Consulting did not go to competitive tender for this contract. In operations engineering, Andersen Consulting takes line management responsibility on a project basis with the objective of turning round the organisation's computer operations activities. Andersen Consulting has its own methodology (CO-OPERATE) that the company uses to assist clients in defining and delivering appropriate levels of service through their computer operations activities. The message that Andersen Consulting can not only enable its clients to run their data centres more efficiently, but also transform the attitudes of the personnel delivering the service, is a very powerful one.

Targeting Business Operations

Andersen Consulting estimates that it currently has approximately 45 contracts in the U.K. However, the company has only 20 outsourcing clients -- nearly 20 of the company's contracts fall within Yorkshire Regional Health Authority.

Other outsourcing clients include:

· Greenall Whitley
· Thames Water
· Banque Belge
· Burmah Castrol
· Civil Aviation Authority
· Standard Chartered Bank

The breakdown of the company's outsourcing contracts by segment is shown in Exhibit B-1.

EXHIBIT B-1

Breakdown of Outsourcing Contracts by Segment

Segment	Proportion (%)
Transition outsourcing	75
Platform operations	10
Applications operations	10
Business operations	5
TOTAL	**100**

Source: INPUT estimate

Although the company has only achieved one business operations contract so far in Europe, Andersen Consulting is strongly targeting this area.

The company's single business operations contract in Europe involves the management of the accounting department on behalf of BP Exploration in Aberdeen, United Kingdom. Andersen Consulting believes that business operations requires comparatively lengthy contracts because the changing of business processes necessitates a considerable culture change within the organisation. Though Andersen Consulting has a line management responsibility within BP Exploration, the company also acts as an agent of change in developing new business processes, for example, with the Department of Social Security in the United Kingdom. In these cases, Andersen Consulting does not take on long-term line management responsibility, but acts as the catalyst for business process change.

Andersen Consulting is believed to be targeting business more operations within the staff functions such as accounting, marketing, and personnel.

Outsourcing New Systems

Whereas one of Andersen Consulting's strengths is the company's ability to assist clients in achieving "best practice" in service delivery, Andersen Consulting does not particularly pursue mainframe platform operations contracts because the principal differentiation between suppliers in this segment is price.

However, the company has taken steps to reduce its own costs of service delivery, rationalising its former six data centres in the United Kingdom down to two plus a standby site. Details of these data centres are provided in Exhibit B-2.

EXHIBIT B-2

Andersen Consulting's U.K. Data Centres

Location	Equipment
Bristol	IBM mainframe, AS/400
Harrogate	Digital, ICL

Traditionally, much outsourcing in Europe has been concerned with outsourcing the client's "old systems". However, Andersen Consulting is now targeting the outsourcing of new systems. The technical complexity of distributed, multivendor IS infrastructures, combined with the need for a customer service focus, is making IS infrastructure management a challenging task for many in-house IS departments. Andersen Consulting's global managed network is an important element in their ability to offer such services.

In addition to its infrastructure management services, Andersen Consulting has introduced a service called "Total Care". "Total Care" is an applications operations service, which will be aimed principally at medium-sized organisations lacking in-house applications engineering capability.

Andersen's systems management services are sold through six business development staff, supporting the partners who are organised into industry sector facing groups. Andersen Consulting targets those industry sectors that are changing most rapidly. In the United Kingdom, their primary focus is:

· Central government
· Utilities
· Oil and gas
· Financial services
· Sub-sectors of manufacturing industry

C

AT&T Istel -- Seeking Leadership Through Acquisition

AT&T Istel has very aggressive growth targets. Overall, the company is targeting growth in software and services from $275 million in 1991 to reach $2.2 billion by 1996. By this time, AT&T Istel plans to be one of the top three software and services vendors in Europe alongside EDS and Cap Gemini Sogeti.

Similarly, the company is aiming to be one of the top 3 European outsourcing companies by 1996, with its revenue increasing at 45% per annum from $80 million in 1991 to reach $500 million by 1996. Obviously this level of growth can only be achieved by an aggressive acquisition policy.

AT&T Istel claims to have the necessary financial backing from its parent to achieve these goals, and evidence of this is seen in the company's recent acquisition of Dataid for $95 million. A significant number of further acquisitions can be expected to follow as AT&T Istel concentrates on building a pan-European software and services capability with a strong outsourcing component.

Developing Change and Network Management Offerings

AT&T Istel envisages a major change in the profile of its outsourcing contracts over the next five years, with increased emphasis on change management and network management. The company also hopes that typical contract lengths will increase from the present 3-5 years to 5-10 years.

Currently, AT&T Istel structures its outsourcing services into five "levels" of outsourcing. These are listed in Exhibit C-1.

EXHIBIT C-1

Current Service Offerings
AT&T Istel, Outsourcing

Level	Service	Description
1	Efficiency Management	Workload consolidation on a single computer facility for economy of scale.
2	Facilities Management	Complete computer operations management either on-site or off-site.
3	Service Management	Provision of complete IS solution including bespoke software.
4	Change Management	Migration between systems e.g. IBM to UNIX, or locations.
5	Information Systems Management	Full consultancy service covering the design and management of an organisation's total computing and communications requirements.

The breakdown of the existing customer base according to these service categories is indicated in Exhibit C-2.

EXHIBIT C-2

Breakdown by Service Type
Outsourcing Customer Base, AT&T Istel

Service	Proportion of Contracts (%)
FM and efficiency management	55
Service management	35
Change management	5
Information systems management	5

AT&T Istel estimates that approximately 60% of its current outsourcing revenues are derived from platform operations. At present, only a minor element of the company's outsourcing revenues come from change management, the bulk of the remainder coming from application operations contracts.

However, the company recognises that many multinational companies are intending to downsize, and believes that this offers a major opportunity for AT&T Istel to change management services. Whereas much change management activity to date in Europe has involved the outsourcing vendor in managing the "old" systems while the user develops the new systems, AT&T Istel believes that such transitions present an opportunity for vendors to become involved in the redevelopment of systems to run on open systems.

AT&T Istel also has a major strength in networking and expects to become increasingly involved in network management by utilising its fast developing pan-European networking capability.

Need to Diversify Beyond Rover Group and Health Sector

AT&T Istel at year-end 1991 had approximately 30 outsourcing contracts with a total value of $80 million per annum, a quarter of the company's total revenues.

A breakdown of the company's customer base by industry is provided in Exhibit C-3.

EXHIBIT C-3

Breakdown by Industry
Outsourcing Customer Base, AT&T Istel

Sector	Proportion of Contracts (%)
Manufacturing	40
Health	40
Financial Services	10
Retail	10

The bulk of the company's business comes from the manufacturing and health sectors. AT&T Istel estimates that 70% of its outsourcing revenues come from these two sectors. Typical contracts in these sectors are shown in Exhibits C-4 and C-5. The majority of the company's outsourcing revenues from the manufacturing sector appear to come from companies that are, or have been, part of BAe/Rover Group. The company's penetration of the wider manufacturing sector has been comparatively limited to date. However, outsourcing revenues from the Rover Group alone are sufficient to make AT&T Istel one of the leading outsourcing suppliers to the manufacturing sector in the U.K. The company estimates that it holds a 25% market share of the U.K. manufacturing sector outsourcing market. AT&T Istel hopes to develop its outsourcing presence within BAe to a similar effect.

EXHIBIT C-4

Typical Outsourcing Contracts
AT&T Istel, Manufacturing Sector

Company	Equipment	Equipment Location
Rover Group	IBM 3090	Redditch
Rover Group	IBM 3083	Cowley
Land Rover	Digital VAX	Solihull
Aerostructures	ICL/Digital Vax/ IBM S/38	Southampton

EXHIBIT C-5

Typical Outsourcing Contracts
AT&T Istel, Health Sector

Organisation	Equipment	Equipment Location
Trent RHA	ICL mainframe	Sheffield
Northern RHA	ICL mainframe	Newcastle
North Derby DHA	Digital	Redditch
Warrington DHA	Digital	Redditch
Wirral DHA	IBM 4381	Redditch

AT&T Istel estimates that it holds 55% of the available outsourcing market in the U.K. health sector. The company has major contracts with Trent RHA, Northern RHA, West Midlands RHA and with a wide range of District Health Authorities.

In terms of future direction, AT&T Istel will endeavour to increase its outsourcing market penetration in its other target sectors, particularly the financial and retail sectors.

Global Network is the key to Data Centre Concentration

Exhibit C-6 shows AT&T Istel's overall organisational structure, applicable from March 1992.

EXHIBIT C-6

AT&T Istel Organizational Structure

Group Chief Executive
Chris Chiles

Corporate Strategy
Mike Grice

Finance & Corporate Services
Peter Teague

Manufacturing
Industries Group
Peter Marchant

Service Industries
Group
John Sansom

Computer &
Communications
Group
Mke Grant

Corporate Product
Management
David Overton

European
Development Group
Bill Hawkings

The management, selling, and delivery of AT&T Istel's outsourcing activities are handled by separate entities within this organisation. The product management of outsourcing is handled within Corporate Product Management (Exhibit C-7), the service is largely delivered by the Computer & Communications Group; and the service is sold by sales forces operating from within the Manufacturing Industries Group (Exhibit C-8) and the Services Industries Group (Exhibit C-9).

New business outsourcing sales are targeted within each of the Manufacturing Industries Group and the Service Industries Group by a sales body of six personnel -- consisting of three sales staff and three technical consultants. These sales staff are focused by industry sub-sector and are expected to have high levels of understanding of the industries that they address.

Separate account managers are responsible for managing the relationships with existing clients.

Much of the existing business comes from referred leads. AT&T Istel believes that it has a low profile in the outsourcing market, but is planning to raise its profile considerably with a major marketing communications programme in the near future.

