INPUT

STRATEGIC MARKET PERSPECTIVE

Reengineering – Impact on the European Systems Integration Market, 1995

Business Integration Programme

Reengineering – Impact on the European Systems Integration Market, 1995

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- Customer satisfaction levels
- Competitive positioning
- Acquisition targets

For Buyers–evaluate:

- Specific vendor capabilities
- Outsourcing options
- Systems plans
- Peer position

OTHER SERVICES

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Abstract

Reengineering in general and Business Process *Reengineering* (BPR) have been proclaimed as revolutionary concepts for the organisation. However, the terms have been used and misused so frequently that they are losing their power to generate genuine, revolutionary change.

This report provides both vendors and users of information services, specifically of systems integration services, with recommendations on how they can optimise long-term performance through gaining a better understanding of the true essence of the *reengineering* revolution.

This involves making decisions about what the firm's unique value-added contribution to delivery of *reengineering*-driven systems integration projects should be, developing and positioning the necessary capabilities to deliver the greater benefits from these projects whilst at the same time controlling the higher risks involved.

This report supports these recommendations by examining the working definitions of BPR and *reengineering* being used in Europe and explores the relationship between this type of work and SI projects.

This report also examines European vendor and user views of the differences between projects instigated as BPR initiatives and those fundamentally driven by systems integration needs. It discusses three areas related to the marketing of BPR-related services: the impact on the systems integration market; the range of BPR and related SI services being offered by vendors in the market and the competitive environment.

Appendices contain eight profiles describing European vendor capability within the *reengineering* and BPR domain.

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

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INPUT
1881 Landings Drive
Mountain View, CA 94043-0848
United States of America

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Europe**

Reengineering – Impact on the European
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Exhibits

Introduction

BPR and *reengineering* are expressions that have become thoroughly absorbed into the IT (Information Technology) business vocabulary since the article *"Reengineering* work: obliterate don't automate", written by Michael Hammer, was published in the Harvard Business Review in 1990.

BPR and *reengineering* have come to stand as metaphors for the long-term trend of IT projects becoming subjugated to the business requirements of an organisation in contrast to the pursuit of information technology projects for their own technical objectives.

Inevitably, there has been something of a backlash against *reengineering,* from a number of users and vendors. For example, the strategic management consultancy, Mckinsey & Co, claim that it is nothing but process redesign, a long time McKinsey core competency, wrapped up in new clothes. Champy himself admits in his new book, *Reengineering Management* (published in March 1995), that most *reengineering* initiatives have failed.

Accordingly it is appropriate at this time to provide a practical re-evaluation of the impacts of the business *reengineering* phenomena on both the user and vendors of systems integration services.

A
Objectives and Scope

1. Objectives

The purpose of this report is to report on the relationship between BPR and Systems Integration (SI) as it is viewed by both users and the vendor community in Europe. In particular to provide an understanding of the interaction between these two activities.

Specifically, this study examines user and vendor views on:

• How BPR and *reengineering* are defined in practice

• The potential for BPR work to lead to systems integration projects

• The competitive advantages and disadvantages of vendors offering both BPR and SI services

• The relative potential expenditures on BPR work in relation to SI projects.

2. Scope

The scope of this study was limited to Europe and covered both users and vendors of both BPR and SI services provided by third parties.

B
Methodology

1. Research Approach

This report is based on field research conducted with both the user and vendor communities involved in services related to BPR and systems development projects.

The research was conducted over an extended period commencing in the second half of 1994 and completed in the first half of 1995.

The interviews were all conducted by consultant level interviewers with executives, managers and consultants, both face-to-face and telephone interviews took place. Interview guides were used in order to obtain a consistent basis for analysing and comparing the responses. The interview guides used for this research are contained in Appendices C and D.

As can be seen from these guides, both users and vendors were asked to comment on the following broad areas related to the interaction of BPR and systems integration projects:

- Working definitions of *reengineering* and *BPR* used in practice

- The services used in the fields of *reengineering*, BPR and systems integration

- The relationship between *reengineering* and BPR work and systems integration contracting

- The impact of *reengineering* and BPR on systems integration services

- Impact of *reengineering* and BPR work on the decision-making process for major IT investments

- The changing skill requirements for *reengineering* and BPR driven environments

- The competitive marketplace for *reengineering* and BPR related services.

In addition to the field research described above, INPUT also conducted a review of the relevant literature concerning the *reengineering* phenomena and BPR.

Given the frenzied rush to name almost any type of business improvement activity either BPR or *reengineering* it was felt important to go back to the roots of the phenomena in Michael Hammers HBR article and his subsequent book *Reengineering the Corporation,* written in conjunction with James Champy of CSC Index and most importantly to review our field research in the light of Champy's most recent reassessment of the phenomena in his recently published book *Reengineering Management* (March 1995).

This reassessment has enabled the results of the field research to be placed in the context of the major trends in the marketplace. This gives INPUT's clients a balanced view of the real long-term trends, assisting them to plan effective market winning strategies and tactics.

2. Demographics

Interviews were conducted with 18 European user organisations and 18 vendors who were all active on a pan-European basis. These vendors were either providing consulting related to *reengineering* and BPR, the provision of systems integration and related professional services or both.

Exhibit I-1 shows an analysis of the user sample by industry sector.

Exhibit I-1

Distribution of User Respondents by Industry Sector

Other
21%

Banking
and Finance
17%

Insurance
28%

17%

17%

Utilities

Process Manufacturing

Proportion of Respondents

No. of respondents: 18

Source: INPUT
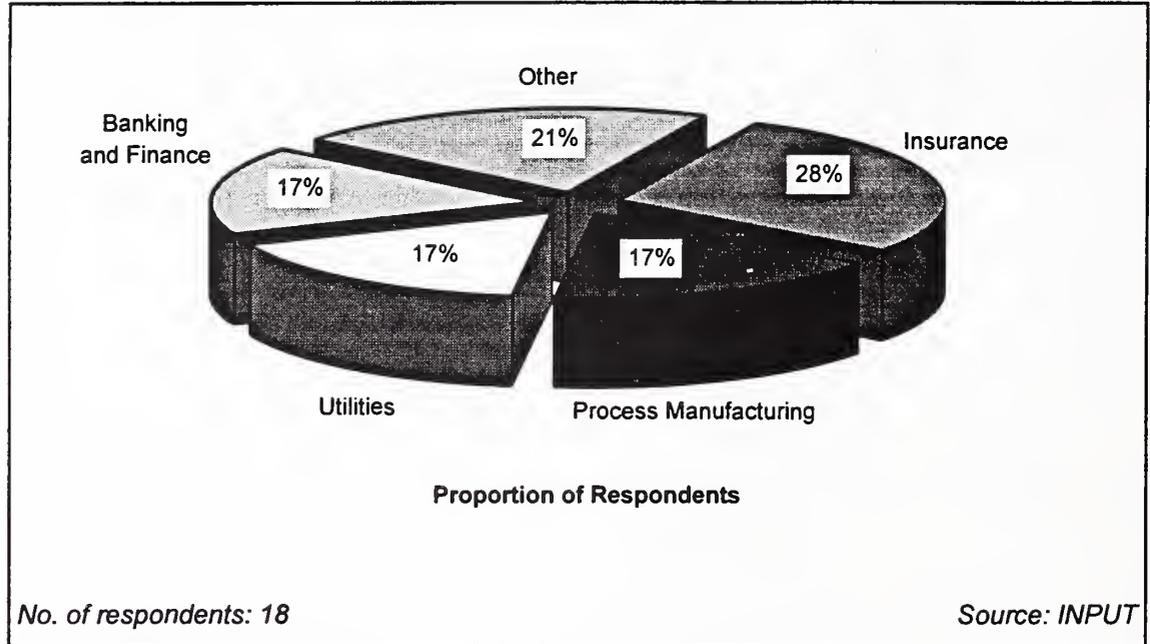
The *other* category comprised of a health services firm, a telecommunication services provider, a retailer and an organisation providing postal services.

The user interviewees were split evenly between staff within the IS organisation (10) and those in general business management or specific BPR initiative team leader roles (8).

Exhibit I-2 shows an analysis of the user sample by the level and position they held within their respective organisations.

Exhibit I-2

Analysis of User Position Level and Function

No. of user respondents: 18   *Source: INPUT*
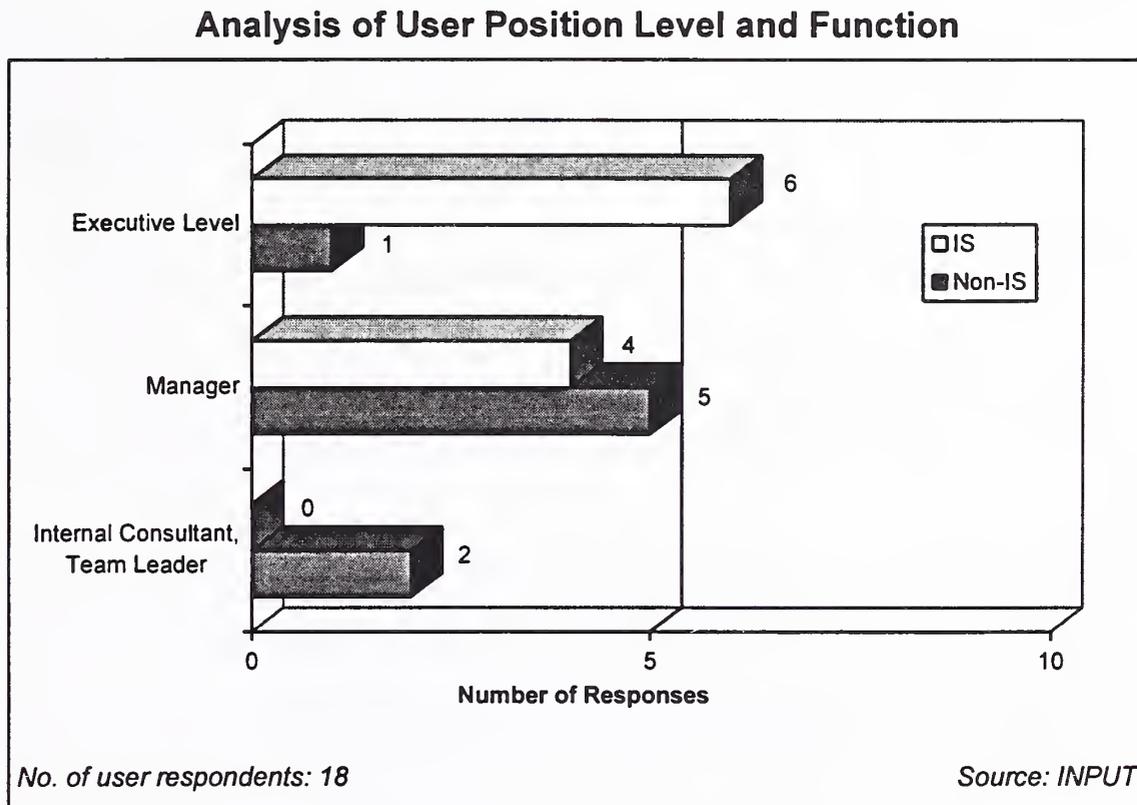
Exhibit I-3 shows an analysis of the vendor sample by type of organisation.

It can be seen that it is evenly represented by four major classes of firms active in the *reengineering* services environment; the major international professional services firms that provide a wide range of service for project implementation as well as the outsourcing of IT operations, "Big Six" firms, companies that have an equipment manufacturing heritage and specialist management consultancies concerned with the interaction of *reengineering* and strategy.

Exhibit I-3

Distribution of Vendor Respondents by Category of Firm

Category of Firm	Number of Respondents
IT Professional Services firm	5
"Big Six" firm	4
Management Consultancy	4
Equipment Manufacturing Heritage	4
Software Product firm	1
Total	**18**

Source INPUT

Exhibit I-4 shows an analysis of the vendor sample by the level of position held by the respondent within their organisation.

Half the sample were people with executive level responsibility within their organisation, having titles such as Practice Partner or Managing Director.

Exhibit I-4

Analysis of Vendor Position Level

No. of vendor respondents: 18   *Source: INPUT*
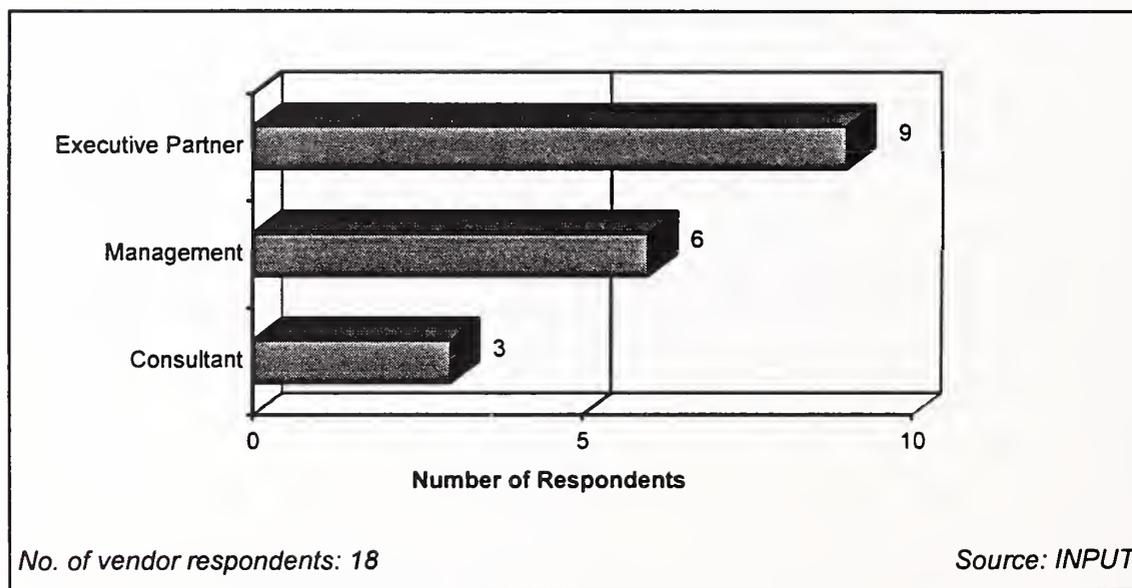
C

Report Organisation

The remainder of this report is organised into the following chapters and appendices:

- Chapter II, an *Executive Overview* which provides a synopsis of the key findings and recommendations that emerge from this study

- Chapter III, *Positioning Reengineering*, examines the working definitions of BPR and *reengineering* being used in the industry and market and explores the relationship between BPR work and SI projects

- Chapter IV, *Business Integration Characteristics*, reports on the survey results pertaining to vendor and user views of the differences between projects instigated as BPR initiatives and those fundamentally driven by systems integration needs, differences between the decision makers for these two types of projects and different skills required in each case

- Chapter V, *Marketing BPR*, discusses three areas related to the marketing of BPR related services: the *impact* on the systems integration market; the *range* of BPR and related SI services being offered by vendors in the market and the *competitive* environment

- Appendix A contains eight case studies of user experience with BPR projects

- Appendix B contains eight profiles of vendor capability within the *reengineering* and BPR domain

- Appendix C contains the definition of terms

- Appendix D contains the interview guide used for conducting the user interviews

- Appendix E contains the interview guide used for conducting the vendor interviews.

D
Related INPUT Reports and Research Bulletins

The importance of *reengineering* is apparent throughout INPUT's research activities, as is reflected in the reports and bulletins published recently.

1.   European Reports

Systems Integration Market - Europe, 1994-1999 (BIMF)

Impact of Business Reengineering on Outsourcing - Europe 1994 (OSSQ)

Systems Integration Opportunities in Reengineering – Europe, 1992 (SEIC2)

2.   US Reports

The Impact of Business Process Reengineering on Outsourcing - USA 1994 (OSBP)

The Business Process Reengineering and Systems Integration Relationship 1994 (BISI)

3.   European Research Bulletins

Business Process Reengineering and the Systems Integration Opportunity (BIPR Vol. V No. 11)

Benefits of Business Process Reengineering are Obscured by Marketplace Confusion (BIPR Vol. V No. 16)

Consultancy Services Vendors Seek Competitive Positions on the Unravelling Project Services Value Chain (BIPR Vol. V No. 17)

Senior Management Consultants Migrate (BIPR Vol. V No. 22)

Role of Information Technology is Stimulated by Business Reengineering (OSPR Vol. V No. 12)

Outsourcing Provides Indirect Support for Business Reengineering (OSPR Vol. V No. 13)

Outsourcing Vendors Must Improve Support for Business Reengineering (OSPR Vol. V No. 14).
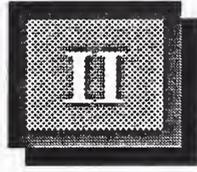
Executive Overview

A

Reengineering – Impacts on Systems Integration Delivery

Reengineering was proclaimed as a revolutionary concept for the organisation.

However, in a world awash with management gurus' prescriptions for business success *reengineering* and the term *business process reengineering* (BPR) have been hijacked to be applied as the *in vogue* expressions for almost any type of business improvement activity.

Users, wishing to be viewed at the cutting edge of best business practice use these terms for all new business initiatives concerned with their organisation and their systems.

Vendors of management consultancy and IT-related services use the terms to demonstrate their credentials as leaders in the application of best business practice.

Reengineering, as defined by Michael Hammer and James Champy in the 1993 book, *The Reengineering Corporation,* have revolutionary implications for businesses and consequently for the vendors serving them. This research report provides insights into how the *reengineering* approach is actually being applied at a working level in the context of its relationship with systems integration projects.

Vendors and users of information services can optimise their performance in the market on a long-term basis through careful implementation of the following precepts: (as summarised in Exhibit II-1).

- Gaining a true understanding of the real essence of the *reengineering* revolution and its long-term implications whilst being able to effectively relate this to business process improvement activities on a day-to-day basis

- Making decisions about what firm's unique value-added contribution to delivery of *reengineering* driven systems integration projects should be

- Developing and positioning the necessary capabilities to deliver the higher rewards from BPR-related systems integration projects whilst at the same time controlling the higher risks involved.

Exhibit II-1

Business Process *Reengineering* – Implications for Services Delivery

- Understanding the *reengineering* impact on SI

- Identifying value contribution

- Delivering core capabilities

Source: INPUT

B

Understanding the *Reengineering* Impact on SI

Reengineering and the term BPR have become absorbed into the business and information services vocabulary as the accepted descriptions for all and any types of business restructuring, change or improvement initiative.

Unfortunately, this widespread acceptance of the terminology has led to a comprehensive failure on the part of many managers and executives to understand the fundamental message that the *reengineering* philosophy implies.

The real message implied in the Hammer and Champy *reengineering* philosophy is that in the ever more complex information age that we are now entering, corporations abandon the old *command and control* management model that has been pervasive throughout the 20th century.

The oft reported failures of *reengineering* as a prescription for business success are increasingly being identified as resulting from the failure of managers to abandon that operational mode. Indeed Champy's recently published book, *Reengineering Management,* addresses exactly this point which did not get sufficient emphasis in the original definition of *reengineering.*

The research conducted for this study revealed a wide range of usage for the terms *reengineering* and BPR (*business process reengineering*) see Exhibit II-2.

Exhibit II-2

Vendor Perspectives on Reengineering

RE-EVALUATION OF STRATEGY

⬆

BUSINESS PROCESS REENGINEERING

⬇

PROCESS REDESIGN

Source: INPUT
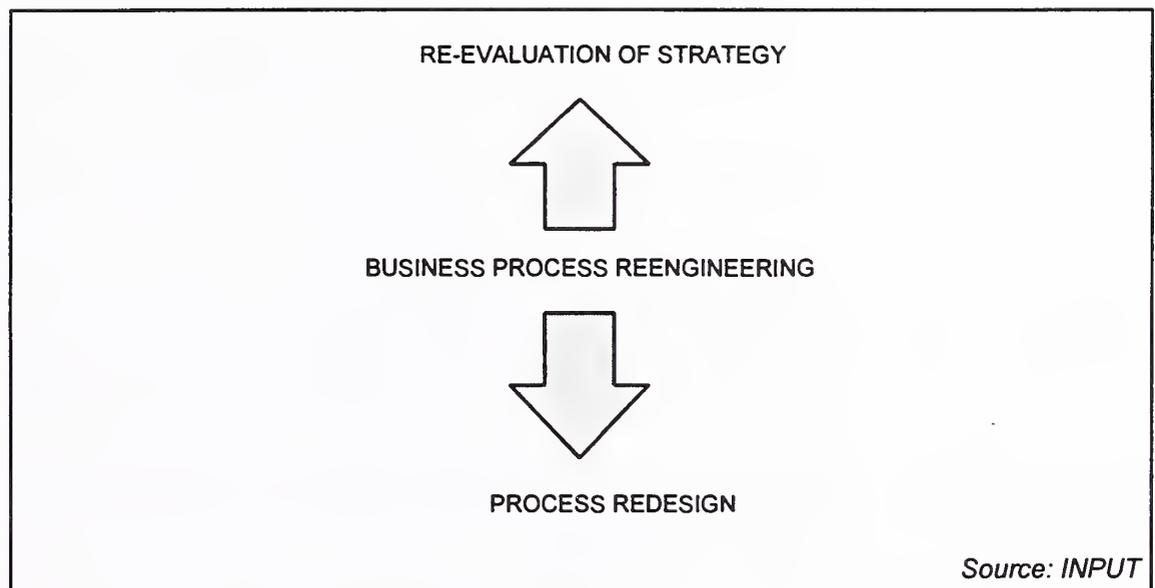
Whilst about half the number of vendors interviewed paid lip service to the Hammer and Champy definition (see chapter III), significant minorities, about one quarter of the sample in each case, gave the concept either a completely strategic or a completely tactical interpretation.

The strategic view was characterised as Strategic Innovation, the re-evaluation of corporate strategy. This approach completely ignores the internal messages about running organisations on a radically different model to that hitherto accepted as the norm, irrespective of the overall strategy objectives of the firm.

The tactical view was characterised by a view that it was simply an improvement philosophy with a particular emphasis on step improvements in process performance, that there was nothing particularly new in this.

The client view of *reengineering* was generally much more confused than that of the vendors. Only one interviewee accepted the Hammer and Champy definition as having practical applicability in their organisation. A number of users saw no real possibility that *reengineering* concepts could be implemented in their own organisations.

Generally, users preferred to take what has become quite a popular view, that taken by the *tactical definition* vendors referred to above.

Champy, in his new book clearly recognises these road blocks present even in the more easily changeable US business environment in contrast to the European environment as supported by the evidence presented here.

Champy sees the new obstacle as management attitudes, and this is clearly demonstrated in this study. He talks about shifting the focus of *reengineering*, away from the operational processes to being about managing and in particular changing management methods.

Clearly these ideas are going to be extremely challenging to managers and executives over the next few years. The shift away from the *command and control* model, under the pressure of huge amounts of information and increasing complexity, are creating the conditions for the application of the professional services firm model. This, interestingly is one that vendors are very familiar within the conduct of their own business, and consequently reflected in their generally more coherent view of *reengineering*.

Both users and vendors eager to gain further insights as to the implications of this trend are recommended to study David Maister's book, *Managing the Professional Service Firm*.

C
Identifying the Value Contribution

Irrespective of the finer definitional points, the *reengineering* phenomenon has undoubtedly had, and will continue to have, an important driving effect on the systems integration contrasting business. INPUT's projections for this impact on the European market are shown in Exhibit II-3.

Exhibit II-3

Reengineering Drives the European SI Market

Source: INPUT
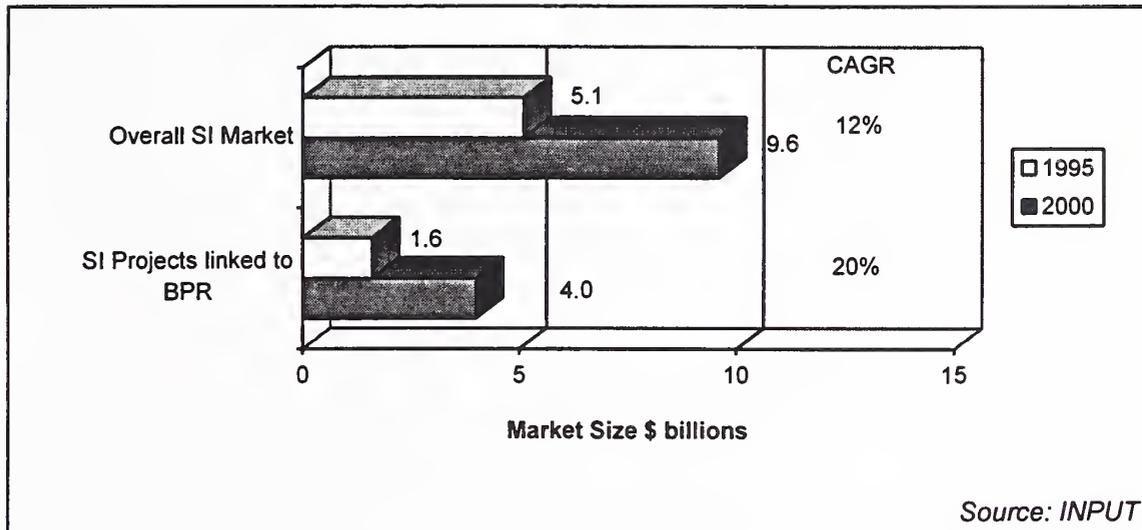
Generally, both vendors and users reported significantly higher absolute expenditure on SI than on BPR.

BPR creates not only general growth opportunities, but more specifically opportunities for increasing the value contribution that vendors can make to their client's business.

The central question that vendors face in assessing these opportunities is identifying the particular services that they are going to offer to clients. This can be reviewed essentially under two headings:

• The driving impact of BPR on SI

• The range of services being offered by vendors; full range or not?

1. Drivers for SI

Users saw a very definite correlation between *reengineering* initiatives and the generation of systems integration projects to implement the newly-defined systems and processes.

Vendors too, not surprisingly, commented strongly on the growth potential of *reengineering* and BPR work on system integration contracts. The opposite effect, the development of BPR work from SI contracts was however reported by vendors to be much weaker, as is shown in Exhibit II-4.

Exhibit II-4

BPR and SI Relationship – Vendor Perspective

PROPORTION OF PROJECTS	%
BPR Driving SI	70
SI Driving BPR	30

Source: INPUT

One of the most important driving forces for SI was related to the size of the contracts. *Reengineering* and BPR initiatives were viewed as having had a very beneficial effect on emphasising business benefits. Under these circumstances larger budgets would be approved as executives could see the potential impact for the business much more readily.

There was further evidence of the benefits and value to be obtained from BPR-driven SI that emerged from description by both users and vendors in respect of comparative project characteristics.

For example, Exhibit II-5 shows the vendor's perspective of the changing nature of SI projects as they become increasingly initiated from *reengineering* work.

Exhibit II-5

Comparative SI Project Characteristics – Vendor View

TRADITIONAL		BPR DRIVEN
FUNCTION	⟶	PROCESS
MECHANISTIC	⟶	OPEN
IT	⟶	BUSINESS
MIDDLE MANAGEMENT	⟶	EXECUTIVES
FIXED PRICE	⟶	VALUE OPPORTUNITIES

Source: INPUT

The trend exhibited here offers vendors an obvious opportunity for seeking to increase the level of value they can deliver to clients.

Certainly the CSC Index Group have given notice of this as they have observed a commoditising impact of BPR ideas at the lower end of the market.

Reengineering initiatives are of course leading vendors into higher risk territory where higher value opportunities mean sharing business objective goals with the client.

Another factor consistent with this move up the "value chain" is higher level client expectations as projects shift from the general IS department domain into the boardroom.

Exhibit II-6 shows these same trends from the perspective of the user.

Exhibit II-6

Comparative SI Project Characteristics – User View

TRADITIONAL		BPR DRIVEN
INTERNAL FOCUS	⟶	EXTERNAL FOCUS
TECHNOLOGY FOCUS	⟶	BUSINESS FOCUS
LIMITED REFERENCE FRAME	⟶	OPEN OBJECTIVES
LITTLE BUSINESS USER INVOLVEMENT	⟶	ACTIVE USE OF RAD AND PROTOTYPING TO SUPPORT USERS

Source: INPUT

The research data is in this sense highly supportive of at least some of the underlying principles of the *reengineering* movement. For example, the introduction of BPR-type work as a precursor of systems developments clearly reflects a shift in seeing IT projects as focused as external, or business issues, rather than regarding them as internally focused.

Greater open-endedness also seemed to be a continuing theme; at least some evidence that organisations were going back to the drawing boards and rethinking how their company was going to operate.

Exhibit II-7 shows a comparison of BPR type work characteristics.

Exhibit II-7

Comparative BPR Project Characteristics – Vendor View

SI Generated	Stand-Alone
Problem Driven	Issue Driven
Middle Management	Board Level
Technology Limits	Blank Sheet Approach
Smaller Projects	Open-Ended Projects

Source: INPUT

Users had little experience about the differences between BPR work generated from systems integration projects and BPR work conducted on a stand-alone basis.

Generally their comments reflected those of the vendors key elements being:

• The narrower focus and smaller size of SI instigated work

• The likelihood of it being to solve short-term rather than longer-term problems.

2.   Range of Services

Exhibit II-8 describes the vendor environment as revealed in this survey.

Exhibit II-8

The Service Spectrum – Vendor View

Corporate Strategy	Operational Processes	Systems Integration
33% OF VENDORS		
	45% OF VENDORS	
17% OF VENDORS		
		5%

The shaded areas are services offered by vendors (proportion of sample)   *Source: INPUT*

Although a significant number of vendors claim to be operating across the full range of service delivery, in general they are only managing to do this when they subcontract significant amounts of work.

In reality there is a strong recognition of the fact that it is increasingly difficult to operate alone.

At the same time there was a significant recognition of the need to partner or at least subcontract in order to be able to deliver everything to a client. This is clearly revealed in the analysis shown in Exhibit II-9.

Exhibit II-9

Vendor Partnering Requirements

Vendors need to be partnered with:	Percentage of sample
System Developers	35
Strategy Consultants	30
Specific Industry Skill Vendors	30
Specific Technology Skill Vendors	25
Application Product Vendors	10

(Multiple responses allowed)   *Source: INPUT*

The user view on this is shown in Exhibit V-16.

D
Delivering Core Capabilities

The increasing trend towards BPR-influenced SI will have some important impacts on vendors. Whatever particular piece of the value chain they have decided to make their own they face the challenge of marketing and selling these services in a very different environment than that hitherto experienced.

Three aspects are considered here:

- Competitive positioning

- Key vendor characteristics

- Changing skill requirements.

1.   Competitive Positioning

Not surprisingly the user view of the competitive scene was more fragmented than that of the vendors. Vendors tend to be more acutely aware of their direct competitors. Users clearly are more open-minded about whom they would like to consider than sometimes vendors would wish.

This suggests that the often repeated conventional wisdom of a "full service" offering, ranging from high to low value added services, may not in fact be the most appropriate competitive position to adopt.

The research suggest that users look for the best and most competitively priced offering at all points on the value chain and that they are comfortable with the added complexity of managing multiple suppliers.

Only 21% of users plan to use the same vendor for a *reengineering* engagement and the subsequent SI delivery project.

As with all procurement processes the key criteria in vendor selection is referenceable experience; proven delivery, proven results and proven benefits are the key differentiators vendors must be able to leverage from. The offering of full service is not, it appears, a major differentiator. From a commercial point of view vendors offering full service do not always necessarily win over niche players.

2.   Key Vendor Characteristics

These views are supported by the user's views of what they are looking for in selecting a *reengineering* vendor.

The most frequently mentioned characteristics were the ability to be able to transfer skills and knowledge about best external practice to the client. This was closely bracketed with functional experience.

3.   Changing Skill Requirements

Perhaps the most important issues integrators face in considering *reengineering* and its implications is in confronting the skill requirements which a *reengineering* offering would require.

Systems Integration (SI) services are currently in the midst of a subtle period of transition. Driven by the change major organisations are being forced to make in order to respond to the business challenges of the mid-1990s, many of the historical tenants of the services industry are being challenged and altered. *Reengineering* is simply another factor increasing the complexity and speed of change in this environment.

Companies face a business environment where yesterday's success is no guarantee of success tomorrow, where consolidation is really decline, and where the constant mantra of *do more with less* permeates from every chief executive's office up and down the land, day and night.

Against this background of increasing commercial pressures, vendors of information technology related services are having to adapt to the delivery of new technologies in shorter timescales, to increased levels of functionality, and to benchmarks of provable and demonstrable business benefit.

However, vendors of SI services in the forefront of this transition will be well placed to help their clients make real progress in meeting the challenges of business in these new market realities. Those who are able to succeed in this period will emerge with real and sustainable market leadership.

Although IT is widely perceived by many business people to have failed the enterprise, it is also now paradoxically recognised that IT is increasingly vital to the enterprise, and that the implementation of IT *can* bring measurable benefits.

The major role for vendors of integration services, and challenge to them, is to help their clients, and demonstrate to potential clients, that they are able to assist in managing this paradox.

Until recently many corporations' IT investment was focused on the development, improvement and management of their internal organisation. It is becoming clear now that executives are turning from being purely inward looking towards a more customer-facing approach, as a result of the increasing competitive need to provide better service.

This trend, which has risen in rankings of executives' views of key applications for technology from nowhere to number one in the last couple of years will continue to gather weight and momentum in the foreseeable future.

These important developments are coupled with the growing trend to merge information systems (IS) with information management functions outside the confines of the IS department.

IS roles and structures are integrating with line functions such as logistics, order processing, and customer service as a result of more than a mere decentralisation of IT personnel into the business.

Information-based work is increasingly being "stitched" into system-based work. The, at times, artificial distinctions between system builders, support services, and users are being discarded.

The advent of the concept of *reengineering* supported by the emergence of new enabling technologies such as client/server is bringing another dimension to the rethinking many organisations are undergoing in terms of the application of information systems to their businesses.

This is leading to changes in the pattern of applications giving rise to major systems projects and an increasing volatility in these patterns.

At the same time SI projects are evolving from large bespoke development projects to projects based around the assembly of standard products and kernels. These developments have important implications for services vendors on both the management of projects but also in the skill sets required by vendors to successfully deliver projects.

Distributed integration projects are drawing vendors of systems integration services closer to business users and most importantly to business decision makers in client organisations.

This growing visibility for vendors, moving from the "glasshouse" to the office, offers both opportunities and threats; the opportunity to extend the value-added component of systems integration (SI) projects, and the threat of failing to meet rising business user expectations.

Vendors need to carefully examine the skill profiles of their professional staff, optimally manage this human resource in client engagements, and invest in training aimed at exploiting these opportunities. Rewards and requirements, intrinsically linked in the "new" IT world, are simultaneously becoming greater.

These dynamics are, and will continue to be, supported by large scale client/server integration projects, as widely reported in previous INPUT bulletins and reports. Vendors are undoubtedly finding themselves "deeper" in their clients' organisations, dealing with technology-literate, enabled and competent users, as well as with IT personnel from traditional domains.

The demonstrable ability to produce flexible, low-cost, high-quality systems is already a key differentiator for SI vendors. End-user empowerment increases the stakes of systems development and gives vendors, through increased exposure to decision makers, the potential of exploiting this increased leverage. Exploiting this leverage however requires an ability to address the business on the business's terms.
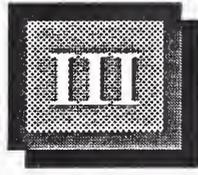
Positioning *Reengineering*

The research conducted for this report revealed a wide range of interpretations and usage of the terms *reengineering* and *BPR (Business Process Reengineering).*

This chapter describes the survey findings for both the vendor and client community in respect of the working definitions being used and how *reengineering* and BPR are viewed in relation to systems integration activity.

If nothing else the BPR phenomenon clearly represents, as supported by these research findings, yet another step down the road towards "Business Integration" and away from Systems Integration projects where the emphasis has tended to be on technologically-oriented issues and skills.

A
Defining *Reengineering*

Undoubtedly the current wide usage of the terms *reengineering* and *BPR* and the emphasis being placed upon them by both users and service vendors can be largely attributed to Hammer and Champy's 1993 book, *Reengineering the Corporation.* Champy was a founder of CSC Index and is Chairman of Computer Sciences Corporations' Consulting Group.

In this book the authors provide a formal definition of *reengineering* as:

"the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed".

It is emphasised by the authors that this definition contains four key words, *fundamental, radical, dramatic,* and *processes.*

The research amongst both vendors and clients indicates a wide variation away from the principles contained in this definition. Many firms clearly use the term simply to be seen as *keeping up with best practice,* whilst vendors have seized upon it to encapsulate their existing management consulting practice expertise in order to be able to present it to the market in the most attractive way.

Three aspects are reviewed below:

• The definitional range used by vendors

• The definitional range used by users

• The current positioning of CSC Index.

1.   Vendor Usage

The research conducted with service vendors concerning their definitions of *reengineering* and BPR revealed a variety of perspectives and applications. Fundamentally the responses could be classified into three groups as shown in Exhibit III-1.

Exhibit III-1

Vendor Perspective on *Reengineering* Definition

View it as a strategic issue — 25%

25%

50% — Agree with Hammer & Champy Definitions

View it as a tactical issue

No. of respondents: 18 (percentages rounded)   *Source: INPUT*
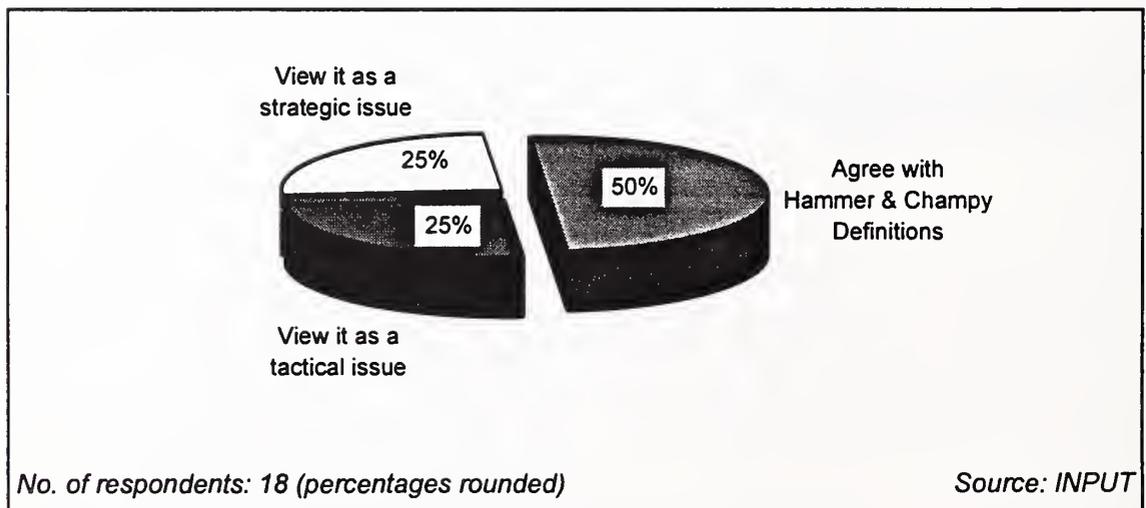
Essentially vendors either accepted Hammer and Champy's definition wholeheartedly, whether they practised its principles or not is another matter, or gave it either a strategic orientation or a tactical orientation.

These two latter perspectives are clearly revealed by the responses listed in Exhibit III-2.

Exhibit III-2

Vendor Comments on *Reengineering*

- Strategic Perspective

    – BPR is viewed as *Strategic Innovation*

    – Projects characterised by re-evaluation of strategy

- Tactical Perspective

    – BPR is not strictly new, but the link with IT enables organisations to do things differently

    – A somewhat less radical view than that expressed by Hammer and Champy. The company takes on responsibility for a function in order to improve its performance. This is essentially a practical approach, change management is an essential element

    – No more than a re-labelling of process redesign which has been going on for years

Source: INPUT

Vendors who took a strategic perspective referred to characteristics such as:

- The need for an environment that fostered creativity

- The use of advanced technology

- The use of organisational enablers.

One vendor typified BPR as a top-down approach for the 1990s in contrast to bottom-up processes, like TQM, from the 1980s.

There were also some negative views expressed about *reengineering* as a concept. For example, one vendor commented that the term was not widely used within his company formally as it has so many meanings, and some clients had an adverse reaction to the phrase, because it implied revolution not evolution!

Another vendor questioned the feasibility of its application to large European firms given its radical nature and the resistance to change seen amongst European executive management.

2.   Client Usage

In contrast to the vendor respondents the user community represented a much more confused position with regard to the definitions of *reengineering* and BPR and to their application in practice. This is perhaps not too surprising a result given the revolutionary nature of *reengineering* and the negative response of some vendors as noted in the sub-section above.

Exhibit III-3 provides some insight into client's attitudes to this subject and their awareness of the real meaning of *reengineering* as defined by Hammer and Champy.

Exhibit III-3

User Comments on *Reengineering*

- The company does not really subscribe to the Hammer and Champy *big bang* approach but is re-orienting itself around processes

- The term *reengineering* is used to cover a whole variety of things from basic process improvement to radical change.

- Overall there is a mixture of the green fields BPR approach and the incremental approach which results from TQM.

- BPR precepts recognised, but fear that it is has become a cliché

Source: INPUT

The comments listed in Exhibit III-3 were representative of the whole sample. Only one company interviewed accepted wholeheartedly the Hammer and Champy definition. One or two others, whilst recognising the possibility of *reengineering* in the way defined by Hammer and Champy clearly saw no real possibility of it being implemented in their own organisations.

The most commonly described perception was that it was just part of a continuous business performance improvement process.

3.   CSC Index's Current Positioning

Given that James Champy is the Chairman of CSC's Consulting Group it is interesting to note the current corporate position on *reengineering* as being described in Europe:

- The term promoted by CSC Index is **Business Reengineering**, which has been registered as a service mark, although the company chooses not to enforce it.

- The word process has been deliberately left out as CSC Index extends the concept to incorporate strategy. *Reengineering* is viewed now as inherently a strategic decision. It questions the current operational model and goes back to the customer perspective, questioning the value proposition and re-identifying the customer base.

- CSC Index uses a set of tools called the *Value Disciplines* that are employed as pathfinders for *reengineering*, allowing the target company to focus on its strategic issues and what it actually wants to achieve.

Champy himself has recently (Spring 1995) published a new book entitled *Reengineering Management* which addressees, at least intellectually, many of the concerns that emerge from this research. Principally that *reengineering* has little impact when management fails to understand either its true potential or recognises it as potentially a diminution of their corporate power base.

B
Relationship between BPR and SI Projects

The research addressed the issue of the overall impact of the *reengineering* and BPR movement on conventional systems integration activity. Firstly in terms of the level of interest by users in BPR and secondly in respect of the extent to which BPR projects led to SI projects and *vice versa*.

1.   User Interest in BPR Affecting Service Business

a.   Vendor Perspective

Vendors were asked to comment on the ways in which user interest in BPR affected their services business overall.

There is no doubt that vendors are having to respond to an increase in demand from clients relating to BPR services. More and more people feel, as one vendor put it, "that they should have some BPR".

However, there is a widespread lack of knowledge as to what BPR really is amongst the user community, according to most vendors. The level of understanding ranges from a straightforward cost-cutting exercise to total enterprise transformation. Thus in practical terms BPR is being reacted to as simply a new level of business improvement and change management consulting.

Vendors appear in many cases to be seeking to define a pragmatic position somewhere between operating at the *dramatic* level and the incremental.

The specific actions that vendors reported that they were taking to respond to the BPR movement included:

- Strong emphasis throughout on multi-disciplinary activity (or cross-functional teams) within the firms in response to BPR

- User interest in BPR spurring some vendors to place an increased emphasis on acquiring or developing skills in specific processes

- The emphasis on BPR as a marketing tool causing vendors to consolidate a number of tool and methodology-based activities into one BPR practice.

One professional services firm reported that BPR is forcing them to place significant emphasis on cross-team and cross-practice working, recognising this as a normal way of working. The firm described its business prior to the BPR *craze* as comprising a Performance Improvement and a Systems practice, and recognised that this approach no longer worked.

One of the most important features of this changing market demand is to push vendors towards supplying higher added-value services and to place considerable pressure on them to differentiate their services.

A good example of this is, ironically, CSC Index who see the user demand for BPR as having had a *commoditising* effect on the market. The reduction of *reengineering* and BPR to the status of clichés has, it appears, forced them to move up the *value chain*, away from IT consulting towards strategy.

One equipment manufacturer offering BPR services commented upon the delay factor of BPR, the BPR project would need to be conducted before other parts of the service portfolio could be activated. This has had the interesting effect of making the BPR activity a focal point of the business internally, as opposed to being a separate independent revenue stream.

BPR could be cited as one of the prime drivers that has caused UNISYS, for example, to completely revise its strategy for the future, as is being manifested in the recruitment of a large number of consultants from management consulting firms.

This change is also being strongly reflected by EDS who are making striking inroads into the development of a consultancy practice, as indicated by their recent and as yet unsuccessful attempt to take over the management consultancies A.T.Kearney. EDS describes BPR consulting as being central to their portfolio.

In another sector of the industry these trends are manifested by, for example, the software product company that saw the user impact of BPR as driving the need to change from being a *technical* partner to being a *business* partner.

b.   User Perspective

Users were questioned as to whether in their opinion the BPR movement was leading to an increased demand for SI-type services. Clearly the vendors have responded to a real opportunity as can be seen by the analysis of the user responses to this question, shown in Exhibit III-4.

Exhibit III-4

Increasing Demand for SI Services Driven by BPR Projects – User Opinion

No. of user respondents: 18 (percentages rounded)   *Source: INPUT*
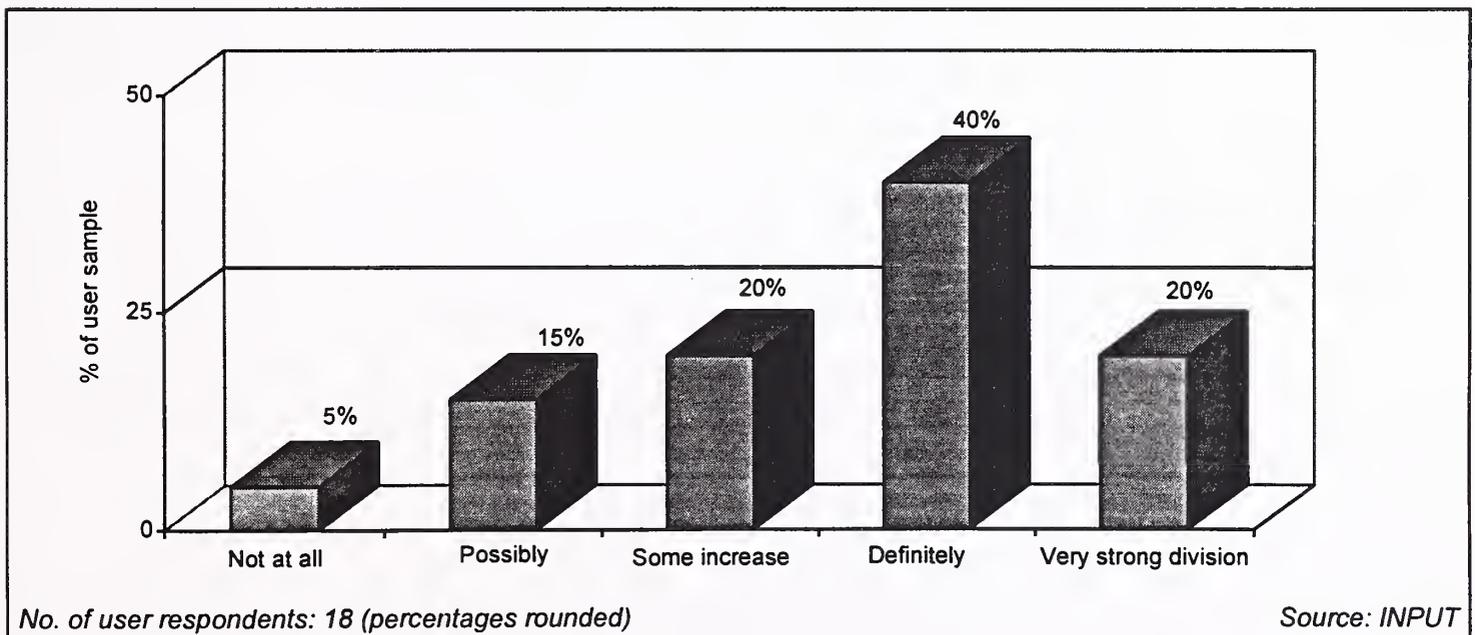
Reasons given by users for this increased demand included:

- A lot of communications technology and extra staff requirements

- That there is very little BPR that does not have technology implications

- Supports the business case for increasing the budget allocated to a project.

One user commented, for instance, that the major effect of BPR initiatives is to change the way in which systems implementations are performed. They thought that post BPR SI projects became more focused and that these better projects gained a higher priority.

Also cited was the observation that as BPR is more fundamental it leads to more expensive SI projects, but that the additional costs are trivial in terms of the business benefits.

Another user commented that in their firm BPR is funnelling demand for SI into a short-term peak, making up for a lack of investment over the previous decade. This comment came from an insurance firm, where traditional firms are being attacked by new entrants bypassing established sales channels using new technology.

One user thought that overall demand for implementation services might be reduced through productivity gains in systems delivery. In this firm productivity, it was stated, had probably increased from about one function point per day to about 1.3 function points per day. Allied to this point would be the increased incidence of using application packages as a productivity tool.