EXHIBIT C-7

Corporate Product Management

Chief Executive

- FM Product Management
- VADS Product Management
- MDNS Product Management
- Corporate Account Management
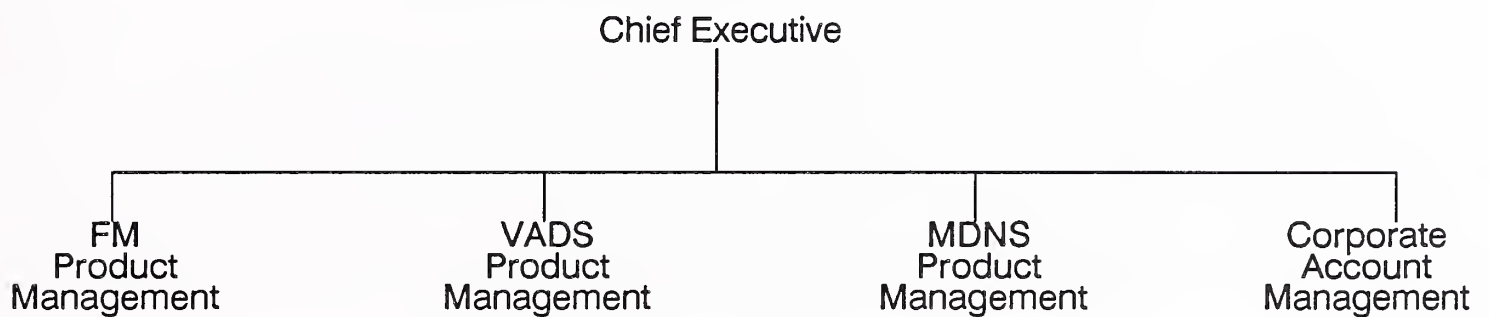
EXHIBIT C-8

Manufacturing Industries Group

Chief Executive

- Rover Division
- Discrete Manufacturing & Automotive Systems
- Process Industries
- Industry* Solutions
- Industry Services
- UB Project
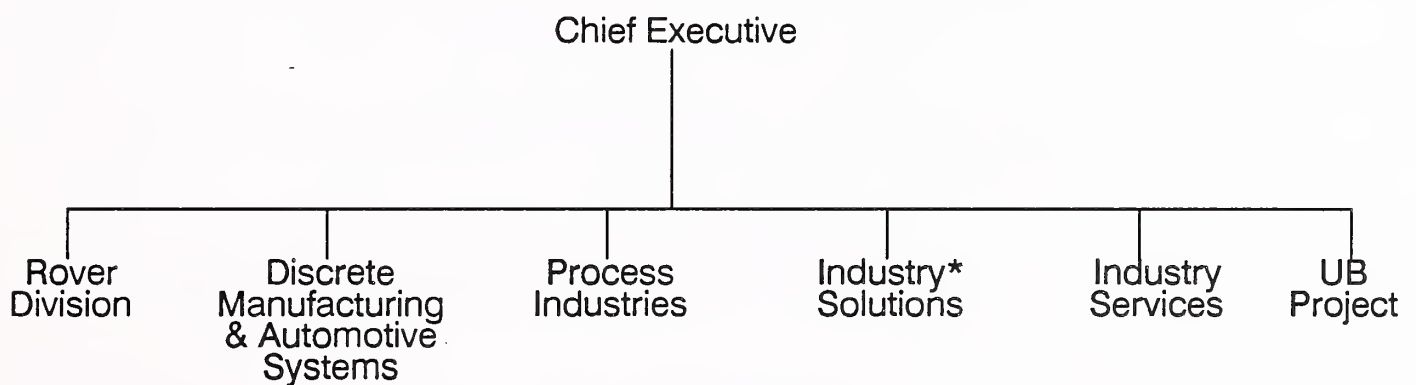
EXHIBIT C-9

Service Industries Group

Chief Executive

| Health Information Services | Financial & Retail Services | Travel Systems | Daton Systems | MDNS* & FM | Personal Networking Ltd. |
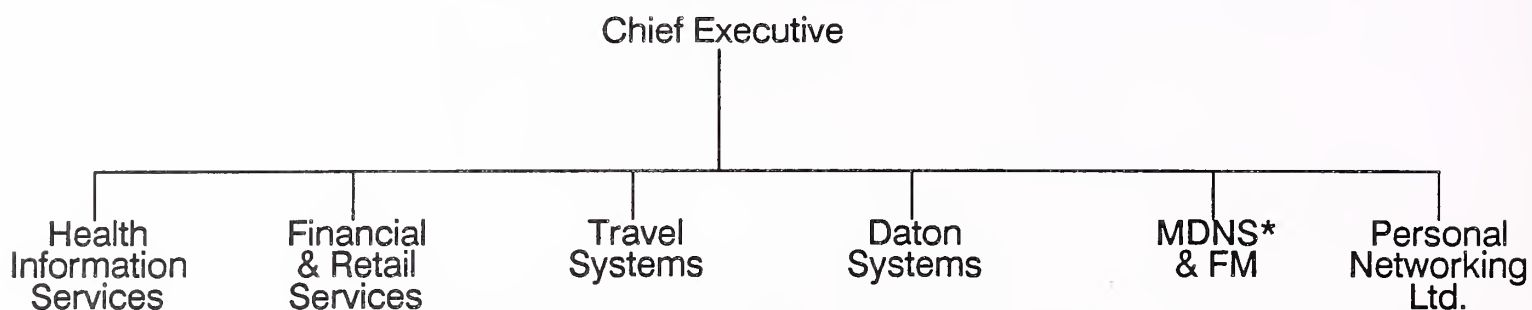
* sells outsourcing services

At present, AT&T Istel has ten data centres. In the future, it is probable that the company will concentrate its outsourcing delivery around two "mega-centres" with a large number of small satellite operations. The company believes that large data centres concentrating activity wherever possible is the correct approach in the long run. AT&T Istel regards its pan-European network as a critical element in this approach.

Increased Focus on Distributed Open Systems

Exhibit C-10 indicates the breakdown of AT&T Istel's outsourcing contract base by equipment type. At present, roughly 45% of contracts are based around mainframes and another 45% are based around mid-range equipment from IBM and Digital.

However, AT&T Istel sees its ultimate strength as being in the management of outsourced distributed open systems.

EXHIBIT C-10

Breakdown by Equipment Type
Outsourcing Customer Base, AT&T Istel

EQUIPMENT TYPE	Proportion of contracts (%)
IBM Mainframe	30
ICL Mainframe	15
IBM Mid-range	10
Digital Vax	35
AT&T	10

The main strands in the company's development towards this goal are the following:

· A move towards pan-European coverage by acquisition.

· Continued development of the European network, seen as an essential part of the infrastructure for wide-area distributed systems, particularly when targeting multinational corporations.

· Increased targeting, possibly in conjunction with NCR in Europe, of the financial and retail sectors.

· A major marketing campaign to increase prospect awareness of AT&T Istel, followed by greater emphasis on account management and the long-term targeting of specific major organisations.

· Building up of AT&T Istel's open systems development capability and application portfolio to provide the building blocks for a drive towards Information Systems Management.

Exhibit C-11 summarises the company's current strengths.

EXHIBIT C-11

Strengths
AT&T Istel, Outsourcing

Strengths
Established pan-European network infrastructure
Commitment to open systems
Financial resources of AT&T
Access to BAe

Some of the immediate challenges facing AT&T Istel are the need to continue to extend its European coverage, the need to increase awareness of the company's capabilities, and the desirability of developing beyond the company's traditional strengths within the health sector and the Rover Group.

D

Axone -- Strong Growth from Transition Outsourcing

The outsourcing market in France is less developed than that in the
U.K., but immature markets often offer the potential for rapid growth.
Axone -- the joint venture between IBM and Sema Group -- has
shown what can be achieved by recording growth of 70% in 1991, as
shown in Exhibit D-1.

EXHIBIT D-1

Axone Financial Summary

Year	1988	1989	1990	1991
Revenues (FFm)	64	135	190	323
Annual Growth (%)	-	111	41	70

Source: Axone

The company's growth in 1991 was achieved largely through the
contributions of its systems operations and network services activities.

Axone offers three major services:

· Systems operations
· Disaster recovery services
· Value-added network services

The breakdown of Axone's revenues by each of these activities is
shown in Exhibit D-2.

EXHIBIT D-2

Breakdown by Delivery Mode, Axone, 1991

Delivery Mode	Revenues (FFm)	Percent
Systems Operations	178	55
Network Services	85	26
Processing Services	60	19
TOTAL	**323**	**100**

Source: INPUT estimate

In order to maintain the high growth rates, which the company has so far managed to sustain, Axone needs to meet the following challenges:

- Increase the commitment of IBM's sales force to systems operations.

- Continue the development of its multivendor platform operations services.

- Develop application management services on mid-range platforms.

Increasing Commitment from IBM Sales Force

Axone is not permitted to target IBM accounts directly, but must rely on IBM's account managers to introduce outsourcing prospects. Although IBM's commission schemes have been adjusted to encourage such introductions, sales staff can still be reluctant to encourage their prospects to outsource their platform operations activities.

Axone believes that it has reduced prospective clients' fears of losing control by stressing the importance of the client retaining "business control" of the organisation's IS systems. By "business control", Axone means that the client must retain a core IS staff in-house who remain responsible for specifying the organisation's IS architecture and its application solutions. This ensures that the client can maintain a measure of vendor independence, and also maintain the core IS skills around which a new in-house IS capability can be built, should the move to outsourcing be subsequently considered unsuccessful by the user.

Exhibit D-3 shows examples of Axone's current outsourcing clients.

EXHIBIT D-3

Typical Outsourcing Contracts

Axone

Client	Nature of Contract
Pirelli Cables	Transition : mainframe to AS/400
National Swiss	Application Management
Barclays	Platform operations : AS/400
Kraft General Foods	Platform operations : AS/400
Jacob Suchard	Platform operations : AS/400
Port of Marseilles	Application Operations

Developing Multivendor Services

The IBM sales force is understandably enthusiastic about the migration of clients from other vendors' equipment. Overall, over 50% of Axone's contracts arise from transition management situations. Furthermore, not only do Axone's data centres hold equipment for IBM, but it also holds equipment for Groupe Bull, Unisys and Digital. In addition to demonstrating Axone's capability to perform transition management contracts in which applications based on Groupe Bull or Unisys equipment are being replaced by services based around IBM equipment, such equipment is increasingly important for the management of multivendor IS applications. Axone currently has six data centres, the largest of which is based in Paris.

Axone recognises the desirability of reducing the number of data centres, but believes it would be difficult to compete for outsourcing business in the French regions without the support of a local data centre.

One way to reduce this dependence on remote processing capability in the future might be to provide a remote hub, including printing capability, in each of the regions with the processing and disk storage retained in a central data centre. At present, Axone has approximately 320 MIPS of processing power.

Developing Application Management Services

Axone offers users two methods of subcontracting application processing and is now introducing a third.

First, Axone offers processing services providing users with access to MVS-based software products such as Sema Group's CardPac and SAP's R/2, which many medium-sized organisations could not afford to run in-house.

Secondly, Axone develops value-added network services for closed user groups. Axone has a policy that the organisations within these user groups must represent 25% or more of the GNP within their sector.

One example is the system that Axone has developed for the Port of Marseilles, which caters for the port's customs and road haulage needs.

Thirdly, IBM is introducing a form of application management service that is applicable to medium-sized companies with mid-range systems. Axone perceives that medium-sized companies are less concerned about the personnel aspects of outsourcing and, as traditional users of application software products, are used to subcontracting. Accordingly, Axone is introducing a packaged service that offers clients a bundled service for application management. The service consists of:

· The appropriate application software product

· Any necessary systems software

· Hardware

· Maintenance

· System operation by Axone

The future of Axone is now in question as IBM moves to establish wholly-owned outsourcing subsidiaries throughout Europe.

E

BIS -- Aiming To Unlock Potential of Departmental Computing

Many of the leading outsourcing vendors in Europe endeavour to expand their geographic coverage within Europe. However, one exception to this rule is BIS that prefers to concentrate on its home market in the United Kingdom, where the company has the objective to be one of the leading five vendors by 1996. Such a target is ambitious, requiring the company to grow its outsourcing business at a rate in excess of 50% per annum over the next four years.

BIS aims to achieve this objective by:

· Undergoing repositioning during 1991
· Positioning outsourcing as a part of wider full-service offering
· Stressing the role of outsourcing in unlocking the potential of departmental computing for its clients

Repositioning During 1991

BIS purchased the specialist outsourcing vendor, Perthcrest, in 1990 as the basis for its systems operations activities in Europe. Perthcrest specialised in targeting the local government sector in the United Kingdom, and was largely limited to ICL equipment platforms.