On the downside another user raised the issue of resistance to radical change as an inhibitor. He felt that BPR should cause a larger demand for SI services but recognised that the firm did not use technology very well as it is seen as being restrictive in the organisation, i.e. a threat to the autonomy of the branch offices. Consequently the organisation was having to move very cautiously, step by step in its implementation plans.

2.   The Interaction of BPR and SI

a.   *Vendor Experience*

Vendors were asked to comment on the extent to which BPR projects had led to SI projects and the extent to which SI projects had led to the development of BPR assignments.

Exhibit III-5 shows the distribution of the percentage rate given for BPR projects leading to SI assignments and for SI projects leading directly to the development of BPR assignments.

This exhibit indicates significant disparity between the business generation impact for these two directions. Not surprisingly systems integration vendors indicated a much stronger need to become involved in BPR assignments than BPR vendors in systems integration.

Exhibit III-5

Relationship of BPR Assignments and SI Projects

Legend:
- □ Proportion of SI projects leading to BPR assignments
- ■ Proportion of BPR assignments leading to SI work

Bar chart data (Proportion of Vendor Sample %):
- 0-20%: 28% (SI), 0% (BPR)
- 21-40%: 36% (SI), 12% (BPR)
- 41-60%: 36% (SI), 18% (BPR)
- 61-80%: 12% (BPR)
- 81-100%: 58% (BPR)

No. of vendor respondents: 18 (percentages rounded)   *Source: INPUT*
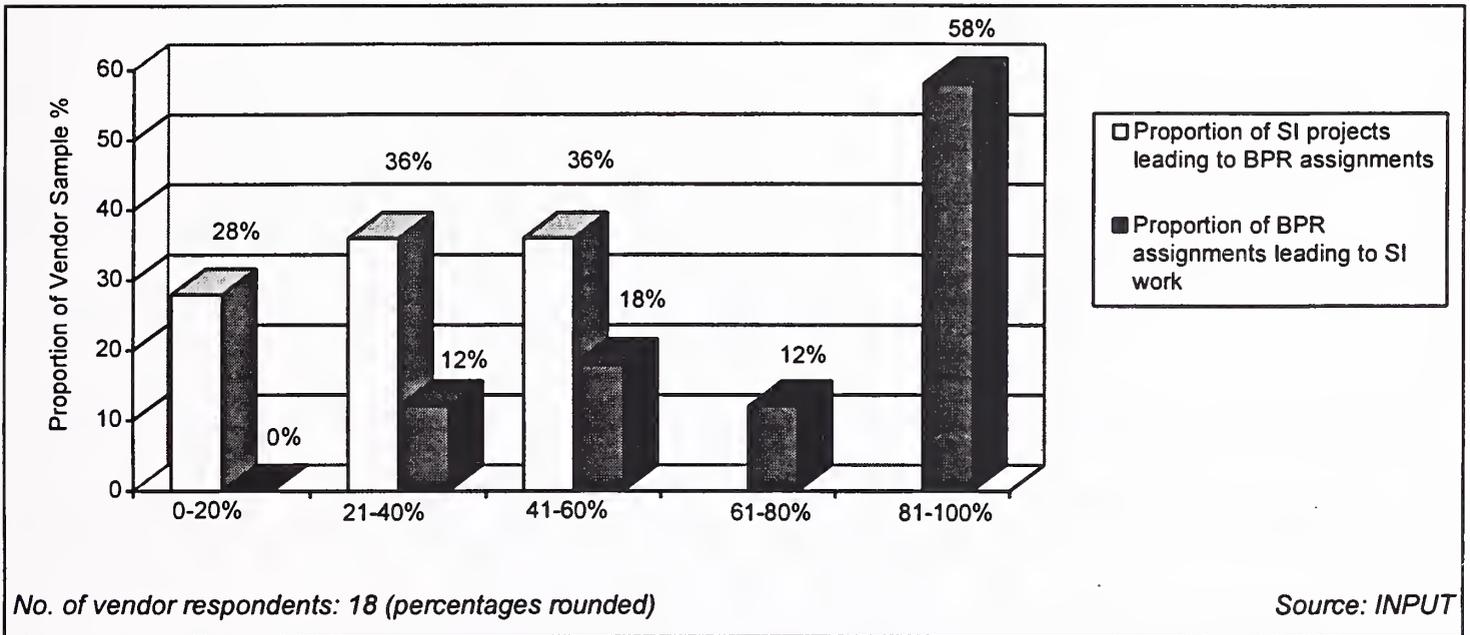
i. BPR as a Driver for Systems Integration

The survey indicated a definite need for clients to start systems integration projects directly with BPR. This is being driven by a growing reluctance on the part of senior executives to continue spending large amounts of money on existing information systems when they cannot see that they provide acceptable measurable benefits.

It is likely that the percentage of cases in which major projects are defined by customers purely in SI terms will decrease. This is because IS departments do not have a good reputation for delivering projects on time and to budget. Consequently there is increasing pressure on the IS department to improve this record and fundamental process review and redesign can be perceived as part of the solution.

In consequence vendors reported that IS departments, were in many cases, looking to initiate BPR as a means of changing their role in the organisation. One vendor observed that in their observation this did not work.

Large scale *reengineering* projects also generate a need for an IT capability. For example, the often applied concept of a *case worker* cannot be implemented without IT support. However, the actual IT implementation is not often the most important factor. The emphasis is put on implementing the *new ways of working*, which is an inherent part of the *change management* philosophy.

Exhibit III-6 lists further comments made by vendors about the incidence of BPR projects leading to systems integration contracts.

Exhibit III-6

Vendor Comments Concerning BPR Projects Leading To SI

- It is fairly common for BPR to cause changes which generate a new IT plan

- It is not easy to think of a BPR assignment which does not lead to SI requirements of some sort

- It is not our object to create this focus, however, large scale *reengineering* needs an IT capability

- It is quite common but this does not mean that we get the implementation contract

- Legacy systems may be constraining the business

- The usual way this happens is that the BPR assignment builds confidence with the client, we then get invited to deliver the solution

- The most far reaching BPR projects are unlikely *not* to yield SI projects

- It is our objective to ensure that the BPR work in which we engage leads on to SI work

Source: INPUT

ii. Systems Integration as a Driver for BPR

As was seen in Exhibit III-5, there was generally a much lower incidence of vendors reporting that SI contracts led to BPR initiatives, than in the other direction. However, this is still an important aspect of the overall market, particularly for the management consultancies that have been penetrating the IT domain over the last decade and a half.

For example, Coopers & Lybrand aim to ensure that a very high percentage of the SI projects that they get involved with are transformed into BPR projects. They believe that if the client restricts the project to simply that of systems integration then the potential is lost for much bigger gains.

However, even when the project from the client perspective is seen as being more of a systems integration challenge than one of BPR, vendors report that there is a growing use of object-oriented tools and feasibility studies. These developments can bring the reality of the situation close to what it would be with the use of BPR techniques.

Client concerns about the effectiveness and value of major IT investments also play their part in creating BPR type work from opportunities that are initially viewed as system integration tasks.

Users are now quite worried about new software intensive projects based on their experience of those that they have had carried out in the past and which have not gone to plan. The arguments for BPR are quickly picked upon when clients have had this experience.

One respondent said that when engaged on an SI contract it sometimes becomes apparent that the client believes that its IT systems do not deliver what is required. Then the approach they adopt is to get the client to articulate the objectives which can lead to the first stage of BPR.

EDS's co-sourcing approach has also been cited as an example of an environment where SI projects can lead to BPR initiatives. Co-Sourcing, in EDS's definition, implies an operational partnership where the risks and rewards of business operational performance are shared between the vendor and the client.

The Chicago parking ticket system was quoted as a good example of this phenomenon. It is interesting to note that no European example was proffered.

The City of Chicago's relationship with EDS started as an IT project to improve an overloaded system for processing parking tickets. EDS got involved in a major review of the problems and objectives. The outcome was not only an improved system which dealt adequately with the data volumes but a clearing of a huge backlog. EDS shared with the City of Chicago the revenue benefits which accrued from this effort.

A further point was raised by a respondent who observed that few SI contracts led to BPR when the IT director was responsible for the initiation of the contract. This was attributed to an emphasis on starting the development process with the selection of a packaged solution.

This particular vendor observed that typically this approach did not work satisfactorily.

However, it must also be borne in mind that the ability to exploit particular opportunities will depend to a great extent on the overall management perspective, motivation and starting point for the initiative.

For example, Andersen Consulting recently advised British Rail on the selection of SAP systems and provided systems integration support for its implementation. All of this activity required massive change within British Rail in respect of changing accounting and reporting processes and thus became a major *change management* project for Andersen Consulting.

Exhibit III-7 lists some further comments made by vendors on these issues.

Exhibit III-7

Vendor Comments Concerning SI Leading to BPR Projects

- Sometimes it is possible to identify a major cost or competitiveness disadvantage in the course of performing systems work, you can then get into BPR to fix the problem

- Most often clients present us with IS projects which *should* lead to BPR projects – the task is to convince senior client executives that this is the case

- Can occur when the installed IT solution does not appear to have solved the problem

- It is worth noting that the nature of SI work has changed over the last few years, it used to be mainly custom, it now consists more of modifying packages to fit the client

- The percentage of SI projects which lead to BPR work is very low but is increasing

- Some implementation work includes redesign, sometimes we conclude that the problem lies in the process and we have to make the client aware of this

- When asked to do a requirement specification or technical audit we often find that the users' needs are not being met by the design of the system

- A valid opportunity for this is when a new technology becomes available and people look at how to apply it to an existing system

- Installing large database systems, like those provided by SAP, demand that the client improves the processes

Source: INPUT

b.   *User Experience of BPR and SI Project Interaction*

Users were also requested to comment on the extent to which they saw BPR-type initiatives leading to systems integration activity and the extent of the projects generated in the reverse direction.

Three quarters of the user respondents saw BPR projects as a strong driver of subsequent systems integration efforts. The remainder of the sample either had no experience as yet of this happening or felt that the connection was weak. One respondent, for example, commenting, "the majority of the BPR projects did not involve systems integration, but most significant SI work does involve some aspect of BPR".

One user described how in their current culture all projects are now treated as *business* systems projects and that nearly all of these initiatives are leading to systems integration work. This user did however comment that they tend to use the term *business efficiency* rather than BPR because of the political context. In their particular environment BPR is considered to have negative connotations.

It was comments like this latter one that pointed to the market reality that few initiatives really either aimed for or attained the dramatic goals implied in the original Hammer and Champy definition of *reengineering*.

Another respondent pointed out that the new BPR environment is having a fundamental effect on systems strategy, specifically a reassessment of an organisation's legacy systems.

There was little evidence in this user research of systems integration projects leading to BPR work. Only two of the users had experience of this. These were:

- "An SI project that led to a BPR approach occurred when a new package was acquired, it was decided to change the users system rather than to attempt to modify the package. This was not expected when the package was bought".

- "Instances in our organisation where systems implementation is causing some BPR activity were mainly in the context of TQM culture. People are using Root Cause Analysis techniques which often result in modifications to the process. This is all part of cost reduction".

Another user pointed out that BPR work does not really arise from SI projects as organisations are being completely rebuilt with a top down drive of systems development.

IV

Business Integration Project Characteristics

This chapter contains survey results concerning vendor and user views relating to the differences between projects instigated as BPR initiatives and those fundamentally driven by systems integration needs.

It also examines perceived differences in the decision-making groups for these two types of projects and the different working skills required for these different types of projects.

Consequently this chapter provides insight into what might be described as the *business integration* contracts actively being implemented in the market.

A

Differences in Projects

1.   The Vendor View

a. Systems Integration Projects Resulting from BPR Work

Vendors were asked to comment on whether they perceived significant differences between the type of SI projects being generated out of BPR work and the usual type of SI contracts which they were requested to perform.

Exhibit IV-1 contrasts the main themes which emerged from the vendor's perceptions of this issue.

Exhibit IV-1

Comparison of SI Project Characteristics – Vendor View

SI Projects Generated by BPR	Traditional SI Projects
Core process related	*Function* rather than *process* driven
Organisational breadth is greater - cross functional	Single function
Initial requirements may be blurred, subsequently greater clarity of business objectives is achieved	Projects tend to be mechanistic
Relationships built with business users	Relationships generally with IT staff only
More involvement of the business user team	More involvement with IT
Contact level higher, more open client relationship	More likely to be IT Director level contact
More likely to be main board decision	Functional department focus
Opportunity for premium pricing of SI work, time-based costing	More price competitive, fixed price preference
Greater willingness to share risks on a performance reward basis	Less likely to achieve operational performance improvements.
Higher level expectations from senior management result in more realistic budgets and more likelihood of delivering on time and within cost	Organisations less committed to change, projects tend to be less cost-effective.

Source: INPUT

Vendors observed that most benefits from BPR-led systems integration projects stemmed from the high level of commitment required. The reports of BPR failure quoted in the range of 70% to 90% mislead the casual observer. Detailed investigation usually shows that failed projects can be attributed to poor implementation and the absence of the necessary sustained management commitment.

Commitment of the people to new systems is also vital, 90% of the reasons for systems not working, according to one vendor, is that people will not work the system. The systems designs which emerge from a successful BPR project are generally viewed as being more user friendly.

One of the most important differences noted by vendors in the type of project resulting from a BPR initiative was the extent to which users were involved in the development of the system. In a stand-alone SI project users tend to be much less involved.

Consequently when SI arises as a result of BPR, there is a need for the people to be trained differently, it is recognised that there is more for them to understand. They are taught to appreciate the whole process and their new role within it as opposed to just learning the details of how to operate one particular section of the system.

Under these circumstances the people operating the systems get to understand how their particular part of the process fits into the whole picture. Vendors saw that typically people have to have wider responsibilities in the new *reengineered* environment.

When BPR work precedes systems integration projects there tends to be a wider consideration of the options available on the part of the client and a wider range of technology considered. For example, one vendor commented that there is an increased tendency to consider Workflow Systems and Document Image Processing. Without BPR the approach to SI tends to be more mechanistic.

Not surprisingly, in accordance with the precepts of *reengineering*, vendors saw that one of the important outcomes of BPR was the ownership of the *process* rather than of the *function* by the users. Vendors perceived that it was more likely that the systems which result from BPR would be designed with *process* requirements rather than *functional* ones in the lead.

Where IS projects result from BPR work the overall analysis has already been done. This is seen as predominantly causing a reduction in development costs, but often the design costs are lower as well.

Another benefit of the BPR work preceding the systems integration activity, observed by vendors, was that the systems work could take place within a better defined set of processes, thus allowing for a shorter time frame for systems delivery. Vendors found that the tools used are more productive in this environment and lead to less re-work.

However, vendors see a constant problem in the capacity of the IS department to gain sufficient capability quickly enough to use new tools effectively.

Although some vendors view this as an inhibitor, lack of capability in the IS department is a consistent driver for the use of external services.

Vendors thought that when the BPR work had been done correctly then the budget planning was always carried out more realistically because of the recognition of the business issues involved.

Whilst it was commented upon that SI projects driven out of BPR initiatives gave scope for more profitable pricing, e.g. time and materials, the converse appeared not to apply. This was because vendors found difficulty in persuading clients of the much higher consultancy rates required for BPR-type projects in comparison to the sort of rates being used on implementation work.

A constant problem with BPR projects, however they are generated, is getting enough involvement and commitment of time and effort at the senior executive level. The best projects are those which contain a strong and significant involvement of quite senior executives.

Another issue raised by vendors concerned conducting BPR work within an already established technological solution. The BPR team has, in this situation, to understand its capabilities and limitations and attempt to leverage it to create the desired improvements. One vendor thought that there were some positive benefits from this approach but it needs to be recognised that a few of the normal options will be unavailable. More creativity is required to overcome the inherent limitations in this situation.

b. BPR Work Resulting from Systems Integration Projects

Exhibit IV-2 provides a comparison of the main differences observed by vendors in BPR projects generated from systems integration exercises in comparison to stand-alone BPR activity.

In moving from SI to BPR, the projects are seen to be more constrained by considerations of current processes and current organisation. They tend to be much narrower in focus and more problem-driven in nature, in contrast to the top down visioning approach which is developed from the major issues facing the business.

However, vendors observed that differences in the early stages of projects tended to converge as the project proceeded. BPR projects emanating from systems integration activity were seen as usually starting with a fairly narrow scope which then needed to be widened as the work progressed. The degree to which the scope could be widened was, however, seen as being constrained by just how far budgets could be reset.

Exhibit IV-2

Comparison of BPR Project Characteristics – Vendor View

BPR Projects Generated by SI	Traditional BPR Projects
Problem driven projects, scope more tightly defined, more limited	*Issue* driven projects, no limitation to scope
Project relationship more likely to be at functional level, contact level at lower operational level	Board level contacts
The BPR work had generally to take place within the limitations and capabilities of the technological solution already on place	Blank sheet approach
Smaller projects at lower fees	Higher level fee structure, possibly open-ended projects
Projects are generally just process improvement	Process *reengineering*
Vendor skills more focused on supporting process improvement	High level management consulting skills

Source: INPUT

2. The Client View

a. *Systems Integration Projects Resulting from BPR Work*

Exhibit IV-3 lists the principal differences between SI projects generated out of BPR work in comparison to traditional systems integration initiatives, as seen from the client's perspective.

Exhibit IV-3

Comparison of SI Project Characteristics – User View

SI Projects Generated by BPR	Traditional SI Projects
Use of tools makes approach much more rigorous.	Increasingly implementing packaged solutions
Customer considerations play a larger role in implementation plans	Systems are implemented to suit internal development agendas without consideration of external impacts
SI development in tandem with a review of the business	Projects conducted in line with existing organisation
Enhanced urgency to deliver functionality to the business	Goals focused on technology issues
Higher budget projects justified by dramatically increased business benefits	More limited reference frame for establishing business benefits
More integrated business view of project, strong impact on the organisation	Conducted to support the existing processes
Customers involved at an earlier stage in design and development, more user involvement	Less use of RAD and Prototyping, more reworking
A business project not an IT project	IT Project

Source: INPUT

Users reported that with BPR the whole process of getting to the point of implementation with SI projects is different. The old business system development approach has changed, now the implementation of systems takes place in line with business requirements as opposed to specific IS department initiatives.

However, IS needs to be involved and buy into the process changes throughout the BPR project. The projects themselves are now driven by the business managers rather than by the IS department.

One user commented that the traditional way for them to develop new systems was to break down a project into phases which were then introduced as systems changes that affected all transactions, in this case all customers. The method adopted now in a BPR-generated project is to implement the complete system but progressively for sections of the customer base.

Users commented on how SI projects are now quite different in nature. The introduction of BPR-type approaches has forced a view of process rather than a functional view.

Another user commented on how projects are now managed in a much more integrated fashion. SI projects now have very clear statements of their benefits, objectives and scope when conducted within the overall environment of BPR initiatives.

Another user comment was that the name of the game had now become 'rapid value delivery' to which rapid application development tools (RAD) contributed. This user, however, pointed out that it is more than just increasing speed of development, it is about delivering functionality quickly to give specific business benefits.

One user cited how it used to take nine months in elapsed time to do a typical 300-man-day job. This is now reducing to about three months by eliminating poor management practices. One of the changes introduced by this particular organisation was working in 13-week blocks which are described as *windows of opportunity*.

A particularly interesting point for vendors was that some users considered the main difference in the SI projects which are developed out of BPR work to be that they require a higher budget in order to meet, and be justified by, business objectives.

In respect of the use of tools one user cited the beneficial use of Ernst & Young's Navigator information engineering method, observing that it was much more rigorous than the techniques previously used. They felt that this resulted in much higher quality definitions for both business processes and systems processes.

Whilst most user comments recognised differences between the two types of SI projects one user did take a different view. This user was not convinced that there were important differences between the two different types of projects. They considered that the SI work took place downstream of the radical thinking required, and that it therefore had little impact on SI work.

However, they admitted that BPR work had changed the organisation and tools used for development. It had also encouraged the earlier involvement of the IS department's customers. They now made much more use of rapid application tools than they had in a non-BPR influenced environment.

b. BPR Projects Generated out of SI

There was much less client experience on this aspect of the relationship between BPR and SI in the sample researched for this report.

Over half the sample (ten of the eighteen) users interviewed could not provide any comment on this aspect at all, either citing it as irrelevant to their experience or admitting that they had no experience of it.

Exhibit IV-4 lists the principal differences between BPR projects generated out of systems integration projects in comparison to stand-alone BPR initiatives as seen from the client's perspective, reported in this sample.

Exhibit IV-4

Comparison of BPR Project Characteristics – User View

BPR Projects Generated by SI	Traditional BPR Projects
Narrow focus	Can be enterprise-wide, longer term benefits expected
Addresses localised issues	Cross function process issues
Smaller projects requiring specific methodologies	Full scale project methodologies employed

Source: INPUT

Clearly BPR work generated from systems integration projects tended to be much more narrowly focused than other types of BPR projects. For example:

• The user who said that it tended to be more of the sort of project where a TQM approach had to be used to improve existing processes

• Only narrow scope BPR, for example, to enhance customer services or for a quick pay back

• The nature of this sort of project is more focused and more contained within the boundaries of a particular department

• Different project methodology used as smaller more focused projects

• *Reengineering* around a software product package.

Other user responses indicated little real experience of the BPR environment, one citing that it was not easy to classify BPR projects, but pointing out that some SI projects of a long-term nature had now become part of the BPR programme.

Another user saw only minor changes between the two approaches throwing into question their level of exposure to real *reengineering* principles.

One user could only comment, cynically, that the SI work was delayed until the BPR work was completed. Clearly there exists considerable ignorance concerning the true nature and potential of *reengineering* amongst users.

B
BPR and SI Decision Makers

1.   Vendor View of Decision Level

The BPR decision maker and instigator is almost always a senior business executive and not the IS manager or even the CIO. This was the only real observation that vendors were able to make on this particular issue.

Vendors perceived that the IS manager is not usually the decision maker, unless the BPR project is being conducted at a much lower level of scope and is confined to issues more related to workflow or other initiatives connected to the use of packaged software products.

Vendors reported that some IS managers were very receptive to the ideas of *reengineering* and that they will certainly have an interest in the overall project as it will affect IS.

However, the IS manager is, in most vendor's experience, very rarely the decision maker. Indeed one vendor pointed out that if the project is seen to be only championed by IS people it is more likely to run into trouble.

Vendors observed that essentially the decision makers *have* to be the drivers of the business. One company stated that they would not go into a project if the IT director is driving a BPR project, because the business commitment is usually not forthcoming.

2.   User View of Decision Level

Whilst there seemed little disagreement amongst users that systems integration contract decisions were the province of the IS manager, there was a significant difference in their views concerning BPR projects as is shown in Exhibit IV-5.

Exhibit IV-5

User's Perception of BPR Decision Making

IS Department decision

40%

60%

High level board decision

No. of respondents: 13 (percentages rounded)   *Source: INPUT*
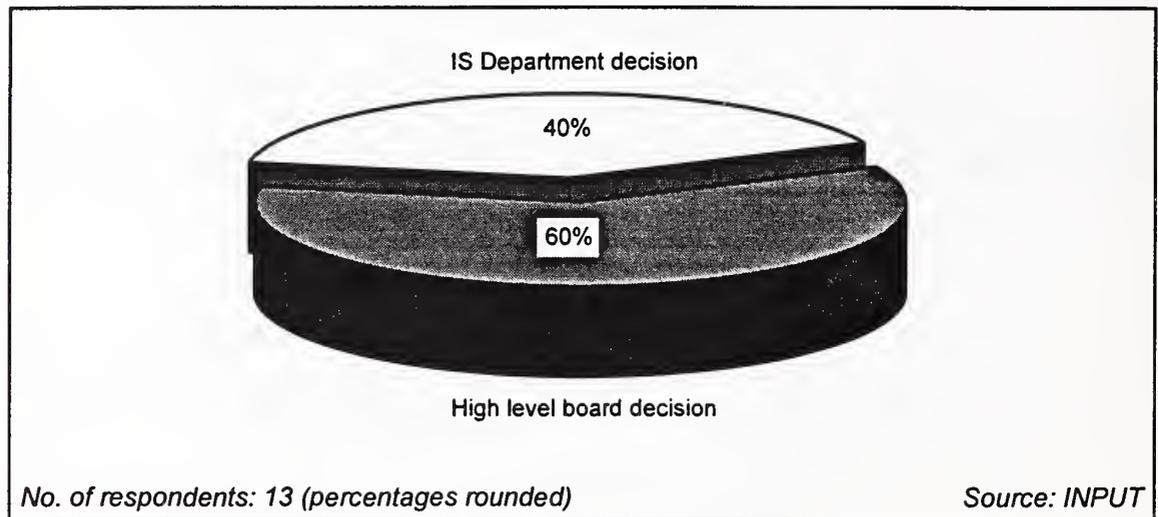
Typical comments from users, concerning the recognition that BPR work would be instigated at a higher level than that of systems integration projects, included:

- "The Board and general management are responsible for commissioning the BPR work, the SI vendors are chosen by the IT director"

- "The decisions on BPR are made at a higher level than even the most important strategic decisions on the SI front. However, care has been taken to involve a wide spectrum of people working on the total project in most of the significant decisions"

- "BPR decisions are made at the very highest level, consequently even the consultancy groups are sometimes less in control of the BPR activities".

About 40% of the sample took the opposite view and reported that the same group of executives made significant decisions concerning both BPR work and systems integration. Only one user commented that they dealt with the same supplier for both activities.

Only one user reported that IS management had actually been solely responsible for choosing the BPR vendor.

C

Differences in Skill Requirements

Vendors were questioned about the changing pattern of skills that they were having to adjust to as BPR work played a greater influence in their activities. Exhibit IV-6 summarises some of the principal observations that could be drawn from their responses.

Exhibit IV-6

Changes to Skills in a BPR Services Environment

Technology-Based Skills	People-Based Skills
Workflow systems	Consultancy skills
Process redesign/*reengineering* change management tools	Personal coaching of CEO
Industry specific skills	Team communication
Specific BPR tools and techniques	Interpersonal skills
Project management	Organisational consultancy
Benchmarking	Facilitation
Activity-based costing and accounting in general	Specific industry sector process knowledge
Prototyping and RAD	Creativity

Source: INPUT

One of the main areas that vendors reported on was the need for everyone in the organisation to know more about the *whole scope* of the activities being undertaken engendered by the increasing integration of BPR and SI. One vendor pointed out that this implied having a greater general awareness of the business world outside.

There is more need for staff to keep up to date in general terms on both systems integration and BPR-related issues. This means that any practice member should be able to discuss the broad issues across the whole spectrum; everyone now has to understand each other's work. For example one vendor reported that it had been necessary to get all the people trained in BPR techniques.

However, it was recognised that you still need consultants to be able to talk in depth about each of their specialities. Despite the apparent need to create more *generalists*, consultants still need depth of technical knowledge or industry skill to avoid the danger of being a *jack of all trades and master of none.*

The effective consultant recognises and involves the skills necessary from other parts of the business. The ideal staff member is the *T-shaped* consultant who combines breadth of view with depth of knowledge in their own speciality, expressed diagrammatically in Exhibit IV-7.

Exhibit IV-7

T-Model – Consultant Skills Profile

Know something of many

Master
One

Source: INPUT
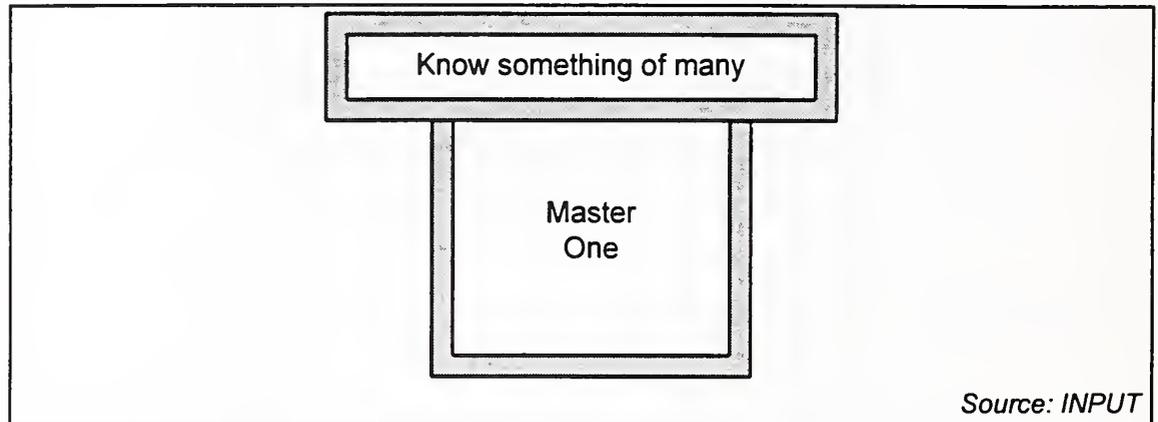
Another important development that is being generated by the BPR movement is that of driving the requirement for vendors to have staff with specific process skills.

Firms reported concentrating recruitment on high level people with excellent sector knowledge of specific processes in specific industries. Firms need to be constantly re-enforcing their existing skills by introducing new management skills. An example of a specific skill requirement comes from frequent client requirements to streamline processes by the use of EDI.

Another important development commented upon by a number of vendors was that of enhancement of the so-called *soft* skills. Vendors reported a conscious effort to add more skills on the human side, the behavioural side. This was viewed by some vendors as strengthening their consultancy skills.

The general requirement for a *softer* approach was being driven by the market observation that you could not just *tell* a client what to do.

These changes are leading to a significant training requirement to develop an environment in which people are open to new ideas and new techniques.

Another manifestation of the BPR movement was the need to develop multi-disciplinary work, one vendor reporting that this has had to be increased by an order of magnitude.

An associated concept is that of the development of teams. One vendor saw a specific need for more team effort. For example, the role of the database designer/builder used to be more of a back room job, now these people get very involved in the process and may be expected to act as facilitators in group sessions. The facilitators whose disciplines are closer to the BPR area have to become more technically aware.

Another manifestation of BPR is the increasing need for clients to understand the customer better. This is mirrored in consulting in a move from *cost reduction* towards a focus on *customer issues.*

Vendors are observing clients having to continue to make further systems design changes after the initial BPR project has been completed. Change consequently becomes a never-ending process.

In this environment, one vendor reported, more and more client organisations are developing the generic skills which previously they relied on consultancies to provide, for example, in the areas of facilitation, benchmarking, problem solving and training circles.

The result of this is that vendors may find that it is increasingly common for there to be a team of only two or three consultants in the client's organisation driving the project by leveraging the client's own people and resources.

In terms of recruitment the vendors with a consultancy heritage reported little need to change their recruitment approach. However, a significant change in additional recruitment requirements has been observed in the industry, for example by Unisys, EDS, and Cap Gemini Sogeti, amongst many others.

One of the areas of skills change, cited by one vendor, was that of the management model being applied in winning contracts in this area of the market.

Many consultants, according to this vendor had been used to operating in an environment typified by the use of *cost-based pricing*. This vendor observed that these vendors will need to appreciate that they will be moving into more areas where *value-based pricing* will be the norm.

In this respect the traditional consultancy firms may well suffer if they too rigidly stick to traditional "fees now" pricing mechanisms and are not flexible enough to agree to performance pricing, where a significant proportion of the payment will come after the completion of the contract when the agreed business benefits have been proved to accrue. This pricing model will of course have significant cash flow implications.

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V-1

Marketing BPR

This chapter discusses three areas related to the marketing of BPR-related services; the *reengineering* impact on the systems integration market, the range of BPR and related SI services being offered by vendors and the competitive environment.

A
BPR Influence on SI Project Market Development

1.   Market Growth Expectations

In many organisations, the growth of business process *reengineering* is having a profound impact on both the process, content and delivery of systems development projects.

Projects driven by *reengineering* initiatives are in principle aimed at major rather than incremental changes, fronted and championed by executive level personnel.

Exhibit V-1 shows the increasing importance of the relationship between BPR and SI.

Exhibit V-1

**Business Process *Reengineering* and the
SI Market, Europe 1995-2000**

Source: INPUT
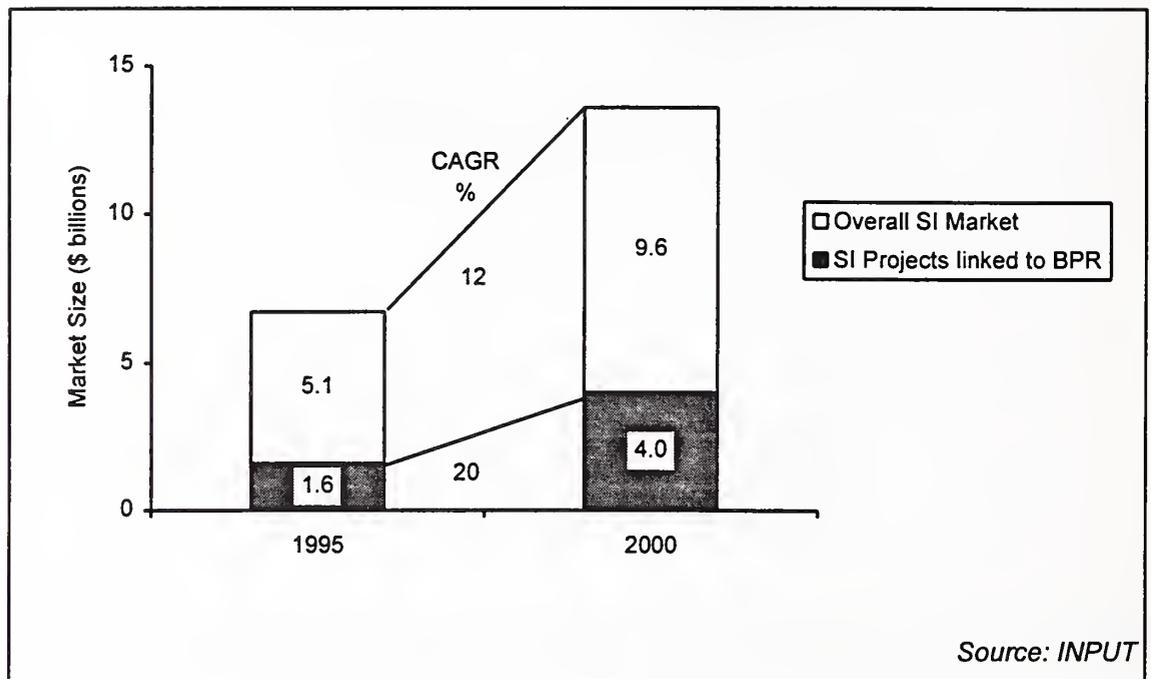
BPR has been recognised as important to systems integration services vendors as most, if not all, BPR requires significant change in IT, in architecture, in platforms, in applications and in solutions.

2.   BPR and SI Expenditures

Vendors were questioned concerning the relative expenditure pattern they experienced for BPR work and systems integration projects.

Vendors reported that at the moment the cost of the BPR phase can be quite small compared with the cost of the total project. This is because there are so many opportunities to streamline the administrative procedures and because the size of the client organisation often makes the other phases more complex and therefore more costly. One vendor pointed out that there were nearly always opportunities to employ the well-known mantra "before you automate, obliterate".

A significant factor in increasing demand for BPR services is the developing customer perception of BPR, this will be reinforced by increasing proof of success with BPR.

One vendor reported that their sales target is to double the revenues generated every year for the next three years, this vendor considered that there were so many drivers for the clients that a rapid increase would be inevitable.

Another vendor commented that the origin of the BPR work will change; they anticipated a gradual change to a focus on work at the departmental level rather than at the corporate level. This was attributed to the explanation that dramatic organisational change cannot continually take place in the large enterprise.

One vendor even suggested that the amount contracted on BPR work would have to increase because in the near future there will be no such thing as an IT project at all!

3.   User Expenditure Plans

Users were also requested to comment on their expenditure on BPR projects in comparison with their expenditure on systems integration contracting.

The majority (70%) of those users able to respond in some way to this question (only ten of the eighteen respondents) reported spending only quite small amounts on external BPR services in comparison to their expenditure on systems integration activities.

Typical user comments were:

- "The amount spent on BPR is currently a small proportion of that spent on SI, probably about 5%, but it is growing as we get involved in more BPR projects"

- "The costs on BPR are minimal. The system costs are significantly greater and the change costs are also much larger. This is likely to remain the case"

- "A small amount is spent on BPR compared to the overall savings which can be between $25 and $45 million. The BPR fees for a major project are usually in the order of $1.5 to $2.5 million. Adding the cost of redundancies, property closures and other items will take this total to about $15 million"

- "The expenditure on BPR is significantly lower than that on SI. Some parts of SI are very expensive. The consultancy to date on BPR has cost less than $150k in total. This may be in the region of 20-30% of the total cost. The BPR expenditure as a proportion is reducing a little as in-house skills increase".

Two vendors reported that their expenditure on BPR, whilst being smaller than that on SI, were a significant proportion of the overall budget:

- "The SI costs are more than double those for BPR"

- "About 70/30 in favour of SI. BPR is increasing as a proportion".

B
Range of BPR and SI Services

1.   Services Provided

Vendors were asked to describe the BPR, systems integration and professional services they provided.

Exhibit V-2 shows the distribution of the breadth of services supplied by the vendors in the sample.

Exhibit V-2

Services Provided by Vendors

No. of vendor respondents: 18   Source: INPUT
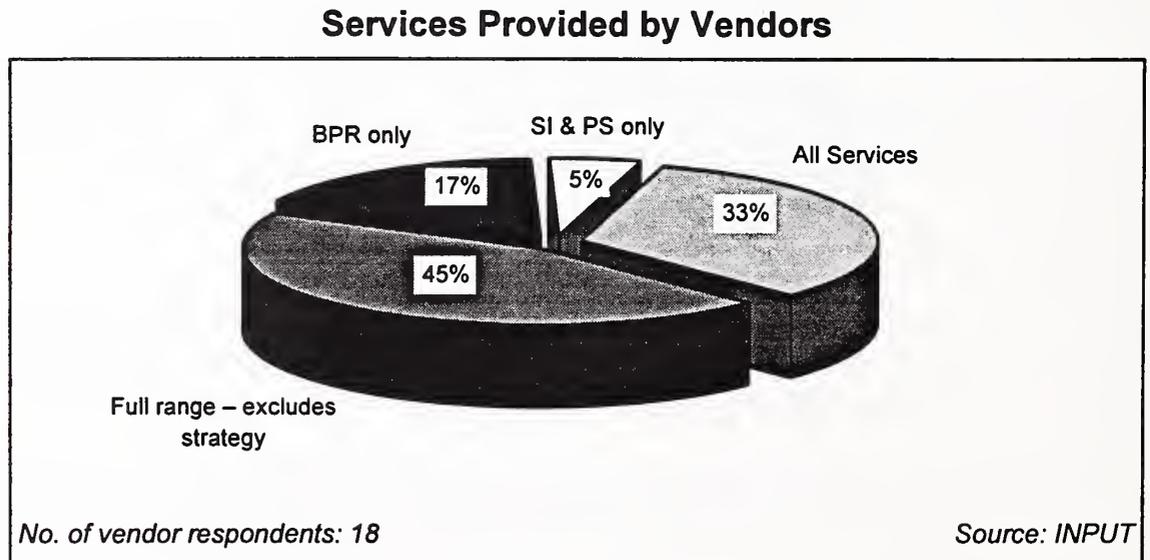
One third of the sample of vendors claimed to provide a complete spectrum of services including strategy studies right through to the implementation of major systems integration contracts and the supply of related professional services.

Some of the vendors included in this group did however qualify these claims with the rider that they used partners for specialist needs.

Typical responses from this group of vendors included:

- "The organisation aims to be self-sufficient technically but does collaborate in joint-ventures in certain specific industries"

- "The firm operates in all parts of the pyramid from strategy to solutions. It deals with the measures required for both systems and people. It has more presence in some areas than others, for example, it does operate in the strategy area but not as frequently as firms like McKinsey"

- "Clients want to know that there is a practical route from any one level to the achievement of implementation at any level further down".

The largest group of vendors, representing nearly half of the sample, claimed to offer a full range of services but specifically excluded the provision of strategy service within their portfolios.

Typical comments from this group of vendors included:

- "We are in all areas of services except top level strategic consultancy, there is however a distinct competitive advantage in offering the fullest range of services, clients want to know that the firm which they engage can both consult and ensure successful implementation"

- "We have a strategic alliance with a *boutique* consultancy for corporate strategy work"

- "Being a provider of solutions can be a competitive *disadvantage* in some circumstances, some clients prefer consultants *not* to have implementation services. The firm takes a pragmatic approach to the use of other companies skills"

- "The business strategy for the BPR operation is that it should be positioned to provide high level added value to other services provided and to other vendor's products in the marketplace. This is a factor designed to increase differentiation from other suppliers".

Nearly all of this group of vendors placed particular emphasis on partnering to support the delivery of the complete solution they were prepared to commit to the client.

The third largest group of vendors in the analysis shown in Exhibit V-2 were those vendors who did not offer systems integration services at all. Some insight into their individual perspectives on the opportunities available in this area can be gained from the following comments:

- "The BPR offering spans strategy through to human resources management. The in-house gaps we would like to fill include some aspects of expertise in *specific* processes in *specific* industry sectors"

- "Strategy is the mainstay of our business, about 20% of our work is in process redesign, BPR is no more than a re-labelling of process design which has been going on for years"

- "We are sometimes the prime contractor for a complete change programme, sometimes we pass the implementation work over to the client or subcontract to major service firms".

One vendor in the sample did not offer BPR services directly but was actively involved in providing systems integration and professional service to firms who had undertaken such work.

This firm placed great store on its ability to partner with appropriate organisations that would be able to supply the pieces of the client's overall requirements that it could not meet from its own resources.

The organisation was seeking to enhance its business consultancy skills, particularly where these were combined with a working knowledge of general IT, BPR techniques and workflow.

2.   Extent of Partnering

The importance of collaboration with other vendors has already been emphasised in the previous sub-section. Every single vendor interviewed referred to the need for partners in at least some capacity in order to meet their full commitment to clients.

Exhibit V-3 presents a diagrammatic representation of the partnering needs of the vendors in the sample.

Exhibit V-3

Partnering Requirements of Vendors

V-7

Strategy Consultants 30%	Specific Industry Skills 30%

PARTNERING REQUIREMENT

Application Product Vendors 10%	System Developers 35%	Specific Technology Skills 25%

% of sample of 18 vendors – multiple responses allowed   *Source: INPUT*
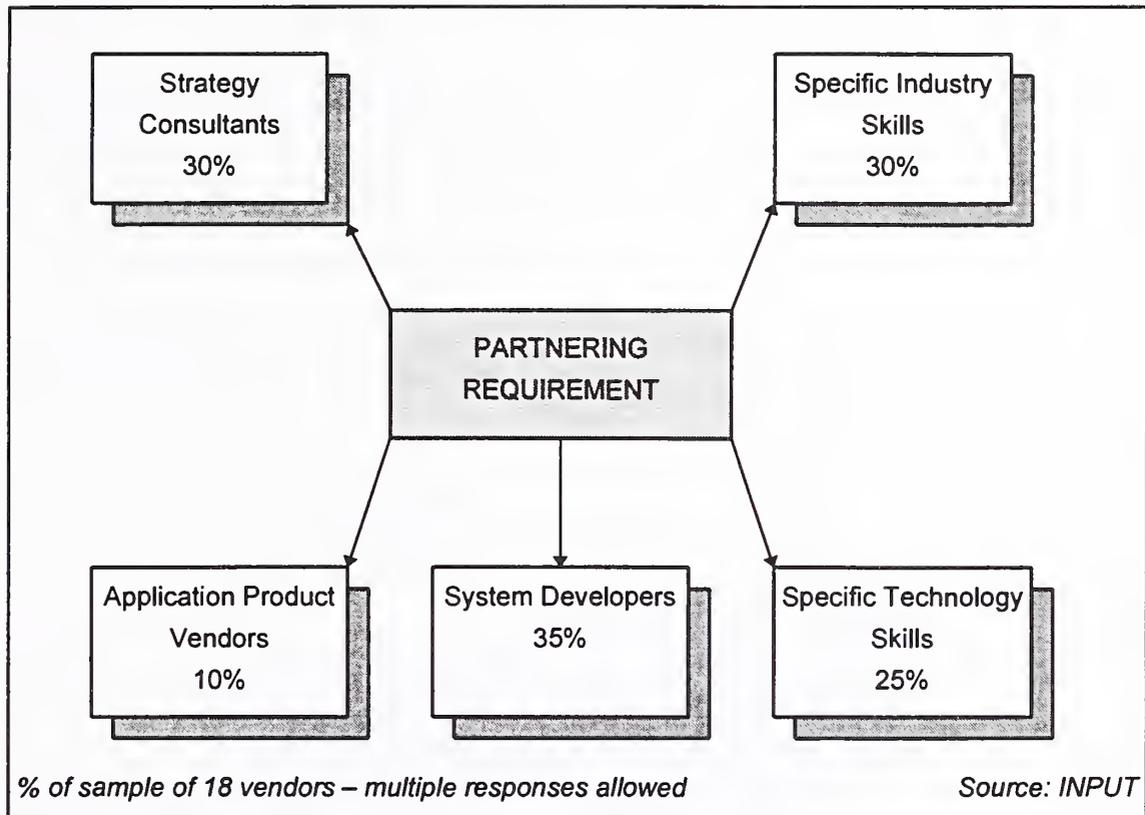
In this particular research sample the greatest need expressed was for system development partners, strategy consultants and specific industry skills. The smallest group was for partnering with application product vendors.

Overall, the relatively even spread of these percentages, as shown in Exhibit V-3, supports the widespread need for partnering amongst vendors seeking to serve ever more complex client requirements.

3.   Competitive Advantage

Vendor respondents were also asked to define the extent to which they thought they gained a competitive advantage from offering a full range of services.

Given the emphasis put on partnering by vendors it is not surprising that little support for full range services existed amongst the sample.

In fact only two vendors saw this aspect as their competitive advantage, their observations were:

- "There is a distinct competitive advantage in offering the fullest range of services. Clients want to *know* that the firm which they engage can both consult and ensure successful implementation"

- "Our competitive advantage comes from the seamless delivery of services. We like the customer to see us as a single face able to deliver a complete range of services".

4. How Clients have used BPR

Also relevant to an understanding of the range of BPR and SI services available from vendors is the nature of their application as reported by users.

Exhibit V-4 shows the distribution of the principal areas of application of BPR as reported by the user sample.

Exhibit V-4

Principal Applications of BPR

Number of respondents

No. of user respondents: 18 (multiple responses allowed)   *Source: INPUT*
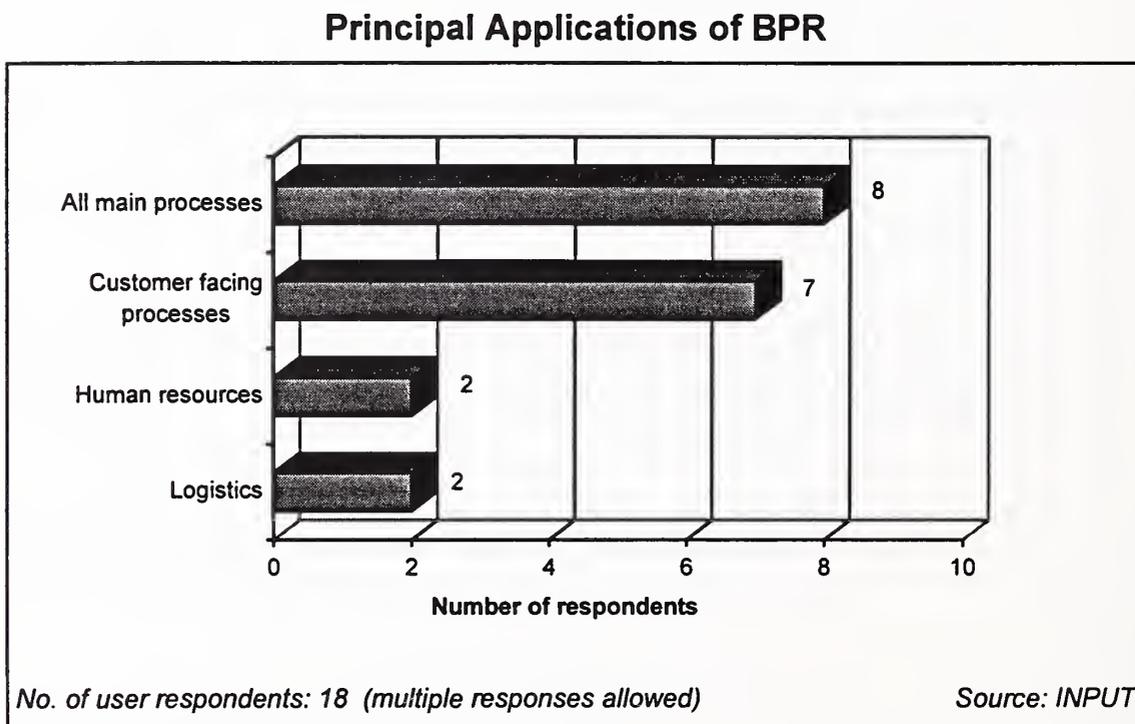
One user described their *reengineering* effort as "the identification of an organisation's major three processes".

Another user reported that the application of BPR techniques was totally changing the organisation.

However, other user comments indicated the limited nature of the application of BPR and the difficulties of implementing even moderate change in some environments.

For example, one vendor reported on the *one* pilot BPR project claimed to have taken place, "it contains considerable problems at the moment in terms of response time and cost and the people running the system".