In the last year, BIS Perthcrest has become fully integrated into the systems operations division of BIS Information Systems. During this process, its focus has been on three key areas. First, to drive through a customer-care programme that delivers excellent services at low costs. Secondly, to ensure stable and rewarding careers for staff, and thirdly, to develop partnerships that enable clients to exploit new technologies and deal with the rising tide of legislation.

BIS systems operations division has also supplemented Perthcrest's expertise with increased emphasis on private sector outsourcing and the acquisition of an IBM mainframe data centre from John Laing.

BIS now has three main data centres:

· One in Cambridge with ICL mainframe capability.
· One in London with IBM mainframe capability.
· One dual site AS/400 data centre in London.

These key control centres are attached to another ten satellite centres.

Exhibit E-1 lists the breakdown of BIS' outsourcing revenues by equipment platform.

EXHIBIT E-1

1992 Revenues by Equipment Platform

Equipment Platform	Proportion of Outsourcing revenues (%)
IBM mainframe	60
ICL mainframe	30
Bull & mid-range	10
TOTAL	**100**

Accordingly, BIS now has a spread of platform capability that is much more appropriate for targeting private sector outsourcing in the United Kingdom.

In total, BIS has approximately 20 outsourcing contracts in the U.K. that are divided equally between the public and private sectors.

Exhibit E-2 provides examples of the company's outsourcing contracts.

EXHIBIT E-2

Examples of Outsourcing Contracts

Client	Contract Value (£m)	Length of Contract (Years)
John Laing	10	3
Three Rivers District Council	2.6	5
Spelthorne Borough Council	3	5
Rochford District Council	2	5

Part of a Full-Service Outsourcing

The BIS Group, which is owned by NYNEX consists of:

· BIS Banking Systems
· BRANN
· BIS Strategic Decisions
· BIS Information Systems

Exhibit E-3 shows the organisation of BIS Information Systems.

EXHIBIT E-3

Organization Structure—BIS Information Systems

```
                    BIS Information Systems
    ┌──────────────┬──────────────┬──────────────┐
 Solutions      Systems        Consulting      Training
 Division       Operations     Division        Division
                Division
```

- Software "Outsouring"   - Management &   - Public Training
- Development   Strategic   - Bespoke Training
- Maintenance   - Technical Consulting - Training Consultancy
                               - Metrics & Efficiency
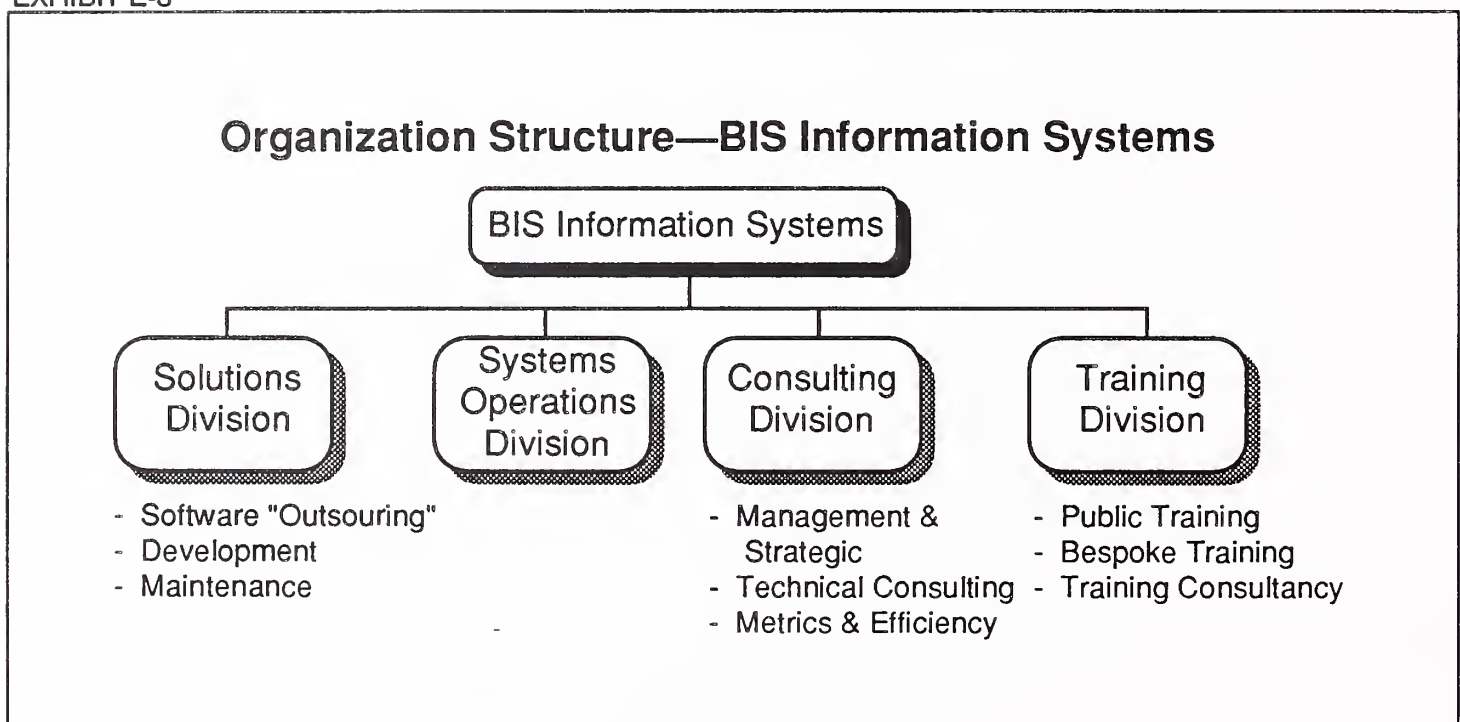
The company envisages that the boundary between the Solutions Division and the Systems Operations Division will gradually disappear in favour of an Outsourcing Division. This will enable outsourcing clients to take advantage of BIS software infrastructure including a BS5750 approved software factory.

As BIS' account managers build on their knowledge and understanding of clients' businesses, so BIS will be able to make a larger contribution in assisting clients to plan their use of IS. This in turn will lead to a great involvement in integrating systems on behalf of clients, and will make BIS a full-service provider to the client. BIS is monitoring the progress of the business operations market, and may target such services in the future.

BIS is actively seeking partnerships with application software product vendors to assist BIS in developing its full-service capability. Industry sectors that are targeted by BIS include:

· Government
· Utilities
· Finance sector
· Retail

Unlocking the Potential of Departmental Computing

BIS expects local authorities in the U.K. typically to follow the pattern of outsourcing shown in Exhibit E-4.

EXHIBIT E-4

Evolution of Outsourcing
U.K. Local Government

```
  Mainframe platform operations
           on-site
              |
              v
  Mainframe platform operations
           off-site
              |
              v
  Outsourcing of distributed platforms
```
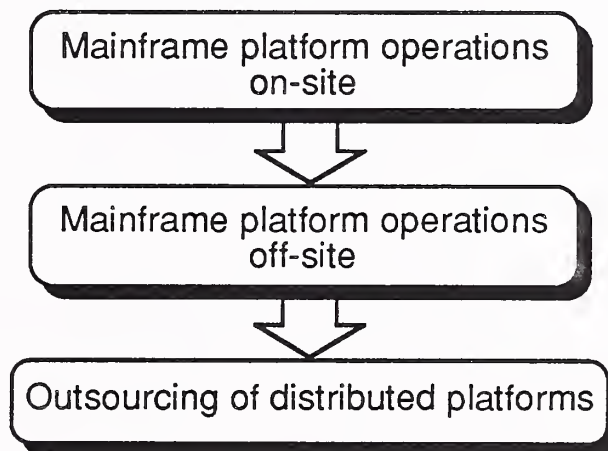
Organisations often start by outsourcing their mainframe operations on their own site. Within local government, there is often a strong emphasis on protecting the jobs of former employees. Later organisations recognise that substantial savings can be made by agreeing to off-site platform operations contracts. Finally, organisations recognise the need to migrate to distributed platforms.

This is happening at Rochford District Council, a U.K. Local Authority, where BIS manages the implementation and subsequent operation of the new departmental systems.

In the private sector, BIS has a role to play in assisting companies to unlock the potential of departmental computing. Often, this will initially involve the transition outsourcing of the company's mainframe, but there are considerable opportunities for vendors to become involved in the subsequent implementation and operation of the departmental systems themselves. Accordingly, BIS is developing its desktop services capabilities. The company has already become involved in LAN implementations for John Laing, although the contract originated solely as transition outsourcing of the IBM mainframe platforms.

F

CFM -- Aims to Reach Top 3 by 1995

CFM is a U.K.-based outsourcing vendor jointly owned by ICL (75%) and CSL (25%); a consultancy specialising in assisting public sector organisations. In 1991, the company had outsourcing revenues of approximately £25 million, sufficient to give the company a ranking of sixth place in the U.K. outsourcing market and ninth in Europe. The company is growing rapidly and CFM expects its revenues to exceed £45 million in 1992. By 1995, CFM is targeting revenues of £150million and a top 3 ranking in the United Kingdom.

In addition to establishing itself more firmly in the United Kingdom, CFM expects to expand its position elsewhere in Europe, via acquisition, to become one of the leading European outsourcing vendors.

CFM aims to achieve its targets by:

· Increasing its proportion of private sector business

· Further developing a full range of outsourcing services

· Providing "totally managed services" or business operations in the Public Sector

Increasing its Proportion of Private Sector Business

Exhibit F-1 provides a breakdown of CFM's client base by industry.

EXHIBIT F-1

Breakdown of CFM Contracts by Industry

Sector	Proportion of Contracts (%)
Local Government	50
Central Government	20
Utilities	10
Health	5
Financial Services	5
Construction	5
Discrete Manufacturing	5

Source: INPUT

At present, CFM's activities are heavily concentrated in the public sector. The company has an estimated 32 outsourcing clients.

Approximately three-quarters of these are public sector organisations, with around half of its clients based in local government.

Examples of public sector clients include:

· Gloucestershire County Council
· Northern Ireland Civil Service
· Wandsworth Borough Council
· Derby City Council
· English Heritage

CFM can expect substantial growth in its public sector revenues and client base over the next few years, with the introduction of Market Testing. This will lead to many more local authorities evaluating, and adopting systems operations. CFM's local government client base is also increasing by its purchase of Municipal Mutual Computing (MMC), and with 5 local government clients.

However, CFM now wishes to increase its proportion of private sector business to around 40%. This is a difficult challenge in the short term, given the anticipated high growth in public sector outsourcing. The company sees the financial services sector, in which it already has a contract with Barclays Financial Services, as a prime area of opportunity.

Developing a Full Range of Outsourcing Services

CFM views outsourcing services as developing outwards along the lines shown in Exhibit F-2.