5.   Effect on Systems Integration

Users were also asked to comment on the effect that BPR work was having on systems integration contracting. Their responses are classified in the analysis shown in Exhibit V-5.

Exhibit V-5

Effect of BPR on Systems Integration

Major Impact

50%

30% Some Impact

20%

No Impact

No. of user respondents: 18 (percentages rounded)   *Source: INPUT*
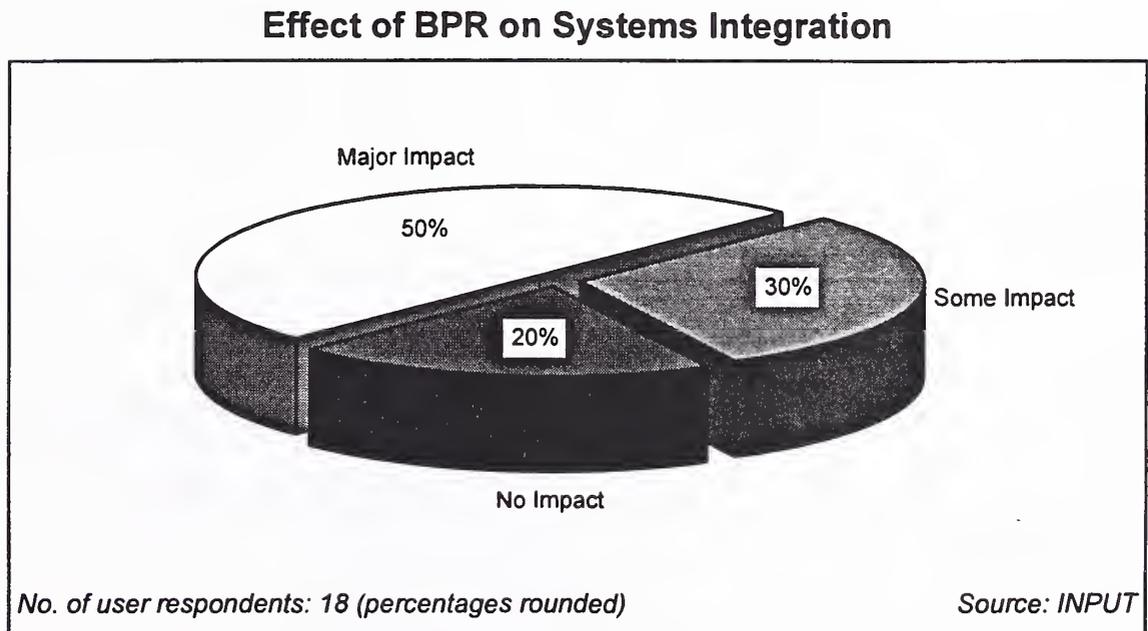
As can be seen from Exhibit V-5, BPR was considered as having a major impact on subsequent development projects by a significant proportion of the users.

Some spoke in particular about the impact it was having on their legacy systems, others made particular reference to the fact that no new major development work would take place now outside the BPR framework.

One user described their firm's current policy as follows:

• "Work is only allowed outside the BPR framework for three reasons, 2-3 year quick payback, legislation and for solving immediate critical issues. In 1995 the quick payback reason is now being withdrawn. The only changes allowed will be quick fixes at low cost".

C

The Competitive Environment

1.   The Vendor View of Competition

a.   *BPR Competitors*

Vendors interviewed were requested to say who they perceived to be major competitors in the field of BPR.

Exhibit V-6 shows the frequency of mentions of BPR vendors in total for all rankings given, vendors were requested to give up to five firms.

The analysis of mentions by the rankings given is provided in Exhibit V-7.

Exhibit V-6

Frequency of Vendor Mention of BPR Competitors in Europe

Multiple mentions   *Source: INPUT*
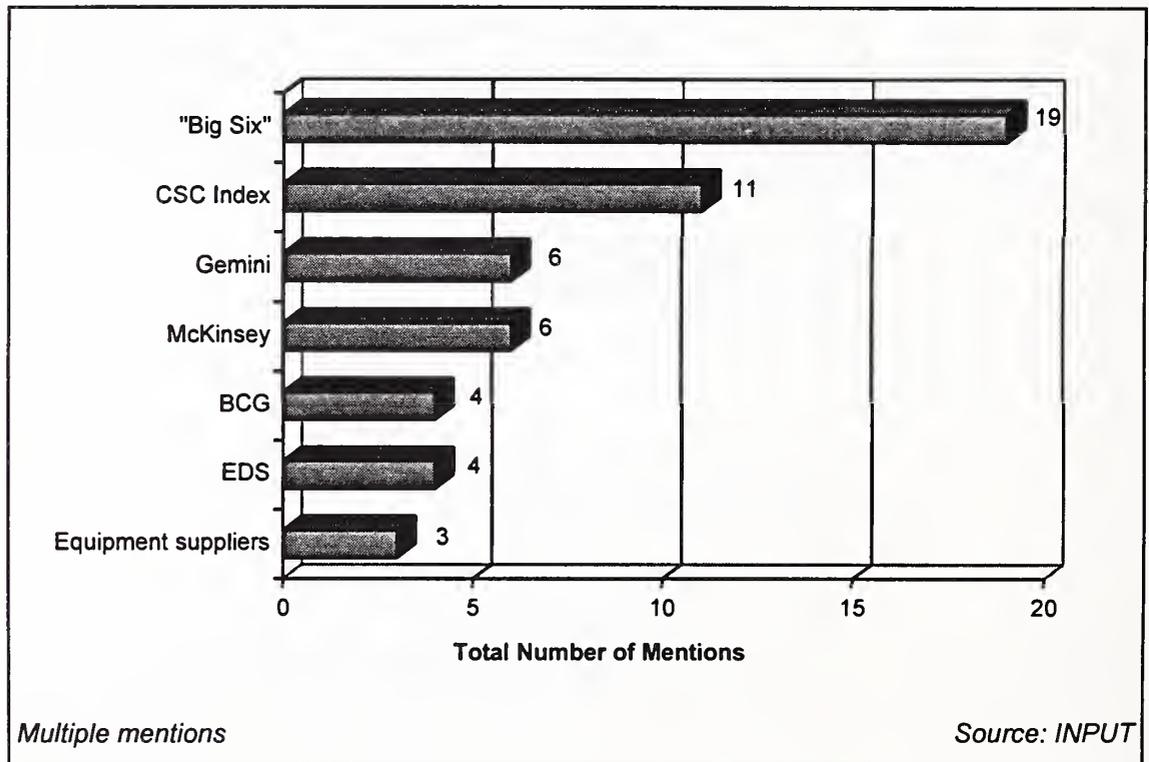
Exhibit V-7

Vendor Perception of Top BPR Vendors in Europe

BPR Vendors	Ranking				
	1	2	3	4	5
"Big Six"	5	5	5	4	-
CSC Index	4	4	1	2	-
McKinsey	4	-	2	-	-
Gemini	3	1	1	-	1
BCG	1	2	-	1	-
PA	-	2	-	-	-
CGS	-	1	-	-	-
EDS	-	1	1	1	1
Equipment Suppliers	-	-	2	1	-
Booze Allen	-	1	-	-	-
Bain	-	-	1	-	-
Hay	-	-	1	-	-
Niche firms	1	1	-	-	2
AT Kearney	-	-	-	-	1

1 = First names competitor   *Source: INPUT*

The group designated as 'Big Six' included both individual mentions of firms as well as just use of the group term. Exhibits 8 and 9 provide an analysis of this particular category.

Exhibit V-8

Frequency of Vendor Mention of Big Six Firms as BPR Competitors in Europe

Bar chart – Total Number of Mentions:
- "Big Six" * : 6
- Andersen Consulting: 6
- Coopers & Lybrand: 3
- Price Waterhouse: 2
- Ernst & Young: 1
- KPMG: 1

Total Number of Mentions

* Unspecified   *Source: INPUT*
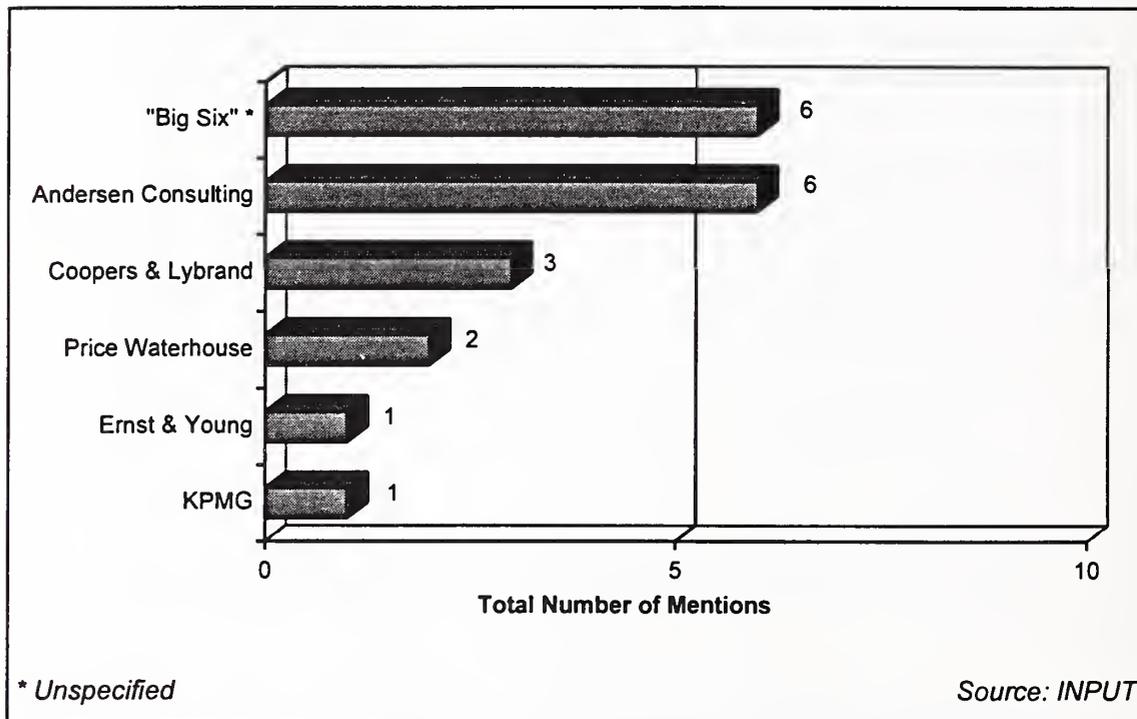
Exhibit V-9

Vendor Perception of Big Six Firms as BPR Competitors in Europe

BPR Vendors	Ranking				
	1	**2**	**3**	**4**	**Total**
Unspecified "Big Six"	4	1	1	-	6
Andersen Consulting	1	1	2	2	6
Coopers & Lybrand	-	2	-	1	3
Price Waterhouse	-	1	1	-	2
Ernst & Young	-	-	1	-	1
KPMG	-	-	-	1	1

1 = First named competitor etc.   *Source: INPUT*

Andersen Consulting stood out as the most frequently mentioned competitor from this group.

Major non-'Big Six' consultancy firms mentioned were PA, Booze Allen, Bain, Hay and A.T. Kearney.

Hay Consulting appeared to have used its human resources consulting base and the soft skills employed in this area to make an entry into the BPR consulting field.

Amongst the so-called niche firms, OASiS was the most frequently mentioned; Oasis are profiled in Appendix B. The only other niche firms that were mentioned were Devlin & Partners, World Class International and Kingsley Lord, in the area of change management.

One vendor commented "of the newer organisations World Class International seems to have some interesting methodologies".

As can be seen from Exhibit V-6 most vendors felt that the first level of competition came from the strategic consultants like McKinsey, BCG and Bain. This was supported by the vendor who expressed the view that "Gemini and CSC Index are the two big ones who are trying to do *only* BPR projects".

Some vendors expressed the view that McKinsey appeared to be attempting to extend its range downwards from strategy.

Vendors recognised that some clients will prefer the *one- stop-shop* approach which will favour the big vendors able to orchestrate comprehensive service offerings from both their in-house resources and from their partners.

A number of vendors referred to the use of specialist companies as partners that can provide the niche skills and country coverage.

Some other vendors pointed out that in the financial services sector there were a large number of *boutique* consultancies operating. These are often quite small organisations, typically 60 to 70 people strong.

Another vendor referred to the presence of some small four and five person teams operating in the BPR field, for example several have made claims to be insurance gurus bringing specialist insight to that particular industry.

One vendor pointed out that clients will often demand some form of consortium because they will require such a wide range of skills to fulfil their needs.

In contrast it was also recognised that some clients will prefer to use a collection of specialist organisations, orchestrated by themselves, at the various levels from strategy through to implementation.

b. SI Competitors

The vendors view of competitors in the SI area is shown in the analyses shown as Exhibits V-10 and 11.

Exhibit V-10

Frequency of Vendor Mention of SI Competitors in Europe
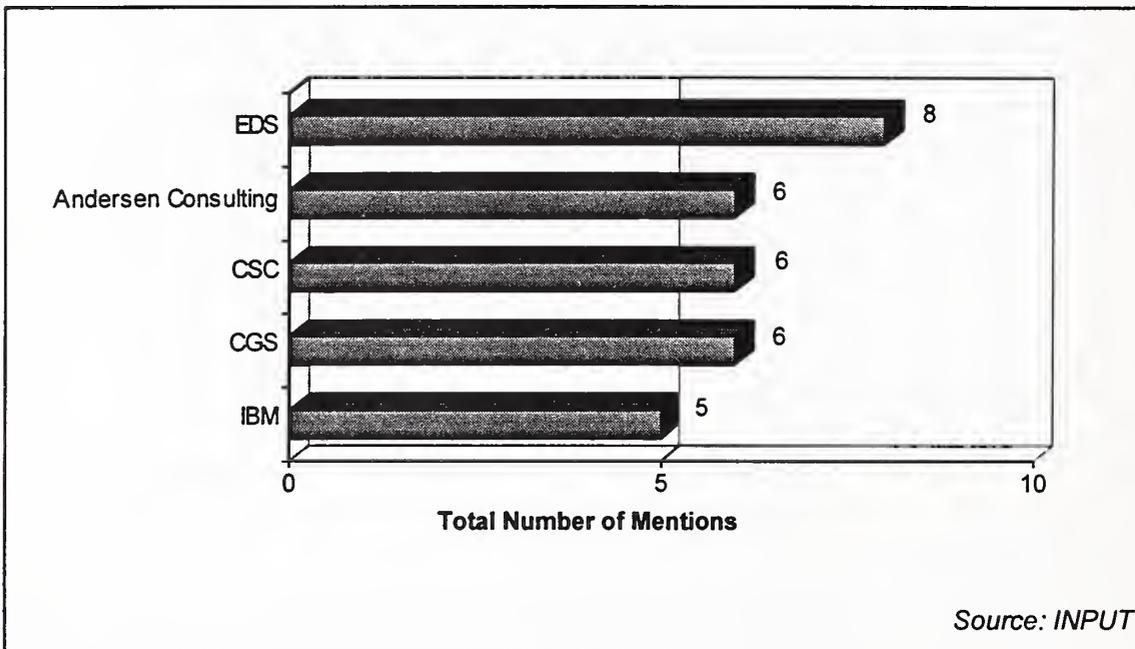
Source: INPUT

Exhibit V-11

Vendor Perception of Top SI Vendors in Europe

SI Vendors	Ranking				
	1	2	3	4	5
Andersen Consulting	3	3	-	-	-
EDS	2	2	4	-	-
CSC	2	-	-	3	1
CGS	1	2	1	1	1
IBM	1	2	2	-	-

1 = First name competitor　　　　　　　　　　　　　　　　　　*Source: INPUT*

One particularly interesting observation made was that IBM was increasingly being seen as a strong competitor, particularly when it teamed up with CSC.

Several vendors saw a substantial competitive threat coming from the *in-house* IS department for SI work. One commented "in the future the significant competition will be the customer's own skills".

Unlike the BPR competitor scene described above, the "Big Six", other than Andersen Consulting who were very strongly represented, got very few mentions in this area of the market.

2. The Client View of Vendors

Users were asked who they thought were the top suppliers in the fields of BPR services and systems integration contracting.

a. *BPR Competitors*

In the case of BPR the analysis of the user sample assessment is shown in Exhibits V-12 and 13.

Exhibit V-12

Frequency of User Mention of BPR Competitors in Europe

* Excludes Andersen Consulting   (Multiple mentions)   Source: INPUT
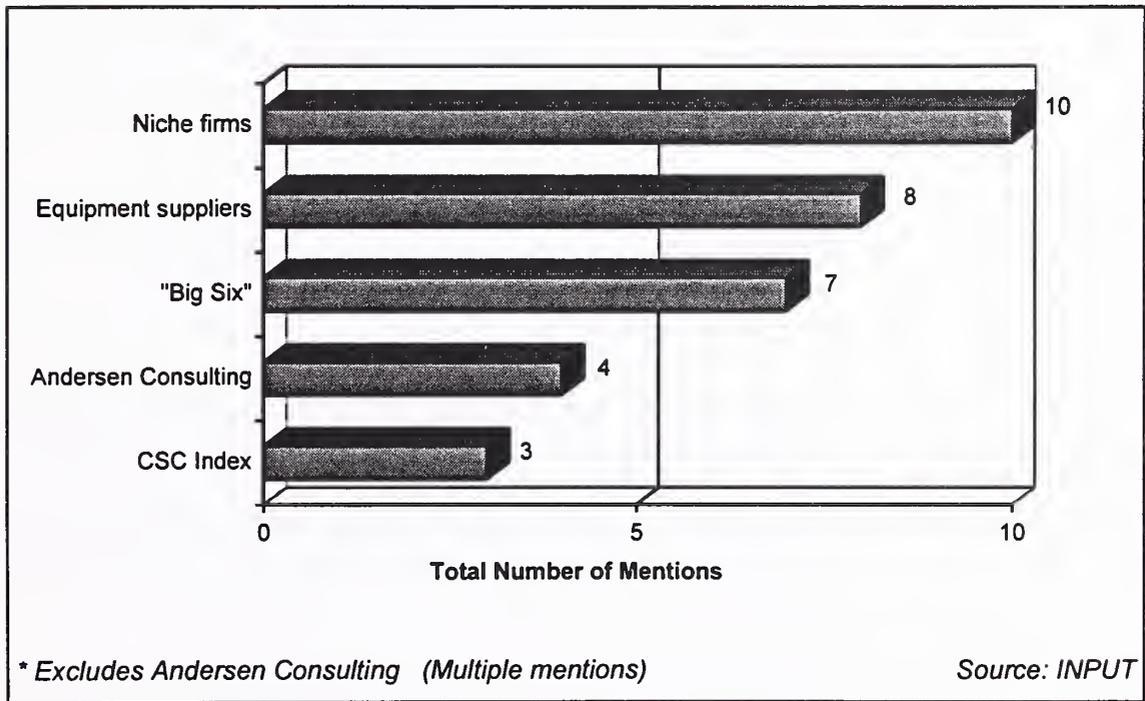
Exhibit V-13

User Perception of Top BPR Vendors in Europe

BPR Vendors	Ranking				
	1	**2**	**3**	**4**	**5**
Andersen Consulting	3	-	-	-	1
Other "Big Six"	3	2	2	-	-
Niche firms	7	3	-	-	-
CSC Index	-	1	2	-	-
Gemini	-	1	1	-	-
CGS	-	1	-	-	-
Equipment suppliers	1	3	2	2	-

1 = First name competitor   *Source: INPUT*

The user picture of the competition presented here is more fragmented than that of the vendors seen in the previous sub-section. Clearly there is considerable use of niche firms in this area of the market. Surprisingly perhaps, users, when strongly influenced by their IT requirements, still place a lot of confidence in using their equipment suppliers for the supply of these specialist consultancy services.

This reliance on the equipment vendor was demonstrated by the user who talked of them as their strategic suppliers.

Some user comments included:

- "None of the large consultancies have been considered to support this project. They are considered too prescriptive in their approach"

- "The large consultancies are seen to be the most credible for BPR. Use is also made of small firms who tend to specialise in a particular discipline"

- "Some small organisations are employed as well as big firms, this is to meet special needs e.g. logistics consultancy, there are some very small one or two man outfits".

One user pointed out that increasingly it will be the business user who will advise IS departments on who they will work with.

It was noted that the Big Six firms were particularly strong in the areas of engineering (in the manufacturing systems sense) and accounting systems.

b. SI Competitors

The analysis of user comments concerning leading SI vendors is shown in Exhibits V-14 and 15.

Exhibit V-14

Frequency of User Mention of SI Competitors in Europe

* Excluding Andersen Consulting   *Source: INPUT*
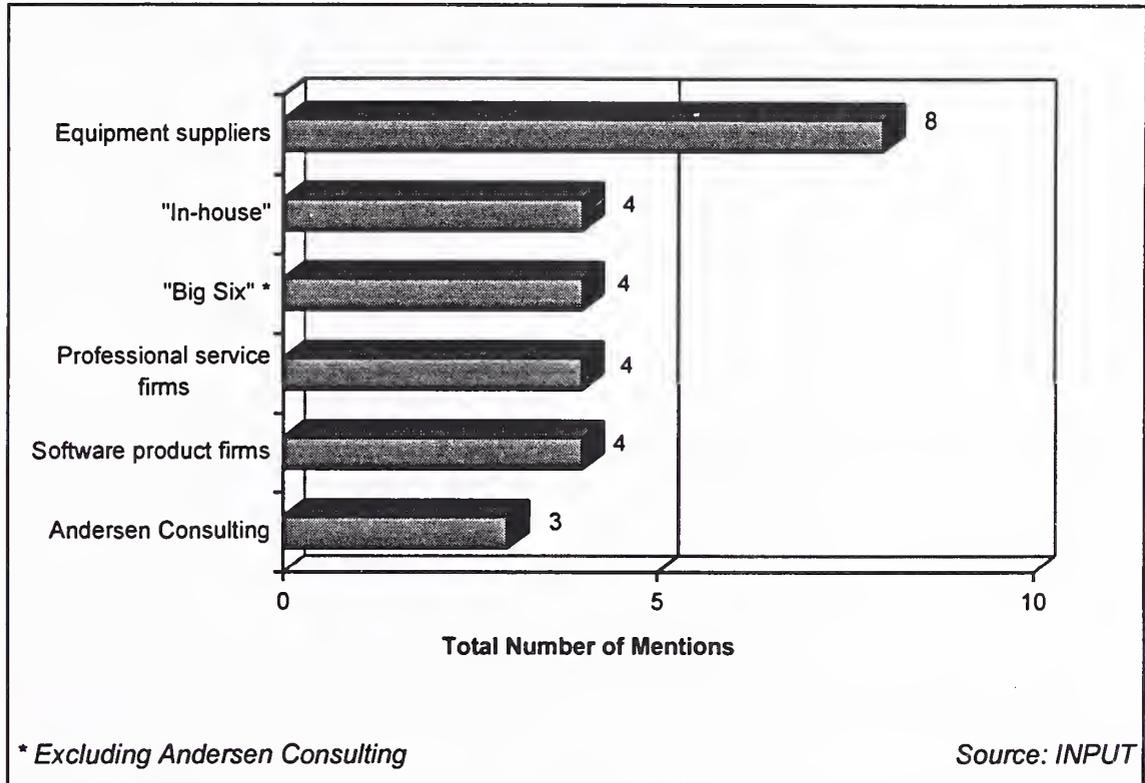
Exhibit V-15

User Perception of Top SI Competitors in Europe

SI Vendors	Ranking				
	1	2	3	4	5
"In-house"	4	-	-	-	-
Equipment suppliers	2	2	1	2	1
"Big Six"	2	1	1	-	-
Professionals service firms	2	-	-	1	1
Andersen Consulting	2	1	-	-	-
Software product firms	-	-	2	2	-

1 = First named competitor   *Source: INPUT*

Individually named vendors were few in this sample, only Andersen Consulting getting a significant number of mentions. The strong position of the equipment vendors is once again emphasised as is the position of the 'Big Six' firms.

This particular sample also showed a strong preference for using in-house resources to support systems integration projects, a number of vendors made mention of this particular competitive threat to future business.

This user analysis showed also the interest in the software product firms of systems integrators as increasingly packaged software begins to play a stronger and stronger role in projects. For example, one user said, "In terms of SI vendors the need is for an expert in package integration, it is most likely that a major hardware firm or a major software firm will be used".

Some mention was made of the part that niche expertise firms might play in the systems integration field, users expressed interest in expertise in particular packaged products or in particular generic techniques, for example mention was made of Workflow systems.

3.   Attitudes to Vendor Selection

Users were specifically questioned on three aspects of vendor selection:

• Using the same vendor for both BPR and SI

• The expectation that work in either one of BPR or SI would lead to projects in the other area

• The particular characteristics that users were looking for in a BPR vendor.

These three aspects are analysed below.

a. *Using the Same Vendor for BPR and SI*

Less than half of the user sample were using the same vendor for both BPR and SI activity as is shown in Exhibit V-16. One quarter of the sample used only one vendor because one or other aspect of the overall work was conducted in-house.

Exhibit V-16

Use of External Services for BPR and SI

Only one aspect
used outside help

25%

Used different
vendors   35%   40%   Used the same
vendor

No. of user respondents: 18 (percentages rounded)   *Source: INPUT*
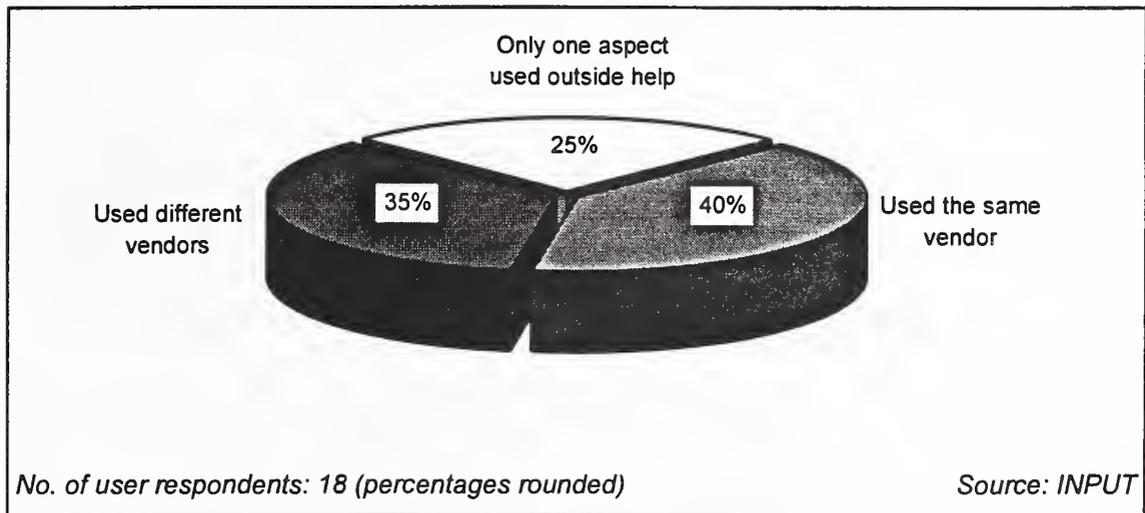
Comments made by users who had one vendor involved in both aspects of the work included:

• "Andersen Consulting has been used for everything including SAP installation"

• "Used one vendor, it had all the skills and knowledge needed for this particular area".

Comments made by users who had a more limited involvement of external services organisations included:

• "Used different vendors. The firm prefers implemented solutions not a report, the traditional consultants don't really provide anything other than a set of tools or techniques"

• "Use different vendors for different aspects"

• "Vendors are chosen independently to provide particular services at various levels"

• "The organisation does not like using consultants, not very impressed by them, however it will use outside vendors to provide specific technical services".

b. *Expectation of BPR and SI Contract Development*

Users were asked if they expected work conducted in one area, either BPR or SI, to lead to contracts in the other. The answers to this question are analysed in Exhibit V-17.

Exhibit V-17

User Expectation of Project Development

No. of user respondents: 18 (percentages rounded)   *Source: INPUT*
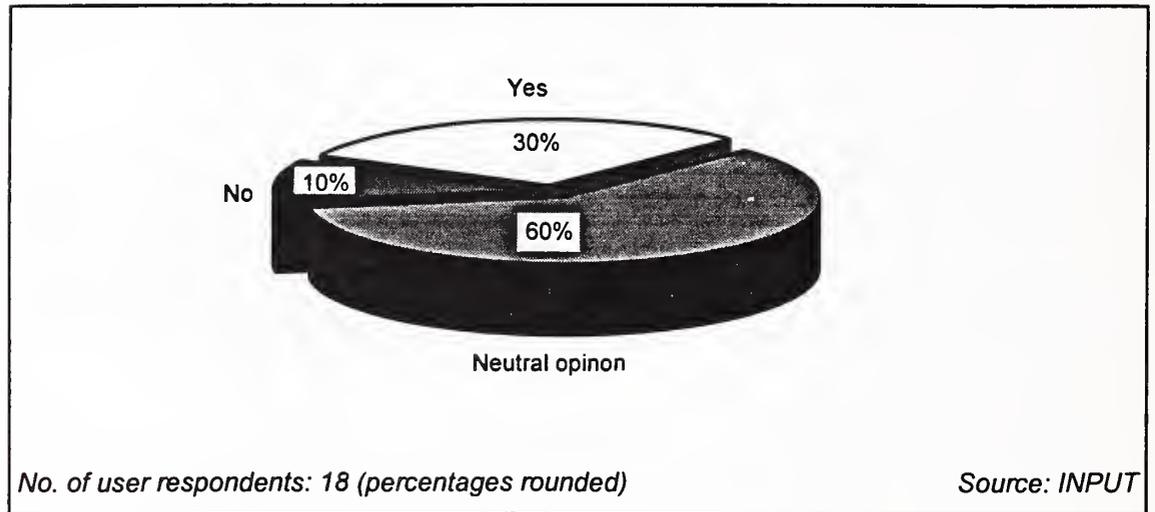
A minority of users appeared to want to keep these two aspects separate. One user had different suppliers working in different areas and saw no benefit in them being in contact with each other.

The strongest negative opinion stated was that there was no reason for the BPR and SI suppliers to have to work together. Their activities were seen as being at different ends of the spectrum.

For the majority of the sample this issue just had not been raised. There is therefore some opportunity to be exploited by vendors who can provide the most attractive arguments to convince users to start to think about using external services.

However, a substantial minority of the sample (about one-third) were positive about the benefits of using one vendor for all aspects of the work, as the following user comments demonstrate:

• "We encouraged vendors to bid for the whole spectrum of work in consortia"

• "It was anticipated that work in one area might lead to another. The organisational task can be eased by having the same people work on different aspects of the same project"

• "It was envisaged, UNISYS has a project manager on board who is attached to the team"

• "Having the same people involved in the whole process helps to avoid problems in this area".

c. *Desired Characteristics of BPR Vendors*

Users were questioned about the characteristics they look for in selecting a BPR vendor. The responses are analysed in Exhibit V-18.

Exhibit V-18

Desired Characteristics of BPR Vendors

Horizontal bar chart, "Number of Mentions" on x-axis (0 to 10):
- Skills transfer: 8
- Introduction of new ideas: 6
- Practical experience: 6
- Facilitator: 4
- Non-prescriptive: 2
- Tools & Methodologies: 2

Source: INPUT
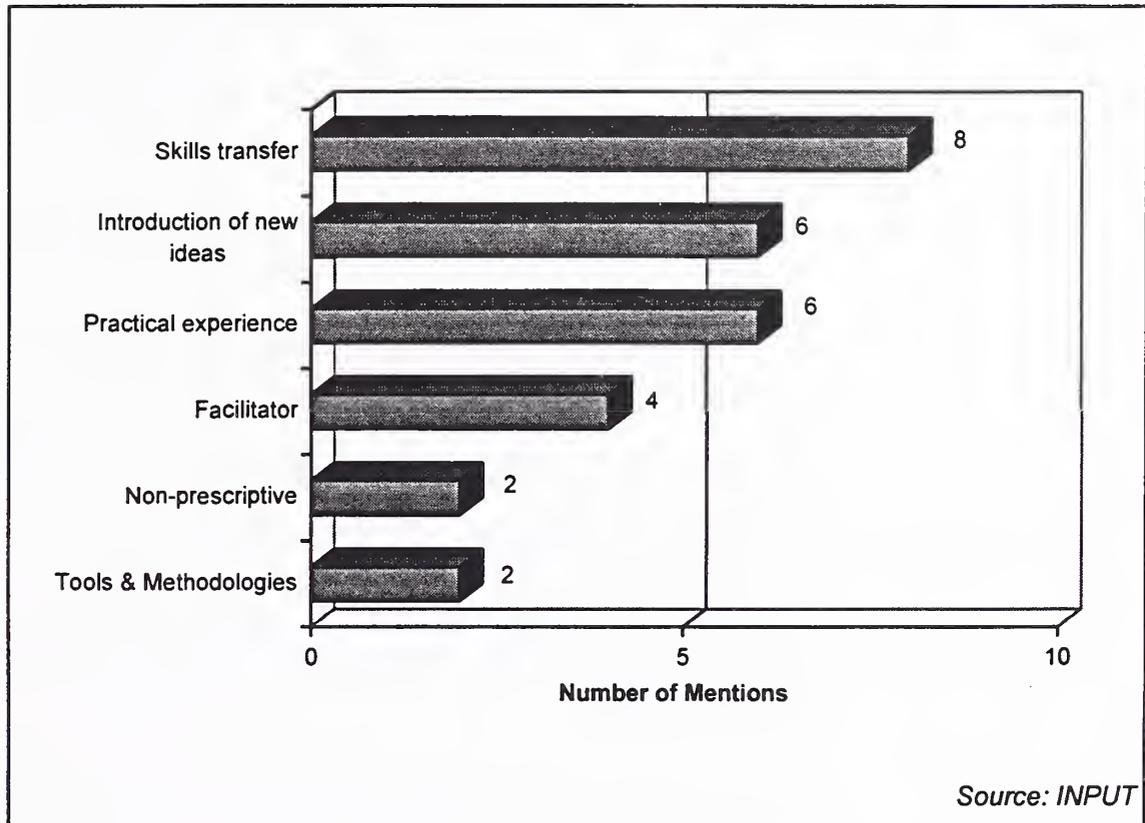
The most frequently mentioned characteristics was the ability to be able to transfer skills and knowledge about best external practice to the client. User comments included:

- "The most sought after characteristic is that the vendor should be an organisation to learn from. Skills transfer is high on the requirements list"

- "Skills transfer is a key contribution that all vendors supporting BPR will be required to make".

The introduction of new ideas into the organisation and the demonstration of practical experience were the next most frequently mentioned characteristics. These complementary factors were summed up by one user in the following way:

- "We need a vendor that can take a visionary approach but can also demonstrate that they have actually accomplished things in practice".

The introduction and generation of new ideas was clearly an important feature, typical user remarks included:

- "A vendor with the ability to enable the client to think about things in a different way"

- "A vendor who can bring along the vision to challenge the way we do business at the moment"

- "A good BPR vendor should bring best practice and experiences from other environments"

- "We are looking for fresh views and wide ranging outside experience, the best external practices".

The complementary requirement for practical experience was expressed by users as follows:

- "The vendor must demonstrate to us that they have the ability to understand BPR, have practical experience of it and can communicate the messages effectively. They must have people with a track record that can deliver"

- "We look for CVs which give examples of experience working at high levels in prestigious international areas"

- "We need to see proof of practical application and success that can demonstrate a quantitative pay back in terms of the approach".

A number of users placed some emphasis on the capabilities of the vendor to act as an internal facilitator. The following comments throw some light on their requirements:

- "The vendor showed they could help us get to where they wanted to go. They came across as more thoughtful, listening and responsive"

- "The vendor should not try to take over, but needs to be *hard nosed* when required; they have to have the ability to facilitate rather than to dominate"

- "They need to have the ability to change the way in which projects are addressed, to be able to encourage more active involvement amongst the players"

- "We wanted a facilitator, we wanted assistance in getting the vision sorted out, it was these rather than project management or application strengths that we were looking for".

Interestingly there were two opposing minority views expressed in the sample, a set of users who did not want to have prescriptive approaches, tools and methodologies sold to them and a similar sized minority who judged vendors on their capability to demonstrate exactly such methods and products.

Comments from the first group included:

- "We do not want vendors that subject us to the prescriptive methods employed by some consultancies"

- "We wish to avoid the prescriptive approach and the imposition of a pre-formatted methodology".

Comments from the second opposing group included:

- "We seek suppliers of good technical tools and good methodologies which can be used by internal staff"

- "We select vendors based on the appropriate tools, particularly in the workflow area".

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A
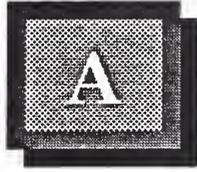
Appendix: Case Studies

This appendix contains eight case studies of user experience with *reengineering* initiatives:

- BOC Gases

- A European Insurance Firm

- Glaxo Manufacturing Services

- National & Provincial Building Society

- Northern Electric

- Pilkington Optronics

- An Electricity Power Unity

- Western Provident Association.

A

BOC Gases

BOC Gases is a member of The BOC Group, the worldwide gases, healthcare, vacuum technology and distribution services company, which operates in some 60 countries and in 1994, had sales of about $5 billion.

Overview of Major BPR Project

The broad objectives of *reengineering* at BOC Gases were twofold: to improve the level of customer service and, by increasing productivity, to reduce costs. The first major organisational action was the creation of a single national Customer Service Centre to replace multiple branch operations for order processing and a separate central function which serviced accounts queries.

Andersen Consulting had provided BPR consultancy and assisted in the installation of SAP application software. Detailed systems implementation has been carried out by BOC's own IT staff. Technical platforms employed included a Mercury ACD and Windows PC network with 3270 VDU emulation to an IBM MVS host.

Average telephone response time is reduced to 25% of its previous level and the typical customer dialogue time to handle routine orders and queries is under 3 minutes. Many queries took several days to turn around under the old system.

New Processes to Improve Customer Satisfaction

Prior to the BPR work, BOC's continuous survey of customer service levels had shown that steady improvements overall had been achieved. However, there were a couple of areas where the company could not see an opportunity for much more gain, given the constraints of the existing processes. Process improvements were designed to lift these barriers to progress. A customer satisfaction level of over 90% was the goal. The metrics involved a 15% per annum decline in customer dissatisfaction en route.

BOC has used *Business Process Reengineering* in two main areas. The Commercial function's main project involves the setting up of the single national Customer Service Centre. The Production & Distribution project addressed the procedures for managing production and logistics and took measures to enhance communication with the Customer Service Centre.

A third project of a slightly more esoteric nature, called "Everybody Markets" is aimed at changing attitudes and behaviour throughout the company to get people at all levels and in all functions to concentrate more on the customer.

Customer Service Centre Project

Under the old situation, a number of branches around the country took orders, scheduled vehicles, distributed product and confirmed documentation for accounting to a central accounting group. This central group took care of invoicing, sales ledger and queries. Customers had to deal frequently with each of two different functions.

To support a *reengineered* process, BOC set up a single Customer Service Centre. There is now a single national telephone number for all customer contacts. The Customer Service Centre handles, in addition to all the work above, technical queries, sales enquiries and complaints. The objective is to service 90% of calls at the first point of contact.

Andersen Consulting was engaged to provide BPR consultancy in the areas of detailed process design, change management and programme management.

The two main technical vehicles employed to support the Customer Service Agents are a Mercury Automatic Call Distribution (ACD) system to connect customers to them in a rapid and controlled way and a Windows-based PC network connected to the IBM MVS host, providing 3270 VDU emulation for database look up and transaction processing. A system based on Lotus Notes is used for call write-up.

The ACD system reduces average telephone response time to 6 seconds – 25% of its previous level. The enhanced IT systems support allows for average times of under 3 minutes for routine telephone transactions and most account queries can be answered almost instantaneously. Previously, the customer had to deal with two centres: one for order entry and despatch details, the other for invoicing and sales ledger queries. The average query backlog was up to 2 days.

International Standardisation of Application Design

SAP application software handles the main transactions. BOC is planning to use SAP application software on a global scale. Projects are in place in the UK, Australia, the USA and South Africa. The major undertakings are in the UK and Australia. The systems include Finance, Engineering, Commercial and Materials Management. The broad methodology is to flowchart the local process, compare the processes in the different locations, discover where they differ and how they diverge

from the standard SAP design. The next stage is to uncover the reasons for the difference. These might be quite valid, in that they could represent a necessary deviation to accommodate local requirements. Otherwise, a decision will be made to standardise on a single optimum design. Andersen Consulting has been used to support the installation of the SAP software.

Redeployment of Systems Development

A major impact on the development of systems as a result of BPR has been the redeployment of the lead Systems Development people. Two and a half years ago, all systems development work and the staff carrying it out were in the Systems Development Department. The project team agreed to take the leading development people out of this group and put them into the business. They now belong to the business and their role is to implement projects which contribute to the bottom line. The main function of the Systems Development Department is now to set an infrastructure strategy, provide a build capability and run the systems.

BOC believes that it has been important to maintain the momentum and it set out to get 90% of the benefits by identifying some quick wins. It has tried to avoid adding to the *reengineering* time scale by waiting for all the systems work to take place. BOC started planning these projects around September/October 1993.

B

A European Insurance Firm

The client had previously gone through a cost-cutting study with a management consultancy. A BPR consultancy was commissioned to do a cost/benefit analysis of the IT strategic programme. The analysis included a review of the success or otherwise of the projects carried out to date. The insurance company had now shifted its focus from systems-driven to business-driven change and placed a higher emphasis on customer service.

Benefits accruing from *reengineered* processes are typified by those in new policy administration. From an elapsed time often exceeding 20 days, a new policy can be dealt with in 18 minutes. Handling times are reduced from half a day to 15 minutes.

In the first phase, the existing mainframe technology is being adapted to provide the enhanced system support for the redesigned processes.

Key Processes for *Reengineering*

The BPR consultancy encouraged the company to take a holistic view of its marketplace, products, customers and suppliers. It encouraged it to steer away from an IT-oriented approach. It started to look at what the client wanted to achieve with the business. It then looked at how the company wanted to achieve cost savings; how it wanted to be seen in the marketplace and encouraged it towards a focus on customer service and a responsiveness to marketplace trends.

Originally five operational processes were identified:

- New Sales, Policy Adjustments, Renewals: now one process – Policy Administration

- Customer Accounts

- Claims Settlement.

Three other processes were also identified:

- New Product Development

- Workflow Management

- Cross Selling.

There is a single project which supports all the processes. The processes have been redesigned in all areas. Process changes have been implemented in Policy Administration and partially in Claims Settlement. The only major systems changes already implemented are in Workflow Management. Automatic Call Distribution and tracking of files are key elements of Workflow Management. Many organisational changes have also been carried out.

The insurance company stopped development of further new systems, outside the *reengineering* project, and the existing maintenance plan was pared hard back. Only changes which were required for legislative or regulatory reasons were allowed, plus the occasional minor action to maintain the competitive business position.

BPR Applied to Policy Administration

What is resulting from the BPR projects is a much flatter structure than before. Work is handled in work groups.

The old process for selling a new policy was broadly as described below. The company received a piece of paper from a customer asking for a quotation. In many cases, this was sent back to the customer with some extra questions. When the details were complete, the transaction was passed to the back office and possibly also to underwriters for pricing. The quotation was sent back to the customer for acceptance with some short-term cover. The customer sent the cheque, the cheque had to be processed, and so the process went on. The elapsed time for this was often in excess of 20 days. The actual handling time was in the order of half a day.

The new process pushes all contact on to the telephone. All the questions are asked and answered in one telephone session. The quotation is given verbally to the customer. The business is closed. The customer quotes the details of their credit card. (This is the preferred option, although the process allows for subsequent payment by cheque.) The documents are sent out the same day. The transaction takes typically 18 minutes, with a handling time of 15 minutes.

The systems support the concept of a case worker who is able to make all the necessary decisions whilst talking to the customer on the telephone. The case workers use colour VDUs attached to a mainframe, with systems written to emulate the style of a PC. The design includes simulated pop-up help facilities and look-up lists. Screens are broken down into areas containing a small amount of data to achieve the clarity necessary in this environment.

The application middleware, developed by the insurance company, enables the business applications to be isolated from the code particular to the VDUs, printers, and other input/output devices. This will ease any future migration to an intelligent graphic terminal-based environment.

C
Glaxo Manufacturing Services

Glaxo Manufacturing Services (GMS) is the manufacturing company of the large international pharmaceutical group. It makes products for the Glaxo sales divisions worldwide and provides manufacturing consultancy to other plants which require its assistance.

Business Plan Drivers of BPR

There are a number of global external pressures on the pharmaceutical industry and on Glaxo in particular. There are the constantly evolving regulatory requirements. Most governments are also concerned to contain the costs of their health services. There are also the commercial pressures which stem from the competitive environment, time to market and cost of manufacture. A particular current challenge to Glaxo is the impending lapse of the patent on its very successful Zantac product.

Targets have been set for a wide range of radical improvements. Key parameters include lead time, on-time delivery, stock turns, process losses, cycle time, adherence to standards, on-time product launches and health & safety. The targets set are challenging and preclude using Continuous Improvement techniques alone. A hybrid method has been adopted, using both Continuous Improvement and Radical Redesign. Glaxo aims to achieve both quick wins and longer-term benefits. The two approaches are conducted in parallel with close co-ordination of plans, consolidated into an overall migration plan.

Three "super processes" have been identified. These are Customer Order Fulfilment (includes all of those operations between order taking and despatch, including the large and complex area of manufacturing and testing), New Product Introduction and Group Technical and Logistical Support.

Each of the super processes has its own set of performance objectives. Each major component of the super process must also have objectives; these must be consistent with those at the level above.

Initiation of Business Performance Improvement

The Glaxo term equivalent to BPR is "Business Performance Improvement" (BPI). GMS's Information Management Department (IMD) started a process related projects in Customer Services (the department which takes orders for products) and Shipping (which is responsible for despatch and distribution). A significant amount of work was done on the processes in these departments over a six-month period

and some important business benefits were identified. At the end of the Customer Services/Shipping project, the opportunities were highlighted to Executive Management to achieve business benefits over the whole of the company by the use of similar techniques. This was the start of the company-wide programme.

Information Systems Strategy

The Business Plan is the driver for the GMS Information Systems strategy. There is a very large investment in the existing legacy systems, developed over a long time period. An assessment of these systems concluded that they lacked the required functionality and usability. They were also judged to be insufficiently robust to be adapted.

The overall approach adopted in the strategy was to select industry standard packages to meet the requirements of the Order Fulfilment Process (OFP). The packages cover the areas of Planning (MRP II), Execution (Manufacturing Execution Systems) and Supervisory Control And Data Acquisition (SCADA).

Architecture

The Information Systems Architecture is a planning tool which underpins the support of business processes. It integrates the individual processes and sub-processes of the OFP into a seamless and manageable super process. The architecture also defines the information which supports processes and specifies the systems management which is provided by the IT infrastructure. Inherent in the definition of the information are its quality principles. Most crucially, there has to be a single definitive source for each data element which ensures accuracy and consistency. In addition, the system must provide easy access to data which reflects accurately the current situation.

Implementation — Programme Management

GMS has embarked upon a fundamental rebuilding of its key processes and supporting information systems. The BPI plan requires strong Programme Management (PM) in order to deliver the benefits specified in the performance objectives. The key elements of the plan have significant interdependencies. PM has to deliver co-ordinated management across all the projects. It has to resolve potential conflicts between the projects in terms of scope, budgets and manpower; also to recognise and manage the effect of constraints. PM must also provide the information which allows managers to understand the progress and costs of the project and to make necessary decisions.

In the context of such a large project, it has been necessary to design an overall methodology for driving the projects. It is designed to be suitable for the implementation of radically new process designs and support continuous improvement in existing processes. It integrates the activities of the Business Analysts and Information Analysts in support of the Business Projects.

An orderly transfer of operations from the old processes and systems to the new was a major project. Migration Planning was set up as a discrete project which defined the path for incorporating the new systems and decommissioning the legacy systems. PM had to work closely with Migration Planning.

Information Provision

Because of the complexity and long timescale of the planned BPI projects within GMS, it was necessary to build a way of accomplishing some "quick hits" to benefit the company in the interim. The effort put in to providing this support was in line with the overall project, it built facilities which would be required in the longer term.

In order to manage effectively the existing processes, IMD provided for easier access to information. The old tools for extracting management information from the IT systems were cumbersome. This was attributed in part to the fact that users access the operational database directly. This made the data difficult to use.

The managers of the processes need a consistent set of performance measures that they can apply to the monitoring of any situation. This is a high priority area. It requires not only the visibility of the surface symptom, like leadtime exceeded. It must provide the ability to drill down below this level to its components and root causes – for example, non-adherence to schedules. The information must be more widely available and more easily understood. It requires a set of simple tools to extract and manipulate.

A three-pronged approach is being used to provide for this information requirement. The platform for providing this management information is called the "Information Library". This project has an aggressive timescale. It constructs the repository for the data which will be used for management information. It will take data from the best sources available. (In some cases, because of duplication of data in different systems which exist today, there can be a conflict between two or more sources). The development of the Information Library will fit in with the philosophy behind the Framework Project (described below). It is designed to be robust and user friendly.

An Account Manager, who represents each area of the business, commissions the Rapid Application Development team to deliver high priority requirements. Wherever possible, these will be met by additions of the Information Library. Occasionally, an interim stand-alone application has to be built.

GMS uses Desktop Co-operation from ATT-GIS to provide the basis for the user interfaces to the management information.