EXHIBIT F-2

CFM Outsourcing Development Strategy
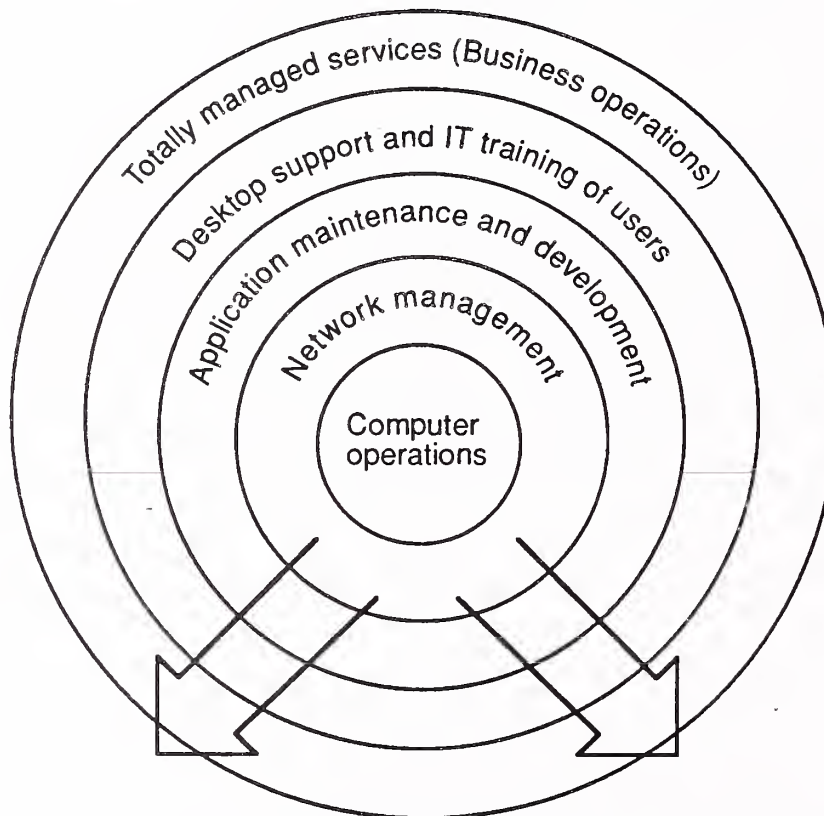
The company intends to offer a full range of outsourcing services, including all of the services shown on this chart. The main areas where it has yet to offer fully packaged solutions are services for the UNIX and desktop environments.

It is likely that CFM will develop a partnership to assist its delivery of desktop services with a major PC dealership.

The current breakdown of CFM's contracts by systems operations subsector is estimated in Exhibit F-3.

EXHIBIT F-3

Breakdown of CFM Contracts by Subsector

Subsector	Proportion of Contracts (%)
Applications Operations	60
Platform Operations - Transition Outsourcing	30
- Other	5
Network Management	5

Source: INPUT

Overall, approximately 80% of CFM's local government contracts are applications operations contracts that include systems development. Outside local and central government, the majority of CFM's contracts, involve transition outsourcing. Transition outsourcing is a form of platform operations in which the vendor manages the "old systems" on behalf of a client, while the "new systems" are developed. It most commonly occurs when users downsize or undergo a major transition between differing platforms.

CFM intends to continue to develop its ability to manage transitions from proprietary architectures to open systems. CFM's data centres already support platforms from IBM, ICL, Digital, Bull, Data General, MDISL and NCR, and the company is actively targeting users of IBM equipment.

Providing Business Operations to the Public Sector

CFM's public sector capability is a major strength, and its position in this sector is being strengthened by the acquisition of MMC.

The public sector is also a major outsourcing opportunity in the United Kingdom. Outsourcing growth in the public sector will be above average over the next few years, fueled by the introduction of competitive tendering for local government, and the political inclination to outsource the IS activities of major central government departments.

CFM's partnership with CSL is a major source of credibility in the public sector. CSL currently manages several local government treasury departments, and CFM in partnership with CSL will try to make an impact in business operations by offering services as revenue collection in competition with Telecom Capita. Telecom Capita is the market leader in providing business operation services -- principally revenue collection -- to local government.

CFM will also move to consolidate its data centres serving local government. At present, CFM has 16 data centres due to local government's concern with protecting the position of its former employees, and this has acted against any consolidation of activities. This is likely to change as the public sector places a greater emphasis on the cost reductions that can be achieved by running a centralised service based around a small number of data centres.

G

CSC -- Aims for $1 Billion European Revenues by 1997

Computer Sciences Corporation's activities remain concentrated within the U.S. market. For the year ending 31st March 1992, CSC reported U.S. revenues of $1,908 million and European revenues of $205 million. The company's European operations are concentrated primarily in the United Kingdom, Belgium, France, Germany and the Netherlands.

Similarly, the company's outsourcing revenues were reported as $824 million worldwide, of which approximately $80 million are believed to accrue from Europe.

However, CSC is seeking to redress this balance and is aiming for European revenues of $1 billion by 1997. If the company's outsourcing activities maintain their share of revenues, then this would yield a European outsourcing target of $400 million for fiscal 1997.

CSC intends to achieve this growth by:

· Moving up the value chain
· Viewing outsourcing as a global business
· Developing partnerships with large organisations

Moving Up the Value Chain

CSC believes that vendors supply limited benefit to their clients by offering platform operations services in isolation due to the fact that this only achieves a minor cost reduction within the client's computer operations activities. Accordingly, CSC seeks to maximise the benefit to the client by managing IS services throughout the value chain as appropriate to the client's objectives. CSC will not typically respond to invitations to tender for platform operations services, unless these are requested as part of a wider company requirement.

CSC wishes to undertake projects that encompass a significant number of elements of the value chain shown in Exhibit G-1.

EXHIBIT G-1

The CSC Value Chain

Business Strategy → IS Strategy → Application Planning → Systems Development → Systems Operations → Business Operations
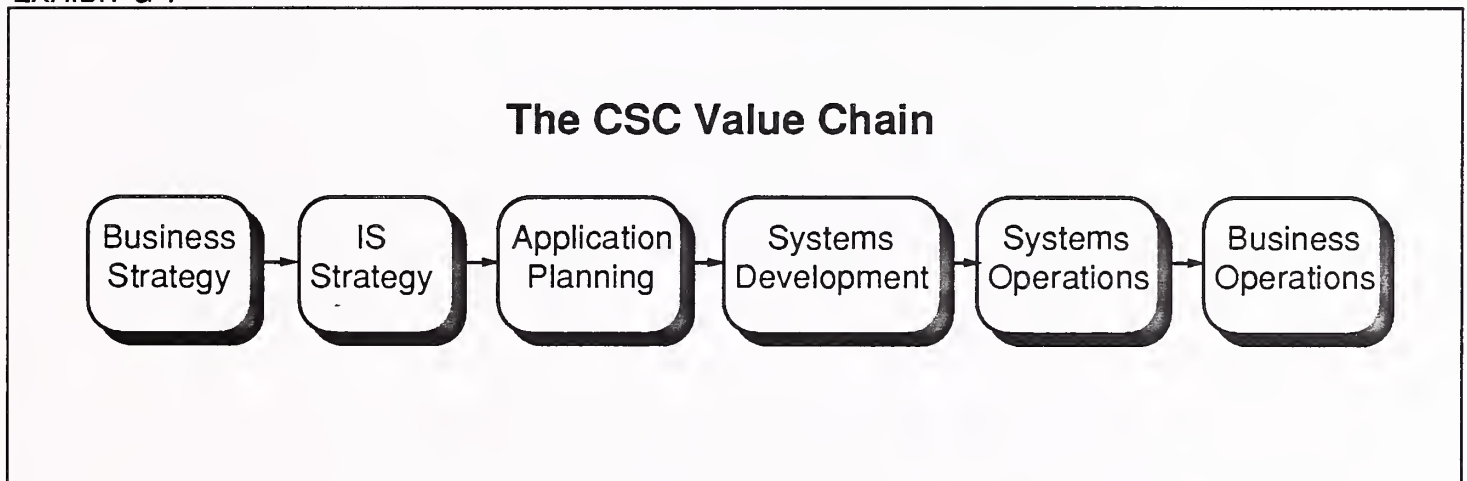
Index & Butler Cox complement CSC Europe's Services Management Division in providing business and IS strategy services to CSC's clients.

CSC believes that it is important to relate the benefits of outsourcing to the client's business. For example, reducing the cost of computer operations by 20% is a comparatively meaningless measure, whereas reducing the cost of serving each customer by 20% is a measure of the contribution being made to the underlying business. It should not matter to the client how this benefit is achieved or which technology is used. CSC believes that it is vital for outsourcing to contribute to business effectiveness and not just business efficiency.

Outsourcing as a Global Business

CSC believes that outsourcing is a global business and the location of the technology should be immaterial to the client. At present, CSC's major European data centre is located in Brussels. This data centre serves approximately 100 clients throughout Europe. CSC also provides outsourcing services from sites located in Merseyside and Luton in the U.K. The Merseyside data centre serves the needs of Merseyside Regional Health Authority and will continue to provide services supporting the NHS' supplies activities.

However, there are now plans to establish more data centres in Germany and France.

One example of CSC's transnational approach to outsourcing is its contract with Ideal Standard, the ceramics manufacturer. In this contract, CSC is replacing 7 data centres spread throughout Germany, France, the United Kingdom and Italy with a network linked to a single data centre. This approach has assisted Ideal Standard in reducing its cost substantially of doing business. CSC is also assisting Ideal Standard in identifying new business processes that are appropriate enough to support the company's manufacturing and distribution activities, and to develop common business processes and IS support across the whole of Ideal Standard's European operations. As companies increasingly adopt common processes across Europe, so the use of an external vendor such as CSC can assist multinationals in overcoming the internal politics that arise between the various country organisations, each with its own preferred business procedures.

CSC's outsourcing services are organised on a European basis outside the company's individual country business units. In addition, CSC Europe utilises the company's considerable U.S.-based outsourcing expertise when appropriate.

Developing Partnerships with Multinationals

CSC's success in developing partnerships with multinational organisations is critical to the development of its transnational outsourcing business. CSC is deliberately targeting large organisations rather than small ones. In these cases, CSC believes that it can make a major contribution by reducing their business complexity and assisting large organisations to become more nimble.

The major industry sectors targeted by CSC in Europe are:

· Government
· Banking
· Retail
· Defence
· Air Traffic Control
· Transportation
· Manufacturing

H

Data Sciences -- Developing Beyond Platform Operations

Data Sciences estimates its outsourcing revenues to be approximately $75 million from a client base of 50 customers. At present, as indicated in Exhibit H-1, over two-thirds of the vendor's revenues come from the highly competitive platform operations segment.

EXHIBIT H-1

Breakdown by Service Tape
Outsourcing Revenues, Data Sciences

Service Type	Proportion (%)
Platform Operations	70
Application Operations	30

Data Sciences is concerned about the high price competition in this segment in which it perceives that a number of its competitors are "buying" market share with little regard for the profitability of contracts. Accordingly, Data Sciences endeavours to increase its emphasis within outsourcing on higher-value services such as application operations. The company claims that the applications component within outsourcing deals is increasing. However, the company is finding that application operations deals tend to be comparatively low value contracts, and so the proportion of the overall business accounted for by platform operations is only changing very slowly.

The major opportunities for Data Sciences to increase its application operations revenues appear to come from two sources:

· Development of its existing outsourcing client base

· Targeting medium-sized companies with limited application development capability

Research conducted by INPUT in Europe suggests that medium-sized companies, lacking comprehensive in-house systems development capability, may present a better application operations opportunity than the blue-chip companies. Clearly, Data Sciences perceives the smaller subsidiaries of multinationals to be prime candidates for this type of service.

Decreasing Reliance on Thorn-EMI Group

Data Sciences estimates that approximately 30% of its outsourcing business comes from its former association with Thorn EMI, and the company has major outsourcing contracts with Thorn Lighting and Ferguson.

A breakdown of Data Sciences' outsourcing clients by industry sector is provided in Exhibit H-2, and examples of their clients in the manufacturing and financial services sectors are provided in exhibits H-3 and H-4.

EXHIBIT H-2

Breakdown by Industry
Outsourcing Clients, Data Sciences

Sector	Proportion of clients (%)
Manufacturing	22
Financial Services	22
Business Services	28
Other	28

EXHIBIT H-3

Outsourcing Clients
Manufacturing Sector, Data Sciences

- Thorn Lighting

- Ferguson

- Birds Eye Walls

- Unilever

EXHIBIT H-4

Outsourcing Clients
Financial Services Sector, Data Sciences

- General Portfolio

- Nationwide Anglia

- Securities & Investment Board

- Sedgwick Group

The company has also been successful in targeting the broadcasting sector and had outsourcing contracts with Thames TV and Television South.

The company's average contract length for public sector contracts is 4-5 years while, influenced by the shorter transition management contracts, in the private sector the company's average contract length is approximately two and a half years.

Data Sciences has five sales Managers addressing new business and these are organised, as shown in Exhibit H-5.

EXHIBIT H-5

New Business Sales Organisation
Outsourcing, Data Sciences

Public
Sector

- Central Government (1)
- Local Government & Healthcare (1)

Private
Sector

- Banking & Finance (1)
- Manufacturing (1)
- Retail & Services (1)
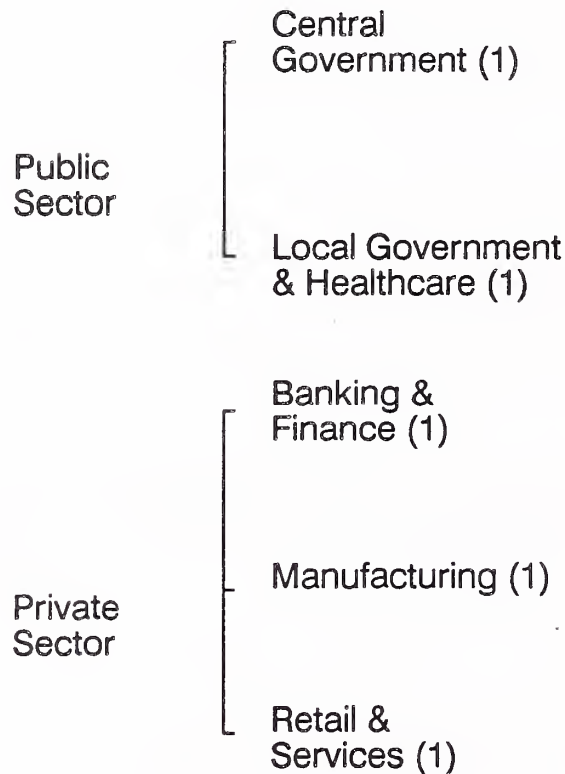
Data Sciences stresses the importance of its sales managers by having a good knowledge of the industries that they target, while acknowledging that outsourcing is frequently a horizontal service.

Data Sciences tends to target prospects' financial directors, though managing directors and even IT directors are possible targets. This reflects the increasing appearance of business-oriented IT directors who have a pre-occupation with aligning IT with the business rather than being service providers. The traditional Data Processing Manager is not regarded as a suitable prospect.

OE-VP2

Data Sciences perceives that companies are increasingly using consultancies to assist them in preparing Invitations to Tender (ITTs) and in selecting a suitable vendor. Data Sciences expects to win one in three of those outsourcing deals in which the company is selected for the short-list. To achieve the short-list, Data Sciences believes that it is necessary to offer the prospect a significant level of savings, say 15%, over its in-house costs. Data Sciences perceives that it may have been insufficiently aggressive in its pricing in recent years.

It is important that each sales manager is a "deal maker" who can structure a deal to the prospect's individual requirements. The sales manager is typically supported in each sales situation by a technical support manager, a bid manager who evaluates the financial risk of the contract, and a personnel manger. Data Sciences endeavours to utilize IS staff from the prospect wherever possible, but it is important to bear in mind that reducing the number of personnel is one way of reducing cost.

Moving to management of UNIX-based Infrastructures

On the service delivery side, Data Sciences employs approximately 400 personnel. Exhibit H-6 shows the profile of the company's data centres.

EXHIBIT H-6

Data Centre Profile
Data Sciences

- 4 Major Data Centres based around London

- Thorn Lighting - 5 sites

- Other clients - 4 sites

In total, Data Sciences has 13 data centres. Its main sites are based around London at:

- Sunbury
- Croydon
- Hoddesdon
- Westmount

Sunbury is the major data centre, while the data centre in Croydon was acquired from Lowndes Ajax in 1988 and houses equipment from Hewlett-Packard, IBM, Bull, and Digital. Overall, the company's operations are principally based around IBM mainframes, though Thorn Lighting's sites house Digital equipment and Data Sciences also manages several AS/400's off-site.

However, Data Sciences now sees an increased emphasis on the need to manage distributed networks based around open systems. The main challenges for vendors operating in this sector is not economies of scale, but the need to deliver and maintain an effective distributed IS infrastructure. Data Sciences has won two contracts of this nature with the Commission for the New Towns and the National Grid.

National Grid has awarded Data Sciences a two-year deal to manage a distributed network of 500 PC and seven UNIX-based servers. The deal, worth $2 million, involved the provision of system administration and computer support services.

Data Sciences' links with Computeraid are critical in enabling the company to handle the desktop services aspects of such deals. Data Sciences has also recently won an outsourcing contract with Sedgewicks, which involves downsizing and the management of a large installed base of personal computers.

The management of distributed systems, and the provision of desktop services, will be important targets for Data Sciences over the next few years. In the mainframe environment, multivendor deals are expected to increase in importance.

Data Sciences believes that the next few years will see a reduction in the number of outsourcing vendors in the U.K. as a large number of vendors continue to chase commodity deals. Data Sciences will attempt to improve its profit margins by targeting application operations and higher value-added services in the management of distributed IS networks.

Some of the immediate challenges facing Data Sciences are the need to extend its geographic coverage in Europe, the necessity to ensure the company's ongoing price competitiveness in platform operations, and the desirability for continuing to extend the company's industry/business consultancy capability.

Exhibit H-7 summarises Data Sciences' strengths.

EXHIBIT H-7

Strengths -- Data Sciences, Outsourcing

STRENGTHS
· Established outsourcing vendor
· Mainframe operations capability
· Partnership with ComputerAid

I

Outsourcing -- A Focused Growth Area for Digital

When Digital first entered the European outsourcing market in autumn 1989, the company's motivation was primarily to support customer demand. This re-active stance has now been replaced by a pro-active one. Digital is seeking to develop its outsourcing market share in Europe, and in particular, the national markets in which outsourcing is most readily accepted in the U.K., France, the Netherlands, and Sweden.

Digital U.K. accounts for a major part of Digital's European outsourcing revenues (the organisation's current outsourcing revenues are estimated in Exhibit I-1).

EXHBIIT I-1

Digital UK -- Outsourcing Revenues

Service Category	Annual Revenues (£m)
Systems Operations	7
Network management	6
Desktop Services	5
Total	18

One of Digital's strengths is its networking capability and network management accounts for one-third of Digital UK's outsourcing revenues. Digital is also keen to develop its presence in the outsourced desktop services market.

To achieve its growth objectives, Digital addresses the following three challenges:

- Developing its multivendor support capability

- Improving its consultative selling skills

- Developing partnerships with its Complementary Solutions Organisations (CSOs)

Developing Multivendor Support

Digital needs to expand beyond the management of platforms and solutions based on its own equipment if the company is to become one of the market leaders of outsourcing in Europe. Digital estimates that the data centre outsourcing opportunity on Digital equipment is worth approximately 10% of the mainframe-based data centre outsourcing opportunity.

In addition, many of the major outsourcing contracts of the future will involve the management of a mainframe-based service component, as well as the management of solutions based on Digital's equipment.

At present, many of Digital's 15 outsourcing contracts in the U.K. are based around its own equipment. Some examples of outsourcing contracts are provided in Exhibit I-2.

EXHIBIT I-2

Typical Digital Outsourcing Contracts

Client	Nature of contract
Marconi	Platform operations
Unilever BOCMS	Platform operations
Ipswich Hospital	Platform operations
Hoare Govett	Application Operations
WH Smith	Network Management

Digital has a strong network management capability and many of its platform operations contracts involve a network management component. Digital uses its own network to provide network management services and to link clients to its data centres. In the U.K., Digital has two data centres: the principal one in Newbury and

another in Bristol. Business protection services -- disaster recovery -- are provided from a satellite centre in London.

Improving Consultative Selling Skills

Digital believes that outsourcing is no longer primarily concerned with efficiency gains based around platform operations. Instead, the company perceives the need to provide improved IS systems in support of client's business objectives. Accordingly, Digital sees the need to market systems integration and outsourcing as a seamless service with Digital taking responsibility for the development of new systems followed by the ongoing management and support of these systems.

One recent example of such a contract is Hoare Govett. In this instance, Digital upgraded the company's dealing room and settlement systems and now has a five-year contract to manage these systems on the company's behalf. As IS infrastructures become more and more complex, so the trend to outsource ongoing support is expected to increase.

Accordingly, the ability to understand the clients' business and to sell financial and business benefits, rather than technical solutions, are key to Digital's future success. Digital is increasing the use of its own business consultants at the prospecting stage, and is endeavouring to ensure that the established management consultancies are aware of the company's systems integration and outsourcing capabilities.

Digital's current outsourcing target markets are listed in Exhibit I-3.

EXHIBIT I-3

Digital -- Outsourcing Target Markets

- Finance Sector

- Utilities

- Retail Sector

The finance sector has been a major target for Digital in the U.K. due to its acquisition of Data Logic's activities in this area. In addition to its outsourcing contract with Hoare Govett, Digital has recently won a contract with a division of National Westminster. In the retail sector, Digital has won a contract with Allders for the provision and management of new merchandising systems.

Outsourcing Partnerships with CSOs

As the focus of outsourcing moves from platform operations to application management, so some of Digital's Complementary Solutions Organisations (CSO's) have identified the need to provide outsourced delivery of their business solutions, tailored to individual client's needs.

However, many of these CSO's are comparatively small organisations who lack the resources either to provide the necessary delivery infrastructure, or to appear as credible outsourcing vendors to prospective clients. As a result, a number of these companies are turning to Digital to supply the networking and data centres infrastructure and to guarantee continuity of support.

This provides Digital with an opportunity to develop its presence in the provision of application management services.