Framework Project to Integrate Packages

Because industry standard application packages will be used wherever possible, the task of integration becomes largely a project to construct a set of interfaces between the various packages. The result is to be an integrated system as the users see it. To this end, a Framework Project has been established to find a tool to perform this integration function. Most hardware vendors and a few software vendors claim to have a product of this nature. Framework will need to identify "integration points", where interfaces can be built between systems and custom made add-ons in such a way as to avoid major disruption and costly effort.

Customer Order Fulfilment – Scope and Timescales

The beginning and end of the overall "super process" of Customer Order Fulfilment had been partially addressed by the early projects in Customer Services and Shipping. However, the major portion which lay in the middle - all the processes to do with making the product – still remained to be addressed. There is a very large investment in the legacy systems which support these processes.

The Customer Order Fulfilment BPI project is very large, very complex and is planned for implementation over several years. It is envisaged in the current plan that the main elements will be in place by the end of 1997/beginning of 1998. The implementation of an MRP II system will take about 18 months and is planned to be complete at the end of 1995. Batch recording will be implemented by 1998. The Laboratory Information Management System is due to be complete by mid 1997.

The project also includes elements to do with Engineering Maintenance, Document Management, Manufacturing Execution Systems (e.g. the Dispensing System) as well as systems for Finance and Human Resources.

Supporting Vendors

No major overall consultant has been used to assist in the BPI programme. One or two independent consultants have been used to facilitate in the early stages, during plan building, and to assist in some areas of specific processes.

A BPR consulting firm has been used to help in a project internally in IMD. This was broadly focused on aligning IMD as a service department in such a way as to be most effective in meeting the support requirements of the business. Many of the current systems are run by Hoskyns under a facilities management agreement, which has been running for some while.

D

National & Provincial Building Society

Goal of Effective Customer Engagement

National & Provincial Building Society (N & P) had carried out some of the early phases of *Business Process Reengineering* before Unisys became more deeply involved in the project. N & P selected Unisys to work within the area of organisational design. Unisys and N&P also collaborated in defining the fundamental processes that are required to understand and engage with the customers in the most effective way.

Advanced IT solutions were chosen to support the key elements of the process designs. N & P became the first user of Unisys FBA Navigator and employed other object-oriented tools to give it a flexible approach to customer service and to enable future change. FBA Navigator generates systems which are independent of the hardware and operating software platforms. In this instance, Unisys PCs and servers running Microsoft NT in the branches communicate with remote systems, including Unisys A Series hosts.

A key measurement of success is an average four-fold reduction of computer transaction time as a proportion of the customer session.

Choice of Object-Oriented Techniques

National & Provincial felt that being able to provide more valuable advice and guidance to customers was an important element of differentiation in the marketplace. It would be necessary to understand the customers' circumstances to an improved level of breadth and depth to be really effective. A flexible view of the product needs of the customer was also desired. N & P wanted to avoid using a computer application design which forced decisions down hard-trodden paths as certain criteria were applied. It was felt that rigidity was inherent in the sort of systems logic flow usually provided by the traditional methods of programming. Flexibility and a non-prescriptive approach were high priorities for N & P. To support an environment where different routes could be explored and which would also handle the basic transactions of the business, N & P decided that an object-oriented design had much to offer.

Selection of Unisys FBA Navigator and Other Tools

Over a period of 18 months, N & P discussed its requirements and evaluated the approaches of four major suppliers: Digital, ICL, Olivetti and Unisys. They were all thinking and working along similar lines in the area of object-oriented facilities. Unisys was chosen because it had a product ready to go - FBA Navigator. N & P awarded an $18 million contract to Unisys for hardware, software and services to build a new front office customer service branch system, based on FBA Navigator. N & P became its first user.

N & P has created its own model to define objects using Virtual Software Factory's VSF metacase tool. This also gives N & P the ability to link tools together which have apparently incompatible interfaces.

Unisys has also provided its universal repository U-Rep into which objects can be stored and subsequently retrieved for use in other systems later.

N & P found that it had a number of people in its own organisation who already had most of the skills necessary to perform the detailed process redesign. Predominantly, their background was as Business Analysts.

Key Building Society Processes

N & P defined three broad processes. The Customer Requirements Process is where all data on the customer is created, stored and maintained. It forms the secure basis for the other main processes. Individual service products, such as Mortgages and Lending, Life Products and General Insurance form Solutions Factories. The Customer Engagement Process provides basic account management, delivers marketing programmes and provides the support for customer financial advice and guidance.

This activity takes place mostly in the branches. However, there is also a substantial number of people – about 200 – working in a direct marketing mode; for example, responding to advertisements. Some of the volumes here are quite substantial; there are about 3,000 calls per day on insurance matters.

Objectives of Reengineered Processes

The main objective of the *reengineering* initiative is to improve the efficiency and effectiveness of the customer's session. In general terms, for any session which combines processing a transaction and giving advice, the transaction currently demands 80% of the time, leaving 20% of the time for advice and guidance. The aim is to reverse this ratio.

Behind this, it is necessary to make the systems and transaction interfaces extremely easy to use. The fundamental move in data terms to enable this to happen is the integration of all the currently fragmented views of the customer.

Finally, the processes and supporting IT systems have to be constructed in such a way that N & P has the ability to respond quickly to new developments in the marketplace - many of which evolve quite rapidly. N & P believes that its use of advanced object-oriented tools will enable this rapid evolution.

E

Northern Electric

Northern Electric distributes electricity in the North East of England. Based in Newcastle, it employs some 5,000 people, has 1.4 million customers representing a population of 3.4 million across a territory of 14,400 square miles and has a turnover of slightly over $1.5 billion. The company has 3.3 employees per 1,000 customers. Electricity utilities in the UK are under pressure from two main sources.

The Office of Electricity Regulation has the power to set price levels. Further pressure on costs comes from competition for industrial customer business, initially limited to very large consumers of over 1MW. This has been reduced to 100KW and may be cut further in 1996.

In general, there is such a rapid pace of change in the industry that business systems have to be redesigned and people have to modify their activities to adapt to these changes. There is a great deal of consciousness throughout the Company of the need for this. This results in an enhanced ability to recognise the need for change and to identify where actions should be taken.

Several major projects are using BPR techniques to improve customer service while containing or reducing costs. A good example is the *One Stop Customer Service Project*. This uses PCs in client/server mode to reduce by a factor of five the proportion of customer calls needing referral or call back and cuts almost fourfold the telephone time spent on the most complex transactions.

One Stop Customer Service Project

From an organisation previously built on functional lines, Northern Electric has initiated a stronger focus on the customer. It has created a customer section where each person can carry out a comprehensive set of tasks to deal with the needs of a particular set of customers.

Northern Electric receives 7,000 customer calls a day. Nearly all of these should be dealt with in "One Stop" by the person who answers the phone, without passing on the customer to another employee or having to promise to ring back. This means moving back office processes on to "the seat" of the agent, who must have access to data and must also be empowered to initiate actions. From a position where 20% of calls were referred to the back office, the target for the new system is a maximum of 4%.

For example, there are a number of customers with a complicated payment history; often involving the Department of Social Security. Currently, queries from these customers – who may be in arrears – have to be passed to the back office, who eventually write back proposing a suitable payment scheme. In a user-friendly fashion, the new system will enable the agent to deal with the whole task, while in contact with the customer on the telephone. It will provide access to the necessary data and appropriate expert assistance to suggest the best payment schedule. Also entailed will be a *reengineering* of the back office processes. These measures should reduce costs substantially and also reduce the bad debt.

In a second example, when a customer moves and requests the appropriate account and connection actions – usually done over the telephone – the agent will require access to credit and other data in order to be able to choose the best payment schemes to offer. The customer may be moving into Northern Electric's territory from outside.

Options include the payment of a deposit, installation of a prepayment meter and encouragement to use a Direct Debit payment. The telephone time on these transactions will be reduced from an average of 28 minutes to less than 8 minutes.

The One Stop project was seen originally as being largely a task of providing more friendly interfaces to existing systems. At a particular point, it was realised that BPR would be essential to the design and build of a mostly new system. This necessitated a budget increase of approximately 40%. However, the business case showed clearly that it was worth it.

Consultancy Support and Modelling Tools

A number of vendors has been used, as appropriate, to provide particular services at various levels. In the early stages of BPR, Coopers & Lybrand were chosen by the Directors to act as facilitators. Northern Electric has its own Business Process Improvement Department. This has its roots in O&M. It has been enhanced by the hiring of additional people skilled in Business Process Improvement and Quality Management.

When the need to *reengineer* became apparent, it was clear that some longer established methodologies, like SSADM, were not going to produce the definition of requirements in a way that was going to be most useful. New tools were required. ACT (now absorbed into the Misys Group) was chosen to provide the modelling tools, using object-oriented methodologies. One of the reasons for the choice of ACT was its willingness to transfer skills to Northern Electric. Northern Electric uses Prince project management methodologies.

F

Pilkington Optronics

Pilkington Optronics is one of the world's leading suppliers of electro-optical equipment to the defence market.

BPR Across The Business

Business Process Reengineering projects are being driven in all the key areas of Pilkington Optronics. A ten-year strategy has been established for company transformation. Aggressive targets are set for performance improvement. It was of paramount importance to deal in an effective manner with the challenges caused by the defence industry moving away from a cost plus environment towards more commercial arrangements, predominantly fixed price. Each department is aware of its need to measure its effectiveness and to reach its new targets. This is embedded in its approach to systems and is part of the way of life of the company.

As in many complex manufacturing environments, high priority was given to the "backbone" process, Material Requirements Planning, the first version of which is already implemented. Stock turns per year have increased from about two to ten, releasing some $30 million of working capital. A current project is looking at a second generation design.

Other key projects include a new approach to Product Data Management (PDM), Vendor Scheduling, Assembly Quality, Capacity Planning & Scheduling, Engineering Efficiency and Design Leadtime. Document Image Processing techniques will be used in some areas. At its current level of revenue, new processes are enabling Pilkington Optronics to operate with about one third of its previous work force.

The first implementation of MRP runs in an IBM MVS environment. The new systems for Product Data Management use an open client/server infrastructure.

Better Management of Product Data

The success of a manufacturing operation is highly dependent on the quality of its product data. Without effective Product Data Management (PDM) there is no firm basis for purchasing materials and components, planning manufacturing activity and the synthesis and control of costs. Second generation PDM designs are wider in scope than before. They now form a more effective storage and retrieval facility for the large amount of engineering data which is generated during the design and production phases of a product. They improve company-wide tractability and configuration management of parts and documents.

The effects of improved PDM systems can be improved design quality, a faster response to invitation to tender and general enquiries, a competitive necessity, and earlier visibility of data used for procurement and production. Pilkington Optronics' new PDM system will yield a saving of over $400 k while improving customer service and having a beneficial knock-on effect in many other areas of the business.

Improvements will be made in the currency, availability and accuracy of Product Data. New ways of Configuration Management will be supplied which will provide for the re-use of existing information and improved access to it. This will capture and re-use knowledge gained on previous similar products. A new bid and ensuing contract may have to involve a different project team to the one which took important decisions on the last occasion. Considerable time and effort can be saved by storing data in a more accessible way. The new PDM process will allow for knowledge gained in one contract to be transferred to a similar one.

The key elements of the PDM project include a joint Business and IT team with everyone reporting to the same project manager. The application development and design becomes a joint effort. The team co-operates with the business at all levels. This co-operation has extended to the definition of requirements – a requirements study was conducted with 21 managers. The selection of the application software products was carried out with the evaluation of their overall fit to the company's requirements; both in business and technology terms. The team selected the products and started to work on the new process definitions. The products selected were flexible and the modifications called for were prototyped at all stages. There is much more widespread use of Rapid Application Development techniques and prototyping than used to be the case. The projects are seen and managed in a much more integrated fashion, from the establishment of requirements to the measurement of results.

A number of vendors have been used to contribute to the project. Internal project managers co-ordinate the whole programme. Oliver Wight Associates has been working with Pilkington Optronics for several years, has been the main adviser on manufacturing systems generally and was much involved with the first MRP system. The PDM project has involved other suppliers. Interskill (part of the VN Group) has been used for its project methodology. This has included coaching of the teams, getting the people to adopt more proactive behaviour. Sherpa application software has been used for the PDM system. (Oracle CASE tools have been used in some other areas.)

The open client/server platform for PDM is a Sun server supporting Sun Unix workstations and PCs, as appropriate to the needs of each user.

G

An Electricity Power Utility

In this electrical supply utility, much of what is done in Process Engineering has more to do with the TQM approach, it is less radical. However, there have been some instances of radical change resulting from TQM. For example, many more cross functional teams have been set up. Over most of the company, there is significant activity in the area of Process Mapping. Overall, there is a mixture of the "green fields" BPR approach and the incremental improvement approach which results from TQM practices. In considering modifications to systems, people are now looking further back from the obvious and pursuing Root Cause Analysis techniques, which can often result in modifications to the process. In general, this is part of the drive to get costs down in the context of becoming a public limited company.

It had been decided that an overall IT strategy for Engineering should be put together. The BPR approach encouraged a stepping back from the design of "the big picture". Instead, the team looked for large savings by identifying some candidates for big wins.

BPR in Industrial Marketing and Tendering

The Commercial Division of the utility had taken a market-place view. It could be said to have applied "classic" BPR techniques. It took a very close and analytical look at its business. BPR was regarded as a survival strategy. The processes under consideration were those involved in marketing and tendering to current and prospective industrial customers in the UK. Electricity distribution companies can now bid for industrial business outside their geographic area for requirements of 100KW and above. The previous lower limit was 1MW. In 1996, there is likely to be a further minimum size reduction. Industrial margins are small but the size of the contracts is such that it becomes very attractive to bid if the utility can get its costs right.

The systems had to be designed for rapid response to customer demand and to any changes in market conditions. The storage of data and the tracking of tenders in their various stages of preparation were obviously suited to workflow management. The utility chose to implement a solution based on Lotus Notes. The system guides the staff which use it through the various stages of tender preparation and provides relevant check points. SHL Systemhouse assisted in carrying out both the process design work and the implementation work. Discussions were initiated and selection made by the users and IT Department. The utility already had a well-established relationship with this supplier. SHL Systemhouse

has provided the liaison with the suppliers of Lotus Notes, a tool only in β-test form at the time that it was chosen.

Lack of Appropriate Development Tools

This utility believed that there was not enough knowledge and publicity about the tools that are available in this context. There did not appear to be many effective tools around to map and record processes by other than manual methods. In the utility, both the users and the IT Department had been surprised at the complexity of the existing processes. The tools required needed to be easy to use by a non-technical business community. There was a call for better support in this area.

H

Western Provident Association

Western Provident Association, based in the UK, is a specialist health insurance company. It also offers a health saver scheme.

Business Process Reengineering is included in a major ongoing programme called "Business Improvement". The programme started as a TQM initiative which later incorporated BPR techniques. The focus of the programme is to make significant differences in business processes in order to make an impact on customer service. Western Provident Association has a dedicated team operating in these areas.

Staff numbers were reduced by 50%, policy lapses fell from 25% to 10%. Staff turnover has been reduced from 66% to 5%. Customer complaints are reduced from 1,500 to less than 5 per month.

Major Review of Customer Service Processes

Western Provident Association reviewed its processes about two years ago. Some involved technology, but many did not. The use of imaging supported a number of the processes. Western Provident Association has reorganised fundamentally its customer service procedures. The aim was to make it easier for the customer to work with the company. The main processes are in new business, renewal business and claims management. In the case of new business, there were a number of people handling applications for insurance cover in different parts of the organisation. Western Provident Association has brought them together in one place and has trained all of them so that they can act as total case workers. The claims process has also become more automated.

Consultants Paid by Results

The BPR consultancy firm was Scheduling Corporation of America (SCA). SCA was selected on recommendation from business contacts in health insurance in the USA. Western Provident Association looked for proof of practical application and success that could be demonstrated in terms of quantitative pay back. SCA and WPA agreed targets and SCA was paid by business results only – there was no fee apart from the performance element.

Implementation In-house

Western Provident Association has not used external suppliers of SI services for some time. Many of the BPR projects did not call for major SI projects. However, all the systems implementation work resulting from the BPR projects has been done in house. The existing systems are based on Wang VS and Wang Office. The new systems will be Unix based.

Management Drive and Employee Empowerment

Western Provident Association has benefited from the powerful personal approach of the Chief Executive, Julian Stainton, who has been the "driver" of the whole project which established the culture. It encouraged bottom up changes that were initiated by the operators of the processes. The person doing the job has real influence. Western Provident Association believes that it has managed to implement BPR and TQM theories in its organisation so that they really work.

Significant Business Benefits

Western Provident Association estimates an improvement in productivity overall of about 100% - about the same amount of business is handled by 50% of the previous staff level. The quality of business had also improved dramatically. Lapses, which were running at 25%, fell to 10%. There was a significant improvement in morale and motivation. Previous to 1988, when the current Chief Executive was appointed, there was a 66% annual staff turnover (although at this time, the head office was located in a large city rather than in a much more remote provincial town). Now the staff turnover has been reduced to 5%. Over a similar timescale, written customer complaints had fallen from about 50 per day to a trickle - about 3 per month.

Western Provident Association has empowered people to change things, has installed new processes and has supported them with image technology and better overall systems. Now, the company has embarked on a new phase of systems implementation, moving from its existing proprietary Wang systems to an open environment on Hewlett-Packard platforms. It continues to write its own application software.

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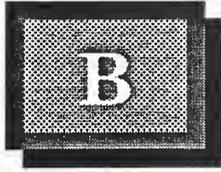
Appendix: Company Profiles

This appendix contains eight company profiles, providing brief descriptions of organisations active in systems integration, BPR or *reengineering* work:

- Andersen Consulting

- BMS Bossard

- Coopers & Lybrand

- Computer Sciences Corporation

- EDS

- McKinsey

- OASiS

- Unisys

A
Andersen Consulting

Structure in Europe

Through its worldwide organisation, Arthur Andersen & Co SC, based in Geneva, Andersen serves clients through two business units: Arthur Andersen for audit and business advisory, tax and corporate speciality services; Andersen Consulting for strategic services, integration services (systems integration and systems management), information technology consulting and change management services.

Andersen Consulting's European operations also co-ordinate markets in the Middle East, India and Africa. In the year ending 31 December 1993, Andersen Consulting's revenue in the EMEAI area amounted to $1,043M, 36% of the worldwide total. About 80% of this was earned in the 12 member states of the EC, where Andersen Consulting has three quarters of its total of over 100 offices in EMEAI and where Andersen has over 17,000 professional staff in total.

Andersen in Business Process *Reengineering*

Andersen Consulting's annual report states that *"Business process reengineering* is the centrepiece of transformational change". Andersen Consulting's strength in this market is indicated by its attribution of $775m revenue to BPR (27% of its total revenue) and the statement that more than 3,000 of its consultants are involved in delivering BPR services. The Andersen Consulting service approach has been branded as Value-Driven Re/EngineeringSM.

Andersen has observed that the bulk of its work in what it categorises as Products Industry – which includes manufacturing and process sectors – is now concentrated on customer and supplier interfaces, implying a preponderance of core process projects. A few years ago, most clients in these sectors were concerned with shop floor productivity issues. Andersen cites the redesign of the future supply chain of Johnson & Johnson medical/surgical products companies and the fundamental re-think of the credit card processing business as applied in Banc One.

Andersen emphasises the holistic nature of its approach to *reengineering*: aligning an organisation's strategy, processes, technology and people to achieve outstanding results. "Organisational learning", Andersen believes, is a means of enhancing the organisation's ability to achieve the desired results. It is accomplished by developing an attitude and motivation in people to take on new challenges and achieve new heights.

Andersen wishes to categorise *reengineering* as achieving quantum leaps in performance by addressing core processes on a global basis across an extended value chain, spanning organisational and geographic boundaries. It is often necessary to encourage the client to shift his focus from the streamlining of a single process or function to a more horizontal view of his organisation. Exhibit 1 illustrates this shift in focus.

Exhibit B-1

Reengineering: Enhanced Improvement over Wider Scope
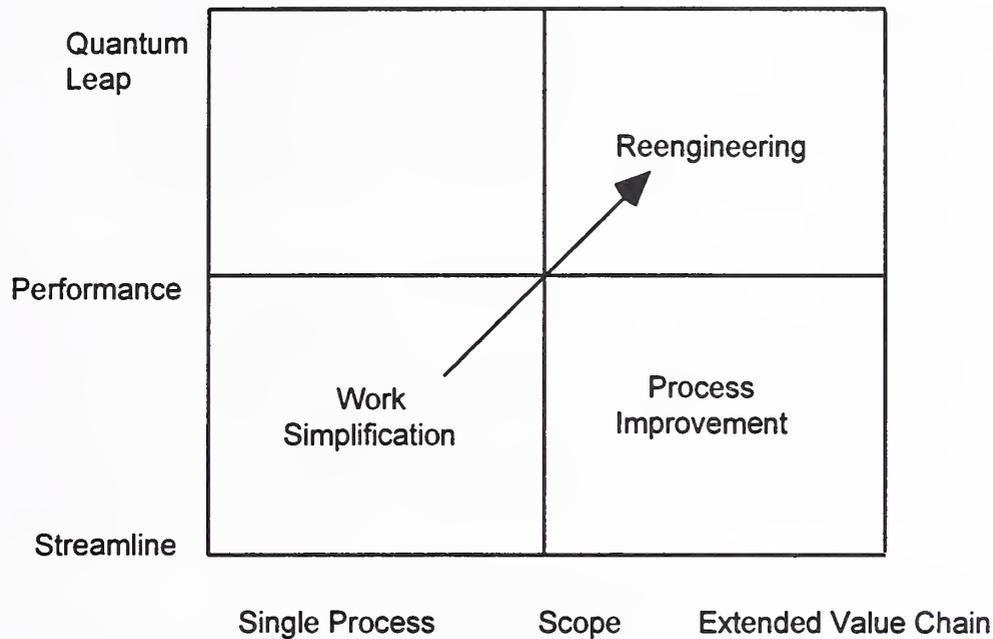
Source: INPUT

Role of Information Technology: AA/AC Combined Approach

Business Process Reengineering is often heavily dependent on information technology solutions to support the wider tasks carried out by many people in the *reengineered* environment. This is particularly important at the interfaces with customers and suppliers, where easy access to information and decision support is fundamental to customer service and optimal cost. Arthur Andersen consultants provide the bulk of the competence in business processes and human resources and Andersen Consulting has the bulk of the technical IT skills. BPR is an arena where these two arms of the organisation collaborate very closely together - often from the start of a project.

Client/Server Platforms

The use of client/server architectures plays an important part in the majority of IT solutions which support *reengineered* processes. The approach can incorporate methods of accessing corporate data available only on heterogeneous databases across disparate proprietary and industry standard platforms. Client/server can allow the rapid addition of facilities from knowledge-based systems and industry standard packaged application solutions. The user interfaces can be designed to be friendly and efficient. Most critically, client/server platforms can provide a cordon sanitaire between user and legacy systems which can allow the

"decoupling" of the short development cycle times demanded by BPR targets and the extended timescales required for any substantial work on the heritage systems.

Andersen Consulting began working with forward-thinking customer organisations in the early 1980s to develop embryonic client/server applications. Client/server engagements were estimated to provide $1,470m or over half of Andersen Consulting revenues in 1993 in over 700 clients. In 1992, this area of activity was about 40% of revenue, so its growth remains substantial.

Andersen Consulting also highlight the part played by some of its software products in the client/server area - in particular, the FOUNDATION client/server CASE tool for Co-operative Processing and the METHOD/1^R system building methodology for the development of client/server applications in a repository-based environment. It is intended that both of these tools will soon embrace object-oriented technology concepts.

Importance of Change Management

Andersen stresses the dependency of the success of any BPR project on the ability of the company to harness the skills, energy and total dedication of its people at all levels to the goals and the task of achieving them. Change Management Services are applied by Andersen to help top client management articulate the vision of the transformed company and to secure the senior team commitment to making it happen. Andersen assists in the communications and training programmes necessary to grow new skills and secure employee ownership of the new environment.

Andersen Consulting cites an engagement at Thames Water Utilities Limited, the largest water and sewage company in the United Kingdom, where it assisted in the centralisation of service operations, the rationalisation of logistics and the development of new customer information services. Here it was crucial to foster the buy-in to the common goal of customer satisfaction. In the transformation of Seeboard plc, one of the post-privatisation electricity utilities in the UK, Andersen Consulting was appointed as programme manager for its "Journey of Change" project.

Vertically Integrated Services

Andersen emphasises its ability to deliver the IT solutions which may be necessary to support the *reengineered* processes which its clients install. One of the services which can be brought into play in this context is Business Process Management – Andersen's outsourcing group.

In Seeboard, Andersen Consulting took responsibility for control of its IT operation and has been tasked to deliver new systems for customer finance, distribution, commerce and operations.

Andersen continues to enhance its portfolio of offerings by organic development and acquisition and believes that its ability to deliver a broad spectrum of services will continue to be attractive to its blue-chip clients.