J

EDS-GFI -- Moving from Resource Management to Provision of Competitive Advantage

EDS-GFI, formed in 1992 from the merger of EDS France and GFI Informatique, is the market leader in systems operations in France. However, the company recognises that the French systems operations market is changing rapidly and, hence, its own need to continue to develop its outsourcing services. To maintain its leadership position in the market, EDS-GFI is:

· Expanding its desktop services offerings
· Adopting a more industry-specific approach
· Developing its business operations capability

Expanding its Desktop Services Offering

Exhibit J-1 provides INPUT's estimates of EDS-GFI's outsourcing revenues. The company currently has 50 outsourcing clients.

EXHIBIT J-1

EDS-GFI, Outsourcing Revenues*

Service Type	Revenues (FF Millions)	Percent
Platform Operations	500	60
Application Operations	250	30
Desktop Services	100	10
TOTAL	**850**	**100**

Source: INPUT estimate

Note: Approximately 10% of these revenues are derived from contracts with GM.

The proportion of desktop services activity is already higher than average for a European outsourcing vendor -- 5% of revenues is a typical proportion. EDS-GFI intends to take advantage of the trend towards client/server architectures by targeting the outsourcing of desktop services.

The company's overall revenues are currently dominated by revenues from activities associated with IBM and Groupe Bull equipment, as shown in Exhibit J-2

EXHIBIT J-2

III-42

EDS-GFI, 1991 Revenue Breakdown by Equipment Type

Equipment Type	Revenues (FF Millions)	Percent
IBM	1,100	62
Bull	400	23
UNIX-based	100	5
Digital	50	3
Other	150	7
TOTAL	**1,800**	**100**

Source: EDS-GFI

A similar pattern of activity is probably replicated in the company's outsourcing activities, judging by the distribution of equipment within the data centre listed in Exhibit J-3.

EXHIBIT J-3

EDS-GFI
Location of Data Centres

Location	Equipment Types
Nanterre	IBM, Unisys, Tandem
Verneuil-en-Halatte	IBM, Bull
Suresnes	IBM, Bull
Lille	IBM, Bull, Unisys
Lyon	IBM
Toulouse	IBM
Saint-Etienne	Bull
Nantes	Bull
Bruxelles	Bull
Paris	Digital

A More Industry-Specific Approach

In the past, systems operations has been largely a horizontal service, based around resource management. EDS-GFI perceives that companies are now moving from a "resource management" requirement to a "business result" re-orientation, as they endeavour to derive a competitive advantage from their use of IS.

In order to assist clients in achieving competitive advantage, EDS-GFI will become more industry focused. This will involve EDS-GFI's adoption of a matrix organisation that allows the company to develop its technical skills and its industry-specific knowledge separately.

The breakdown of EDS-GFI's current outsourcing revenues by industry sector is listed in Exhibit J-4.

EXHIBIT J-4

EDS-GFI
1991 Outsourcing Revenues by Industry Sector

Industry Sector	Outsourcing Revenues (FFm)	Percent
Manufacturing	470	55
Distribution/ Business Services	210	25
Financial Services	130	15
Other	40	5
TOTAL	**850**	**100**

Source: INPUT estimate

EDS-GFI's manufacturing client base appears to be dominated by organisations from the process manufacturing sector such as BP France, Chambourcy, Molnlycke, and Rhône Poulenc.

Developing Business Operations Capability

EDS-GFI expects the outsourcing market to develop through the following stages:

· Infrastructure management
· Application maintenance
· New application development
· Business operations

Accordingly, in addition to developing its outsourcing of applications operations, EDS-GFI intends to target business operations outsourcing applications.

In particular, EDS-GFI sees potential in managing for groups of clients that interface between manufacturing organisations, distribution/transport companies, and financial services companies, as indicated in Exhibit J-5.

EXHIBIT J-5

Business Operations Opportunity

Manurfacturing

Distribution/ Transport

Banking/ Insurance
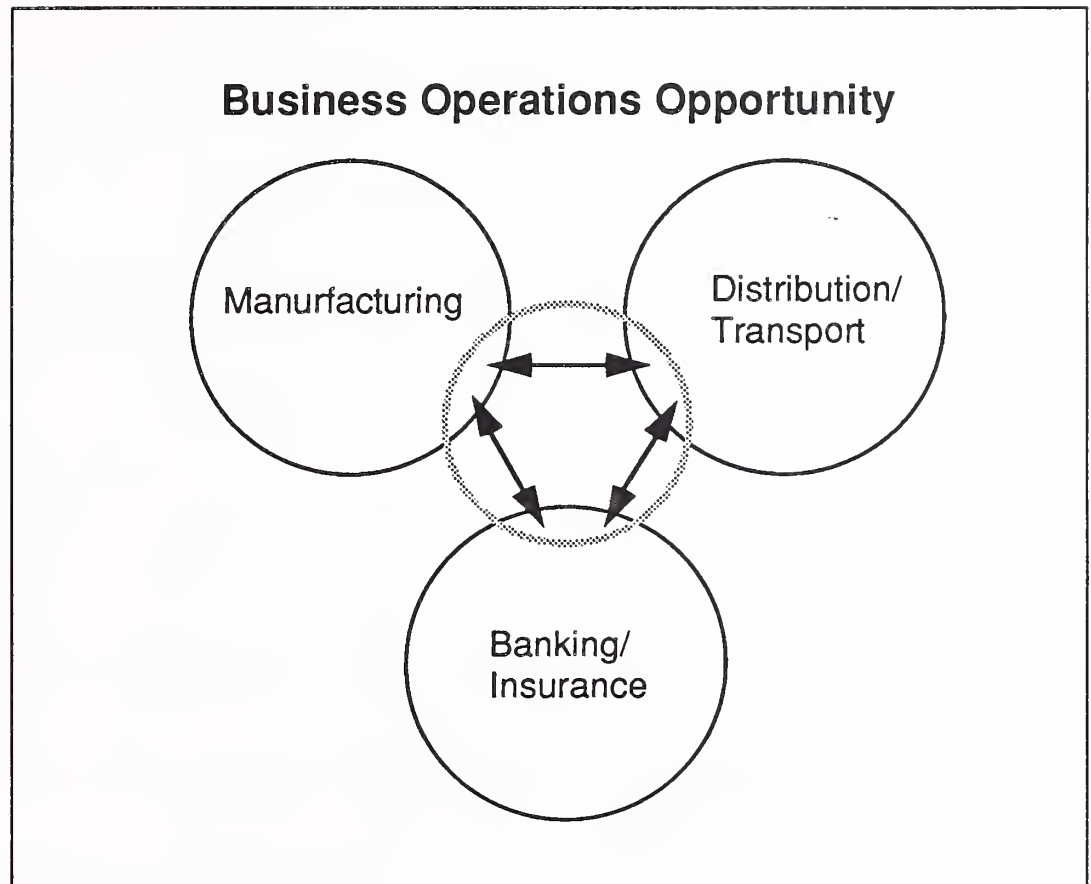
K

GSI -- Targeting Application Operations for Future Growth

In 1990, GSI was the market leader in the French outsourcing market, leading companies like GFI, EDS, and Axone. The company is in fourth place in the overall European outsourcing market behind Hoskyns, EDS, and AT&T Istel. In 1991, the company lost 1st place in the French market as a result of the merger between EDS and SD-Scicon/GFI, and its second place in this market is increasingly under threat from Axone. Axone's outsourcing revenues grew by 70% in 1991, compared to 18% growth in those of GSI. Exhibit K-1 shows GSI's outsourcing revenues by country.

EXHIBIT K-1

GSI
Outsourcing Revenues by Country, 1991

COUNTRY	REVENUE (FFm)	PERCENT
France	330	70
Spain	85	18
Switzerland	50	10
Italy	10	2
TOTAL	**475**	**100**

To maintain its position as one of the leading outsourcing vendors in France, GSI will:

· Endeavour to extend its outsourcing market penetration beyond the hypermarket and transportation sectors

· Continue to reassure clients that outsourcing is a reversible process

To maintain its position as one of the European market leaders in outsourcing, GSI will need to enter the U.K. outsourcing market, which is the most advanced outsourcing market in Europe. The company's major European competitors -- Cap Gemini Sogeti, EDS, and AT&T Istel -- already have a substantial presence there, and GSI will need to establish its own presence if it is to keep in touch with the market leaders.

Developing Outsourcing in the Manufacturing & Banking sectors

Many outsourcing vendors find difficulty in differentiating their offerings for the platform operations market. Hence, platform operations is an area of intense price competition for them. GSI faces similar issues. Accordingly, the company is intent to extend its penetration of the application operations segment. GSI's current revenue breakdown between platform operations and application operations is shown in Exhibit K-2.

EXHIBIT K-2

GSI,
Outsourcing Revenues by Service Type, 1991

SERVICE TYPE	REVENUES	PERCENT (FFM)
Platform Operations	240	50
Application Operations	240	50
TOTAL	**475**	**100**

Note: Numbers may not add up due to rounding.

Whereas platform operations can be marketed as a "horizontal" service independent of industry sector, application operations depends on building up high levels of expertise in the sectors to be targeted. Exhibit K-3 provides a breakdown of GSI's current outsourcing revenues by industry.

EXHIBIT K-3

GSI, Outsourcing Revenues by Industry, 1991

Sector	Revenues (FFm)	Percent
Discrete Manufacturing	85	18
Process Manufacturing	10	2
Banking & Finance	50	11
Distribution	130	27
Transportation	110	23
Other	90	19
TOTAL	**475**	**100**

So far, GSI has been successful in the hypermarket sector, in which the company's clients include Arlaud and Carrefour, and in the road and rail transportation sectors where the company's clients include Sernam and Gefco.

However, GSI now needs to extend its outsourcing coverage to increase its revenues from the discrete manufacturing and banking sectors. GSI already specialises in application software products for securities management. The company also has an established position in the discrete manufacturing sector acquired through its Tolas production management and distribution systems.

Reassuring Clients that Outsourcing is Reversible

GSI finds that the receptivity of potential clients to application operations is markedly lower than their acceptance of platform operations, and potential clients have a fear of being "locked-in" to an outsourcing vendor.

To overcome these fears, GSI stresses the reversibility of application operations to potential clients during the sales process and within its contracts. GSI sees the key to this reversibility as the client's retention of a core nucleus of strategic IS personnel around whom an in-house IS department could be rebuilt. Within the outsourcing arrangement, these IS personnel interface with the organisation's key management and are responsible for the development of the IS strategy whereby the company's key-business needs are supported.

GSI forms a strategy committee within each client to monitor strategic information issues. This committee contains representatives from the client's, GSI's senior management and from the user departments, as well as GSI's account manager and the client's information systems manager.

Developing Outsourcing in the U.K.

The U.K. market is the largest and most advanced outsourcing market in Europe, and if GSI is to remain amongst the outsourcing leaders in Europe, then the company needs to extend its outsourcing activities to the U.K. The current locations of GSI's data centres are shown in Exhibit K-4.

EXHIBIT K-4

GSI's Data Centres

SITES	EQUIPMENT
Suresnes (Paris)	IBM (VM/VMS/DOS)
Echirolles (Grenoble)	IBM AS/400
Belgium	Digital VAX
Germany	IBM RS/6000
Italy	Tandem
Spain	Hewlett-Packard
Switzerland	AT&T/UNIX

GSI's overall revenues in the U.K. of approximately FF120m give the company insufficient presence to develop its outsourcing business organically. Accordingly, collaboration, or a merger, with one of the independent outsourcing vendors such as ITnet or Data Sciences, appears an attractive option for GSI. Because ITnet's emphasis is primarily on the local government and process manufacturing sectors, its activities offer only comparatively low levels of synergy with those of GSI, whereas Data Sciences offers a better fit with its discrete manufacturing and financial services orientation.

L

Hoskyns -- Expanding Outsourcing Product Lines

Hoskyns found trading conditions difficult in the United Kingdom in 1991 as potential clients postponed major projects and the company's revenues from consulting and education also fell, as shown in Exhibit L-1.

EXHIBIT L-1

Hoskyns
European Revenue Breakdown by Activity

ACTIVITY	1990 REVENUES (£m)	%	1991 REVENUES (£m)	%
Consulting, Education & Training	27.1	12	22.3	11
Project Services	68.1	31	78.8	39
Information Systems Support	128.0	57	99.5	50
TOTAL	**223.3**	**100**	**200.7**	**100**

Note: Numbers may not add up due to rounding.   Source:Hoskyns

Revenues from Hoskyns' systems operations activities are included under the heading Information Systems Support (ISS) in Exhibit L-1. Hoskyns defines Information Systems Support as assisting customers to successfully support ongoing systems. In the 1990 annual report Hoskyns, classified £107m of these revenues in the category "facilities management".

Hoskyns' ISS revenues in 1991 were adversely impacted by two factors:

· The conclusion of contracts together worth £20m with Plessey and the London Residuary Body.

· The fierce price competition for platform operations contracts.

New Services Increasing in Importance

Hoskyns remains the market leader in systems operations in Europe. The company has approximately 100 systems operations contracts currently in progress, and estimates that the cumulative number of contracts entered now totals 280.

However, the nature of these contracts is changing appreciably following the trends listed in Exhibit L-2.

EXHIBIT L-2

Outsourcing Trends
Hoskyns

- "Crossroads" deals fall below 50%
- More outsourcing based on mid-range equipment
- Importance of maintenance management increasing

Hoskyns has traditionally been a specialist in transition management contracts, in which a systems operations vendor manages the operation, and possibly maintenance, of a client's existing (typically mainframe-based) services while the client's IS personnel focus on the development and implementation of new (typically distributed) systems. Hoskyns has targeted such transitions with its "Crossroads" service and this, in recent years, has accounted for the bulk of the company's systems operations revenues. However, Hoskyns now sees the importance of this service decreasing and new services taking its place.

In particular, Hoskyns sees an increasing opportunity to manage distributed networks of mid-range equipment. These may indeed even have been implemented while Hoskyns managed the mainframe IS environment.

Hoskyns also recognises that the bulk of in-house IS resources are tied up in addressing the maintenance and enhancement of existing systems. IS managers need to release some of this resource to enable new developments to take place because cost pressures typically prevent IS organisations from increasing their headcount in the current recessionary economic climate. This creates an opportunity for vendors such as Hoskyns to take-over the management of the existing application base for clients.

As a result of these changes in the marketplace, Hoskyns has re-organised its outsourcing product lines within ISS, as shown in Exhibit L-3.

EXHIBIT L-3

Outsourcing Product Lines
Hoskyns

- Mid-range
- Mainframe
- Application management
- Desktop services

These services can be delivered to clients either individually or in any combination.

Two examples of application management contracts won by Hoskyns in 1991 are:

- ICI Agrochemicals - transferred 57 personnel to Hoskyns

    - Outsourced systems development and maintenance functions

- PowerGen   - Outsourced support for non-strategic systems

Prudential Holborn also outsourced the maintenance and enhancement of a range of applications to Hoskyns in 1990.

Hoskyns Outsourcing Remains Strongest in Manufacturing Sector

An estimate of Hoskyns' outsourcing revenues broken down by industry sector is provided in Exhibit L-4.

EXHIBIT L-4

Hoskyns, 1991
Breakdown by Industry
Outsourcing Revenues, Europe

Sector	Revenues (£m)	Percent
Industry	50	40
Financial Services	20	15
Distribution	15	12
Public	15	12
Commercial	15	12
Energy & Utilities	12	9
TOTAL	**128**	**100**

Note: Numbers may not add up due to rounding.
Source: INPUT estimate

Hoskyns remains competitive within the manufacturing, insurance, and securities industries, and is experiencing a surge of growth in the finance sector as the competitive pressures in the U.K. banking sector encourage many of the leading banks to outsource elements of their IS activities.

The manner in which Hoskyns organises its lines of business and sector account teams is illustrated in Exhibit L-5.

EXHIBIT L-5

Organisation Chart, Hoskyns

Lines of
business

| Education | Consulting | Project Services | Information Systems Support |

Sectors

| Commercial | Distribution and Retail | Energy and Unility | Finance |

| Industry | Public Sector |
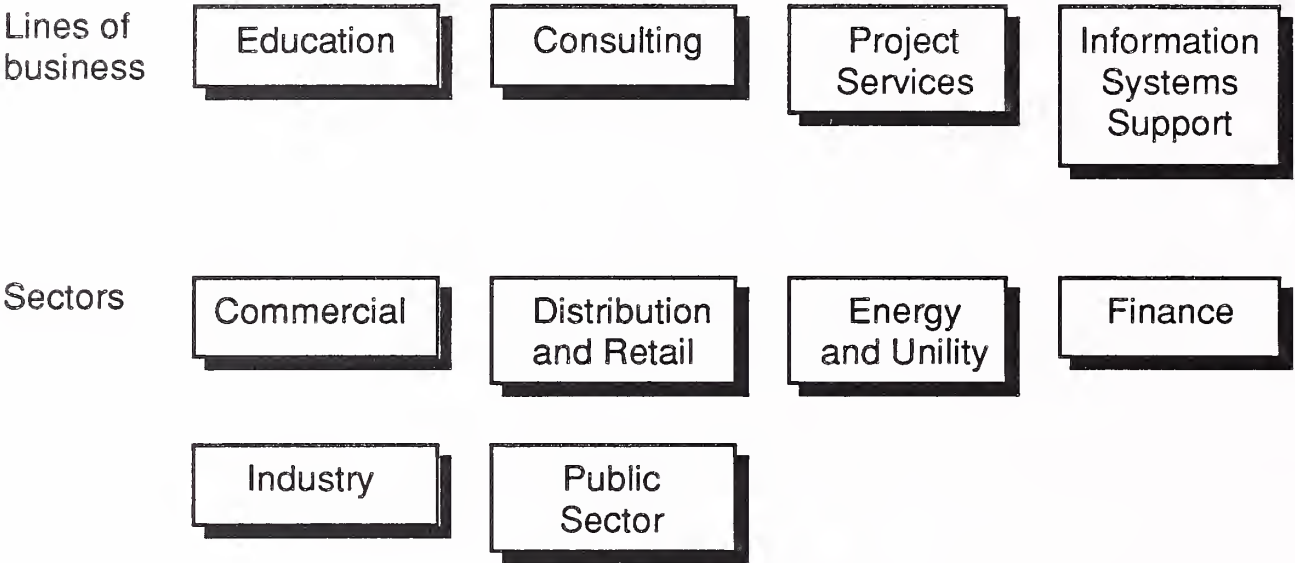
The client account managers reside within the industry sector sales organisation. The ISS operating division has approximately 1,000 personnel with 20 sales personnel who act in support of the industry sector sales organisation.

M

IBM -- New Business Leadership by 1995

While IBM has been active in the French outsourcing market through its Axone joint venture with Sema Group for a number of years, it was only at the beginning of 1992 that IBM explicitly entered the outsourcing market in the United Kingdom. However, this has not prevented IBM from winning six outsourcing contracts in the U.K. prior to the end of September. Nor has it prevented IBM from setting ambitious targets. IBM aims to be the market leader in terms of annual contracted business won that year by 1995 or 1996. The annual revenues of the 1995 outsourcing market in the United Kingdom is forecast to be £1 billion, with total new contracted business worth £1.5 billion, which is available that year. To position itself as market leader, IBM will target new business with a total contracted value in excess of £200 million for that year.

In the first nine months of 1992, IBM is estimated to have won contracts valued at £40 million over their total contract period (see Exhibit M-1).

IBM Outsourcing Contracts

Client	Type of Service	Value (£M)
Equifax	Platform operations	20.0
Iron Trades Assurance	Platform operations	2.0 *
Winchester Health Authority	Platform operations	}
Wirral Hospital Trust	Platform operations	} 1.3
U.K. Police	Applications operations	10.0 *
Next	Platform operations	10.0

* INPUT estimate   Source: INPUT

IBM will also expand its presence throughout the European outsourcing market. The company intends to achieve its revenue targets by:

· Establishing dedicated subsidiaries
· Exploiting the company's capabilities in platform operations and network management
· Delivering integrated business solutions

Establishing Dedicated Subsidiaries

IBM is now poised to establish outsourcing subsidiaries throughout Europe.

Since 1990, IBM has been responding to customer requirements for outsourcing in the U.K. However, the company has now announced the seriousness of its intent by setting up a wholly owned subsidiary in the United Kingdom, IBM Information Solutions Limited (ISL). ISL employs 1,600 personnel consisting of IBM's in-house IS staff. The majority of these staff still concentrate on providing services to the parent company.

Additional outsourcing subsidiaries will now be established. IBM Germany will launch its outsourcing subsidiary in January 1993, while IBM Italy already has some outsourcing contracts and can be expected to launch its own version of ISL in the near future.

IBM's subsidiaries in Spain, Benelux and Scandinavia are also moving towards developing outsourcing organisations. In some regions such as Scandinavia, where IBM itself lacks the necessary critical mass, the outsourcing subsidiaries will be established in conjunction with suitable partners.

Exploiting Platform Operations and Network Management Capabilities

IBM is well placed to become one of the market leaders in platform operations and network management in which the company potentially has cost and technological advantages over many of its rivals.

The company also has a pan-European capability in these areas. IBM can be expected to maximise the use of its facilities across Europe to serve the needs of multinationals. IBM will, over the next few years, reduce its cost base by moving to a small number of large data centres that cover the whole of Europe.

ISL already manages more than 60 mainframes and several hundred mid-range systems largely on behalf of its parent company. ISL's core capabilities are its networking expertise and its ability to manage:

· IBM mainframes
· RS/6000 UNIX equipment

The company has yet to decide how to address the AS/400 market and how to offer outsourced desktop services. It is likely that both of these services will be offered by partnership with an existing vendor that has already developed these capabilities.

Furthermore, ISL does not yet manage any non-IBM platforms. However, the company feels that the management techniques used in running IBM platforms will readily transfer to non-IBM equipment. Such capabilities are essential if ISL is to assist its parent in migrating clients from non-IBM mainframes into an IBM environment.

Delivering Integrated Business Solutions

However, IBM stresses that there is far more to its outsourcing offering than systems and network management.

One of IBM's principal motivations for adopting outsourcing is to avoid the commoditisation of equipment, and move to higher margin services businesses. These services businesses can then be used as less price-sensitive channels for equipment sales.

The contracts won by ISL in the first nine months of 1992 are listed in Exhibit M-1.

The initial contracts, such as Equifax, were primarily concerned with IBM's platform operations capabilities. The main requirements of the Equifax contract were operations capabilities, combined with strong network management skills.

However, IBM is also strongly targeting applications operations. The one contract of this type won by ISL so far involves the provision and operation of an automatic fingerprint recognition system to a consortium of U.K. police forces.

To develop this type of business, ISL has a team of business managers, each of which is responsible for developing ISL's approach to their industry sector, and who liaise with IBM's line-of-business sales force.

ISL expects the major outsourcing opportunities in the United Kingdom to occur in the following sectors:

· Central government
· Insurance
· Process manufacturing

As ISL acquires clients in each of these sectors, it anticipates the company to acquire staff and skills that will enable ISL to further develop its offerings within the sector. This may involve branching out into non-IS related areas.

N

Tele-Daten -- Service (TDS) -- Adapting Outsourcing Services to the Client/Server Environment

TDS estimates that its Outsourcing revenues amounted to DM 27 million in 1991. The company has experienced a considerable increase in outsourcing in Germany during the past year, and is concentrating its strategic development around its outsourcing activities.

TDS' current outsourcing service lines are listed in Exhibit N-1.

EXHIBIT N-1

TDS, Outsourcing service lines

·	SAP	-	Accounting
·	SAG	-	Adabas/Natural
·	PAISY	-	Human Resources
·	INVOS	-	Insurance

The company has approximately 50 outsourcing clients, the majority of whom use TDS' SAP based service. While manufacturing companies make up approximately 50% of the user base for TDS' SAP-based service, this service is used by clients from a broad range of industries including some banks and insurance companies. Two major selling points of TDS' service are its ability to provide 24-hour coverage, and its high level of security. This level of security can also be attractive to clients from the commercial community -- especially those in the financial services sector.

TDS also offers services based on a human resources package -- PAISY, and on Software AG's Adabas/Natural database. Finally, TDS provides an outsourcing service based around its own application software product -- INVOS. INVOS was initially developed for WUBA, a major shareholder in TDS, but has now been turned into a standard offering used by an additional five insurance companies.

TDS' target markets are shown in Exhibit N-2.

TDS Target Markets

- Medium-sized companies

- Cross-industry

- SAP users

TDS' SAP based services are typically offered to medium-sized organisations, employing between 300 and 4,000 personnel. Such organisations cannot afford to run mainframe-based services on their own behalf.

These companies typically require SAP's R/2 product to be customised to their own needs or linked to other software products. Accordingly, approximately 50% of TDS' outsourcing revenues are derived from its data centre operations and the remaining 50% from consultancy and systems development activity. Because of the high element of customisation involved, release management is an important element of the service offered.

The locations of TDS' centres are listed in Exhibit N-3.

EXHIBIT N-3

TDS Data Centres

- Frankfurt

- Heilbronn

- Rostok

To save costs, TDS has recently consolidated the activities of its data centre based in Cologne with its major data centre in Frankfurt. Similarly, the company is consolidating its Leipzig and Potsdam data centres into its Rostok facility.

Exhibit N-4 lists the major challenges facing TDS.

EXHIBIT N-4

TDS Challenges

- Develop R/3 based Services

- Develop consultancy

- Develop network management service

Until 1992, SAP's R/2 product was only available on IBM mainframes and this created a significant opportunity for vendors such as TDS to provide an R/2 based service for medium-sized companies. The economies of scale were especially pronounced because SAP only invoiced TDS for a single copy of the software regardless of the number of clients for whom TDS provided a service.

This is now set to change with the introduction of R/3, SAP's mid-range based successor to R/2. This product will be available on lower cost equipment providing existing and potential users the option of giving their own in-house service. In addition, R/3 will be priced by SAP according to the number of users and this will erode TDS' cost savings to their clients even more.

The challenge faced by TDS is to continue to provide SAP-based outsourcing services in this new environment in which clients may adopt a client/server based approach.

Secondly, TDS has identified the need to solve business problems for clients rather than provide technical solutions, and recognises the need to expand its consultancy activity as a key challenge for the future.

The company is also considering entering the network management market in the medium-term.

O

Télésystèmes -- Will Diversify beyond Platform Operations

At present, Télésystèmes has approximately 25 outsourcing clients and total outsourcing revenues of FF450 million -- 40% of which are derived from its parent company France Telecom. The majority of these revenues are derived from platform operations contracts, though these tend to have an appreciable network management content.

Some of the Télésystèmes current outsourcing clients are listed in Exhibit O-1.

EXHIBIT O-1

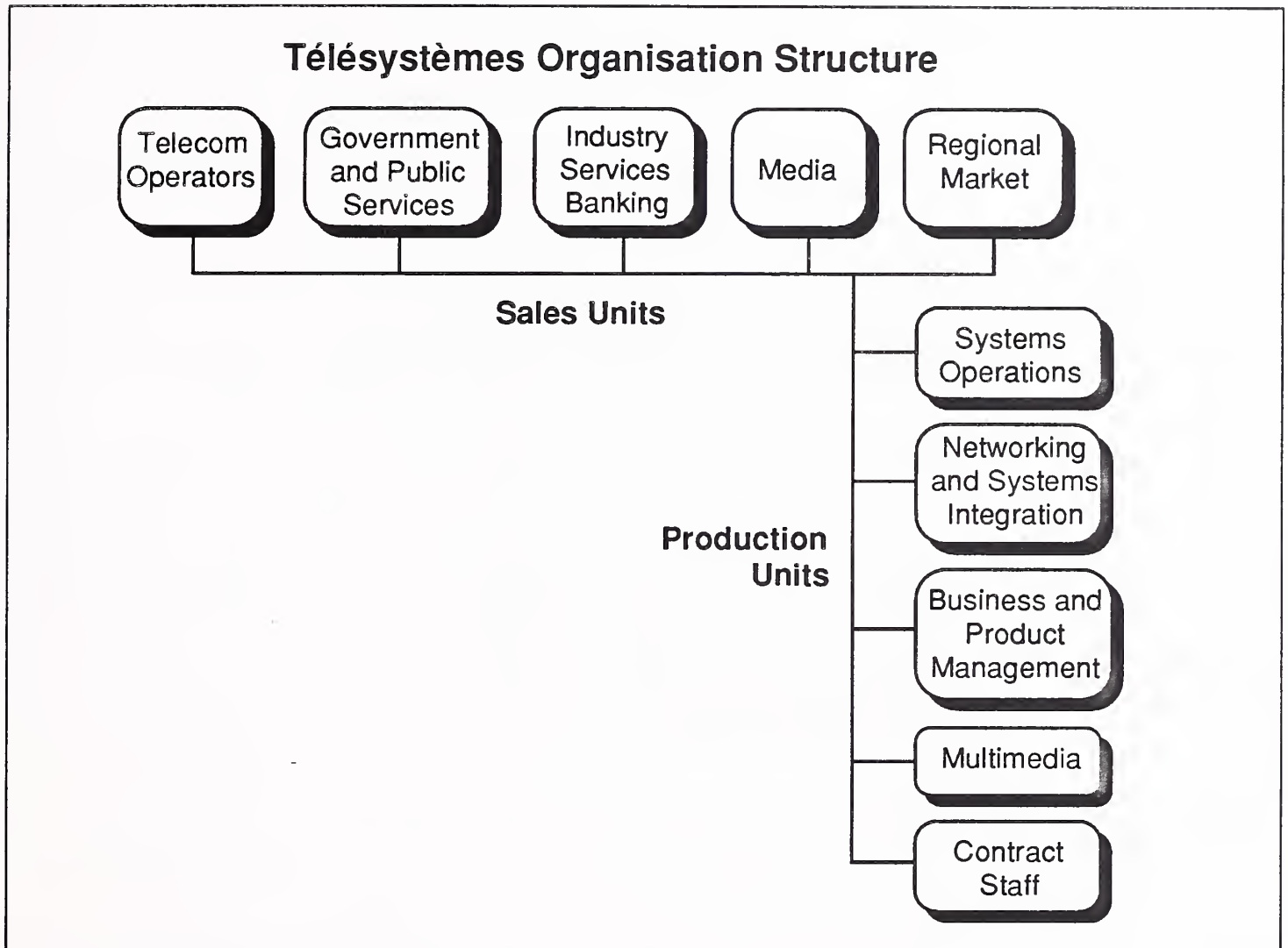### Télésystèmes Outsourcing Clients

- CNES (National Centre for Space Studies)

- France Telecom

- Thomson

- Paris Port Authority

- Chantiers Navals de la Méditerranée

To develop its outsourcing business more, Télésystèmes has been reducing the cost of its platform operations services by consolidating its data centres, and will be looking to develop additional outsourcing services such as application operations.

Consolidation of Data Centres

Télésystèmes reorganised to the structure shown in Exhibit O-2 in 1990.

EXHIBIT O-2

Télésystèmes Organisation Structure

| Telecom Operators | Government and Public Services | Industry Services Banking | Media | Regional Market |

Sales Units

Production Units

- Systems Operations
- Networking and Systems Integration
- Business and Product Management
- Multimedia
- Contract Staff

The company's sales activity is now organised by sector whereas the company's production units remain functionally organised. The systems operations business unit, which also includes processing services personnel, employs 500 personnel.

To reduce costs within this division, Télésystèmes is in the process of consolidating to two data centres in Paris, though the company still finds that it needs to maintain local data centres throughout the French Regions to remain competitive in these areas.

Télésystèmes' main capabilities with these data centres are concentrated on Bull, IBM, and Digital equipment.

Currently, Télésystèmes has data centres located in Paris, Rouen, Lille, Nancy, Nantes, Bordeaux, Toulouse, Lyon and Marseille.

Increased Emphasis on Application Operations

Exhibit O-3 indicates the breakdown of Télésystèmes' total revenues by industry sector.

EXHIBIT O-3

Télésystèmes 1991 Market Analysis by Industry Sector

INDUSTRY SECTOR	REVENUE (FF Millions)	PERCENT
Telecommunications	700	41
Banking and Finance	85	5
Government	170	10
Industry	320	19
International	240	14
Distribution & Services	185	11
TOTAL	**1,700**	**100**

Source: Télésystèmes

The breakdown of Télésystèmes' outsourcing revenues largely mirrors the activity with France Télécom accounting for 40% of the company's outsourcing revenues, and the other principal areas of outsourcing focus being:

· Discrete manufacturing companies
· Public sector
· Radio and television companies

To support its developments of outsourcing in these sectors, Télésystèmes will increasingly focus on application operations.

To support the development of its application operations services, Télésystèmes views access to application software products as being essential.

The company can be expected to expand its application software product portfolio that currently includes:

· TX-Base - production management system for discrete manufacturing organisations

· Engineering Express - an engineering database management system

· SCOPE Achats - Télésystèmes' own purchasing system.

Télésystèmes will focus predominantly on application software products that run under UNIX. TX-Base and Engineering Express are currently available under UNIX whereas Scope Achats is awaiting conversion from a Bull GCOS 7 environment.

For TV and radio stations, Télésystèmes offers a range of multimedia applications.

In addition to application operations, Télésystèmes expects to increase its activity in transition management and network management. Telesystemes currently only derives 5% of its outsourcing revenues from transition management, though there are signs of the transition management market beginning to grow substantially in France.

The company will also become more active in network management. Télésystèmes has recently acquired the rights to a product for integrating E-mail systems and supports France Telecom's Acumaster sales.