B

BMS Bossard Business Process *Reengineering*

Introducing Bossard Group

BMS Bossard is the UK subsidiary of Bossard Group, with about 30 consultants operating in the UK. Bossard Group is one of Europe's premier management consultancy firms, with headquarters in Paris and operations in 17 countries, employing over 1,000 professional staff worldwide. It provides a full range of consultancy services including:

- Strategic management

- Organisation and process development

- Human resources management

- Information systems management.

The firm's approach in deploying its people is to combine experienced professionals with up-to-date industry knowledge and understanding of its client's business. It also provides functional expertise in the areas of strategy, marketing, *reengineering*, human resources, communication and information systems.

Bossard Group characterises its service as:

- High quality service in all aspects of consultancy from diagnosis through to the full implementation of solutions

- Experience and capability to manage change

- Independence and objectivity that its clients demand from their professional advisers.

Bossard Group maintains that its international capability enables it to draw on a wide range of experience to address the specific requirements in individual markets.

Bossard Services in *Reengineering*

Bossard Group's focus is to assist its clients in gaining and sustaining a true competitive edge. It has developed a set of three core offers aimed at *reengineering* businesses in order to enable them to meet successfully future challenges.

This includes:

- Customer Orientation: focus on the value added to the customer

- Benchmarking: implement best practices

- Business process redesign and implementation: redevelop organisation and systems for better flexibility and improved cost effectiveness.

The firm's approach to business process redesign is to address issues through a strategic perspective and assist its clients, as required, up to the effective implementation of the new organisation.

It has developed a pragmatic approach to implementation, combining a number of inputs such as project management, information systems management, motivational communication, skills management, training, implementation monitoring.

Reengineering and IT Management

In the view of Bossard Group, IT is a key enabler to effectively implement a *reengineered* organisation. It expresses the view that IT, as part of a *reengineering* exercise, is not just about designing and implementing a new system. It must be approached through a number of perspectives. Bossard Group has developed a specific methodology and a number of relevant tools in order to make the best use of IT as part of a *reengineering* process. Its primary focus is to:

- Redesign IT strategy in order to develop an up-to-date infrastructure able to support business challenges in the longer term and achieve better cost effectiveness

- Implement new development methodologies achieving shorter development cycles and better user involvement

- Redesign the processes through which information systems are developed and maintained to achieve better reactivity to business needs and reduce migration costs.

It has proved successful in a number of European top-ranking firms across a wide range of industries, especially Retail, FMCG, Banking and Financial Services, Telecommunications and Health.

Typical Bossard Assignment

In a major UK insurance client, BMS Bossard has redesigned the vehicle claims process to shorten the compensation cycle and reduce the cost of the operation. The physical handling of claims, including visits of experts, has been reorganised to provide more effective client service and the IT support has been redesigned.

The project was completed within a 6-9 month period. A first phase concentrated on the process within the insurance company. The second phase extended the coverage of the process to include outside resources, such as repairers and assessors. The appointment of approved repairers was one outcome of this, which simplified and shortened the claims process.

Performance gains achieved include elapsed times reduced by 50% and costs by 15 - 20%.

For any further information, please contact:
Jean-Baptiste Rougé
BMS Bossard
1 Coldbath Square
Farringdon
LONDON
EC1R 5HL

Tel: 0171 833 1002
Fax: 0171 833 0897

C

Coopers & Lybrand

Coopers & Lybrand strives to differentiate its *BPR Business Process Reengineering* approach BreakPoint BPR[SM] from other techniques for increasing organisational efficiency, such as Total Quality Management and Continuous Improvement through the concept of performance "BreakPoints".

Achieving Performance BreakPoints

Coopers & Lybrand directs its clients' attention to potential areas for improvements in performance across the whole or the major parts of their business that will result in achieving a "break point"—a discontinuity in key measurements of performance. These "break points" are sought particularly in areas which impact customer service.

Coopers & Lybrand has built a branded service offering - BreakPoint BPR[SM] (see Exhibit 2).

Exhibit B-2

The Process Improvement Grid

Source: Coopers & Lybrand
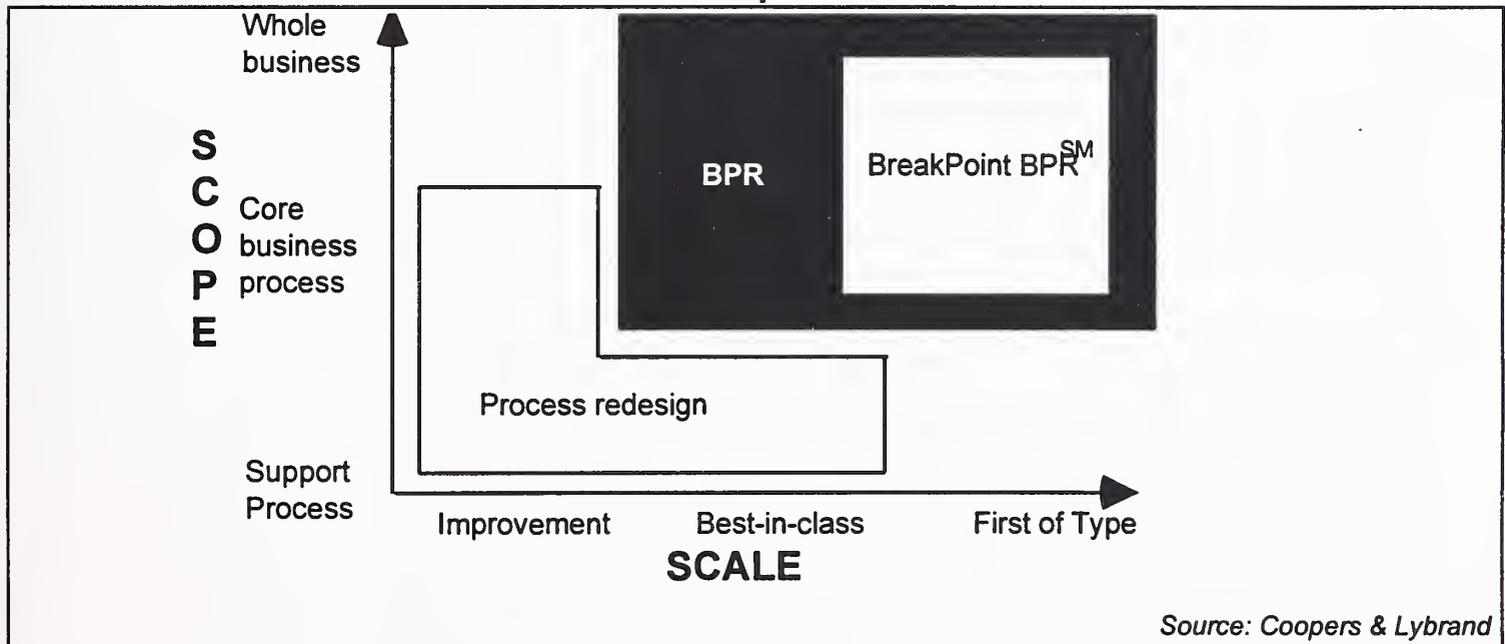
BreakPoint BPR[SM] is aimed at assisting clients in finding the opportunities for innovation, constructing the new processes and organisation, harnessing technology and managing the change.

The structured framework for *Business Process Reengineering* which BreakPoint BPR[SM] provides has three distinct phases: 'Discover', 'Redesign', 'Realise' (see Exhibit 3).

At the end of the Discover phase, the organisation will have selected the appropriate processes on which to focus. It will have identified the BreakPoints it needs to achieve, and will be clear on the current level of performance. It will also have a view of the scope for short-term improvements, identified potential cultural obstacles and developed approaches to deal with these issues. A future vision of the selected processes will have been passed forward to the next phase: Redesign.

By the end of the Redesign phase, the selected processes have been broken apart and conceptually put back together in an improved way. A specification for the *reengineered* processes will have been prepared. This will include the new organisation structure, the new working methods, requirements for information systems and the appropriate performance measures.

The final phase, Realise, implements the Redesign. This involves a range of parallel streams of activities. These could include downsizing, retraining and recruitment, systems development, and implementation of new operating procedures at a detailed level. These different streams, and the behavioural content of all of them, are managed as a coherent, co-ordinated programme. The route through these phases is predominantly via a series of linked workshops, each setting the agenda for the next.

Exhibit B-3

Phases of BreakPoint BPR[SM]

- Confirm strategy & competitive levers
- Identify core processes
- Assess cultural environment

Set targets

- Map as is situation
- Develop innovative solutions
- Refine and short list

Detail recommendations

- Plan
- Implement

Realise the benefits

Source: Coopers & Lybrand
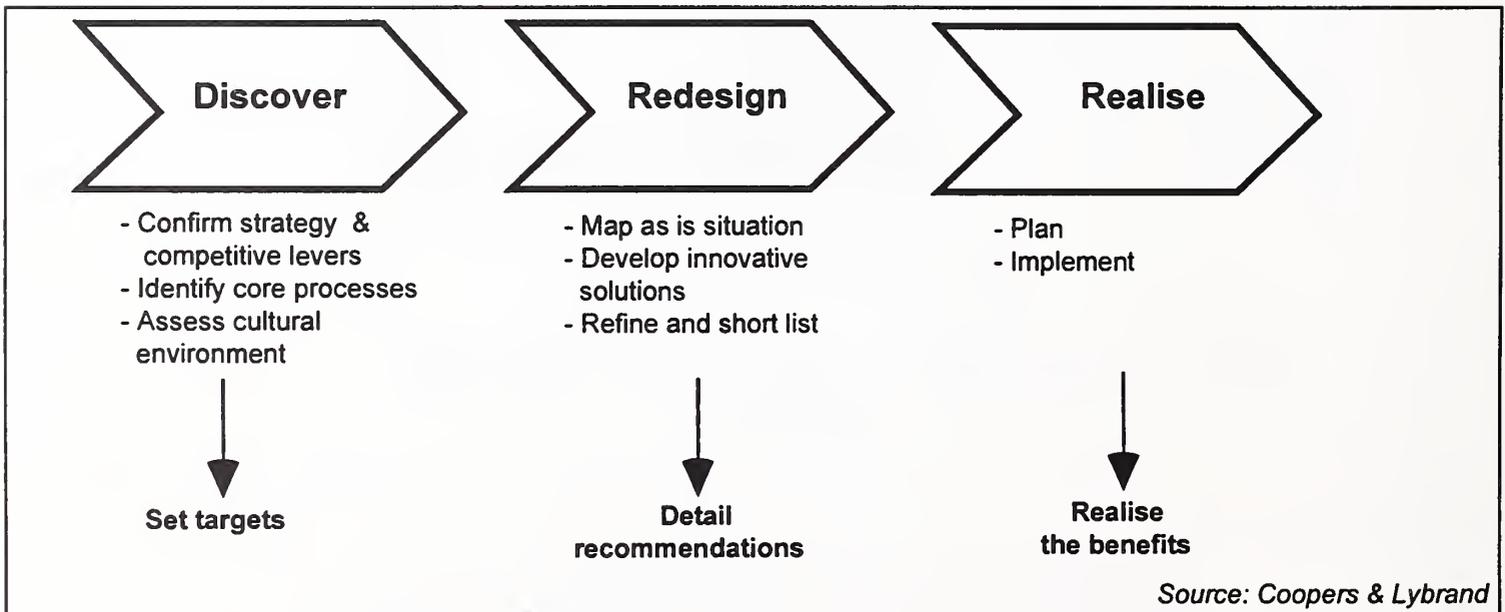
Avoiding Massive Systems Delays

Most BPR projects require systems implementation projects to support the needs of the *reengineered* processes. In the majority of cases, large scale system replacement programmes can and should be avoided, argue Coopers.

What Coopers claims to often find is that much of the required data and processing capability already exists in an organisation. The need is accessibility rather than replacement. What is required in these instances is a front-end redesign giving the underlying system a homogeneous 'look and feel', but allowing the flow of information between business functions. Compared to the overall replacement option, such systems can usually be delivered within a relatively short period of time. Costs are lower, risk is reduced – and the *reengineered* business is allowed to move into process mode more quickly.

This can allow for some "quick wins" – noticeable improvements which can be perceived early on. This has proved to be a good confidence builder for clients.

The development of front-end systems lends itself particularly well to a prototyping approach. Users of the systems quickly get their hands on the new information. They can understand its benefits and are able to make suggestions to improve its ease of use and relevance. A better system results without the lengthy wait for the traditional detailed system specification to be prepared. The users begin to work in the 'new' way right from the start.

This approach makes existing information from various existing functionally-based systems available to users by means of improved interfaces, and avoids the necessity for the client to engage in an immediate massive systems replacement programme. It can allow the major benefits of process *reengineering* to be realised in a much shorter timescale. Major systems replacements may be initiated as a second stage, but can then be phased in gradually.

Working with Systems Developers

The Coopers & Lybrand "Infrastructure" service offering covers all elements of IT management, but stops before the detailed application level in which Coopers chooses not to operate—major software organisations are subcontracted to perform code generation. The best-fit platforms are suggested for the client in terms of software architectures, databases, networking and application solutions.

Coopers & Lybrand collaborates with many of the major hardware suppliers. In manufacturing, it collaborates with SAP; on the open version, Hewlett-Packard provides the platform of choice. In finance, Coopers & Lybrand works with SAP and other market leaders such as Sun Accounting, Dun & Bradstreet.

Changes for Coopers & Lybrand

The Coopers BPR offering has pulled together a number of methodologies and tools which previously were offered by different parts of Coopers. BPR has also meant that there is a need for the operation of more cross-functional teams. This is one of the influences which forms the background to the restructuring of Coopers & Lybrand's IT practice reported by INPUT in a Company Profile update in September 1994.

Coopers & Lybrand has moved away from a structure whereby business consultants were aligned to vertical market groups and where technologists were in a central pool, relying mainly on non-IT colleagues to generate business opportunities.

Coopers & Lybrand have recognised that the focus on *Business Process Reengineering* has increased its need to operate in multi-disciplinary teams that marry organisational and business process skills with technical IT skills to meet the needs of its clients.

D
Computer Sciences Corporation Aims to be Major Systems Integration Force in Europe

CSC has set its sights on becoming a major player in commercial systems integration, and has carefully selected and acquired firms that will help it achieve this goal.

CSC's strategy is built around strategic consulting provided by the Index Group and its solid federal project management skills.

The Index Group provides unique commercial consulting experience as well as access to a commercial client base - both capabilities that federal integrators generally lack.

Its string of carefully selected acquisitions provide it with the bridge necessary to convert federal experience and skills to the commercial market.

However, CSC has yet to reach a critical mass in Europe, and so as further acquisitions in key European countries are required CSC has, for example, just taken a substantial stake in Ploenzke, the German professional seminars firm.

CSC's industry coverage and application software product access may also need significant strengthening for the company to succeed in the European commercial systems integration market.

Currently, its strongest geographic presence is in the Benelux and the UK, and this is now supported by the Ploenzke acquisition in Germany.

Computer Sciences Corporation (CSC), founded in 1959, is one of the largest independent professional IT services company in the USA.

CSC's objective is to become one of the top two or three companies in the commercial markets for professional services, systems integration and outsourcing in Europe as well as the United States.

It aims to maintain its dominant position in the US federal market, and expand its share in non-federal markets through internal growth and acquisitions. Non-federal business represented just over half its revenues in 1994.

Its European operations are reported to be on the point of doubling their revenue as a result of recent major contracts, notably the $1.5 billion outsourcing deal with British Aerospace.

Operations in Europe

CSC Europe provides the following services: Consulting, software development, systems integration services and outsourcing to national and transnational clients, primarily in Belgium, France, Germany, the Netherlands, and the UK.

Headquarters in the UK, CSC has the following business units:

- Belgian Operations Division

- French Operations Division

- German Operations Division

- Netherlands Operations Division

- UK Operations Division

- Services Management Division (SMD).

The UK-based SMD is responsible for outsourcing throughout the region, unlike the operations companies which have a country focus and a brief restricted to SI and professional services.

Due to new outsourcing contracts with a take over of personnel and recent acquisitions the number of employees will exceed 30,000 by the end of 1994.

Company Strategy

CSC's positioning is summed up in its 1992/93 Annual Report:

"Being the best at business *reengineering* is a prerequisite to helping companies address the issue of competitiveness in a rapidly changing environment. Pre-eminence in the evaluation and application of technology is essential to leadership in systems integration and information processing outsourcing. Having the best project management skills is critical to success in the development and operation of complex information systems. So all three are required if we are to be the best at helping our clients get break-through results in the way they operate."

In the past CSC has used credibility and know-how built up in federal keeping government business going. It has not been easy to effect the same sort of transfer across the Atlantic. CSC's European growth in the 1980's did not match the overall market growth.

CSC's current marketing strategy, based on the Index Group's strategic consulting programmes and business *reengineering* contracts to address US commercial targets while practice seems to be proving more successful.

Market Analysis

Exhibit 4 provides analysis of revenue by business service categories.

Exhibit B-4

Analysis of CSC Worldwide Revenues by Line of Business ($ millions)

Business Service	1993 Revenue	1994 Revenue	1994 Share
Professional Services, incl. Consulting and Business *Reengineering*	901	1137	44%
Systems Integration	617	697	27%
Outsourcing	962	749	29%
Total	**2,480**	**2,583**	**100%**

Source: CSC

Exhibit 5 analyses CSC's revenues by market.

Exhibit B-5

Analysis of CSC Worldwide Revenue by Market ($ millions)

Market	1993 Revenue	1994 Revenue	1994 Share
Department of Defence	676	715	28%
NASA	261	222	9%
Civil Agencies	318	286	11%
Total Federal	1,255	1,223	48%
Commercial USA	990	1,039	40%
Commercial International	235	321	12%
Total Commercial	1,225	1,360	52%
Grand Total	**2,450**	**2,583**	**100%**

Source: CSC

Exhibit B-6

Revenues by Delivery Mode,
Software and Services, Europe CSC, 1994

Delivery Mode	Revenues $ millions)	Share (%)
Application Software Products	5	2
Turnkey Systems	35	13
Professional Services	60	21
Systems Integration	20	7
Systems Operations	95	34
Processing Services	35	13
Total Software and Services	250	90
Equipment/Other Revenues	30	10
Total European Revenues	**280**	**100**

Source: INPUT

Exhibit B-7

Estimated Revenues by Country,
Services, Europe CSC, 1994

Country	Revenues ($ millions)	Share (%)
France	40	16
Germany	25	10
UK	88	35
Netherlands	23	9
Belgium/Luxembourg	75	30
Total Information Services	**250**	**100**

Source: INPUT

Exhibits 6 and 7 provide INPUT's estimates of CSC's European revenues by delivery mode and by country.

Acquisitions/Divestitures

In August 1994, CSC announced the acquisition of Ouroumoff Consultants SA, a top 10 French management consulting firm.

Since December 1994 CSC holds 50% (plus one share) of the equity of the German professional services company Ploenzke AG (with an annual revenue of $100 million and 1,000 employees).

E

The Business Process Services of EDS Management Consulting

EDS has in the last year made a number of high profile appointments from major management consultancy firms to support the development of its new position in consulting and BPR services.

The most high profile of these recent moves has been that of John Pendlebury to EDS. Pendlebury, a long-term executive partner at Coopers and Lybrand, has been brought in by EDS to run its European consulting practice, which has grown over the last nine months to around 400 people.

Pendlebury has already been followed by a number of less senior, but highly experienced, consultants from Coopers' IT consulting division.

These European developments are a part of a worldwide development. EDS have also made important hires from Andersen Consulting, McKinsey, and Arthur D Little (ADL). Bryan Johnston from Andersens has been recruited to run EDS's Asia Pacific interests; Andrew Power, ex-McKinsey, is establishing a market leading vertical presence in health-care and insurance; two dozen ADL aerospace industry consultants have also recently been recruited.

EDS's change management and business *reengineering* competencies are headed by ex-Gemini Consulting partners. Communications is run by an ex-Deloitte & Touche partner; and the consumer goods practice by a former senior Price Waterhouse partner.

Management Consulting Services — Global Commitment

The Business Process Services approach of EDS to *Business Process Reengineering* is built around establishing a relationship with the client as a partner, supporting and building on business improvement activity and change already underway in the organisation.

Research and experience have led EDS to believe that the key expectations that organisations have when seeking partners to support them in performance improvement and *Business Process Reengineering* are:

• Industry experience and expertise

• Pan European and global support

• Strategic and implementation resources and expertise

• Change management capability.

In 1992, EDS consolidated all its consulting resources within a global Management Consulting Services organisation, MCS. The strategic commitment to MCS has been followed up with a number of significant acquisitions in the USA and Europe and aggressive organic growth. EDS MCS currently has in excess of 2,000 consultants globally, with over 200 consultants in Europe.

EDS MCS, as a strategic part of the world's largest IT service business, is organised to support clients in every business sector on a national, Pan European and Global basis.

Management consulting skills are fundamental to the EDS strategy of forging a high value-added business partnership with its clients. EDS MCS aims to operate at the pinnacle of the value pyramid and can provide a comprehensive set of business services to support client initiatives.

Business Process Services

The provision of Business Process Services (BPS) is built on EDSís fundamental commitment to adding value to its clients' business performance. This commitment is expressed by the EDS Service Continuum (see Exhibit 8), which demonstrates the corporate capability to support the client through every stage of performance improvement; from management consultancy resources to develop and articulate the business case and strategy, through process innovation or design, change planning, technical design, implementation and ultimately if required by complete process management.

The ability to support clients through every stage of the service continuum is critical not only to issues such as speed of implementation. More fundamentally it directly focuses attention on the importance of actually delivering the planned, measurable business performance improvement to the 'bottom line'. Success in process improvement is dependent on managing complex change in every aspect of the business organisation. The risk that the full benefits will not be achieved will increase if there is undue concentration on one element, such as process design or technology, without sufficient consideration of business strategy, business culture, organisational structure and people, or if the project is inappropriately divided up.

Exhibit B-8

EDS Service Continuum

Consulting	Systems			Business Process Management
	Development	Integration	Management	

Create Value   ●   **Build Value**   ●   **Deliver Value**
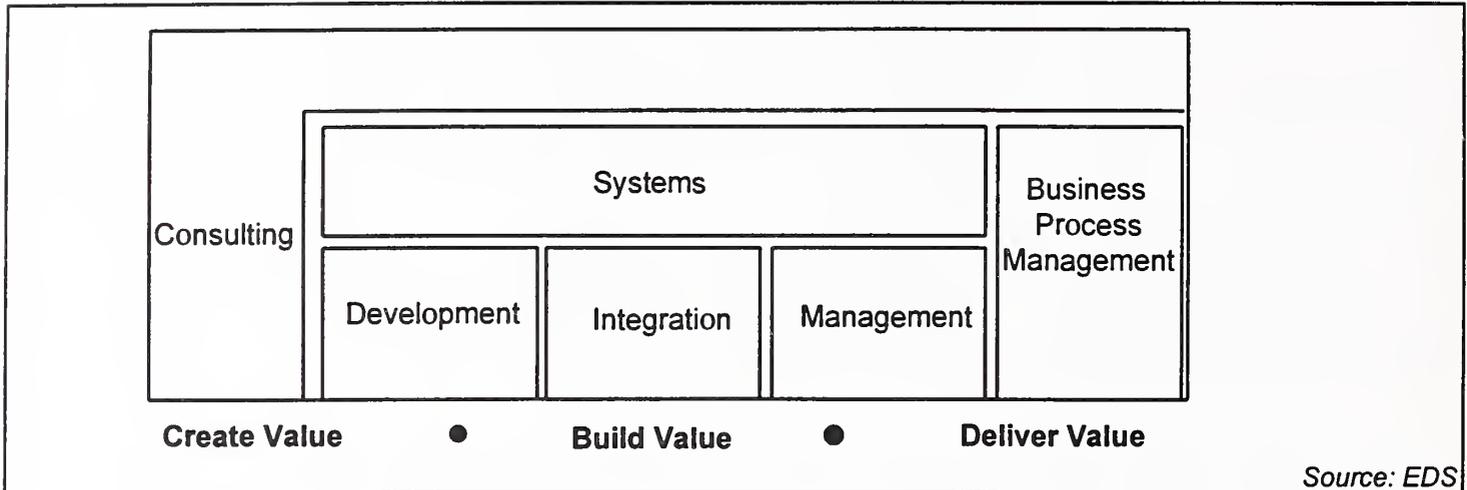
Source: EDS

Integration of Technical and Organisational Skills

By collaborating in joint teams with its client's staff, EDS aims to integrate appropriate resources, from both the client organisation and EDS, at the right point. During a typical *reengineering* assignment the core team, comprising both client and EDS personnel, will be supported by Subject Matter Experts from a variety of backgrounds, typically including some or all of the following areas:

- Workflow and Imaging

- EDI

- Communications

- Systems Integration

- Quality

- Human Resources

- Change Management.

The BPS Framework is supported by knowledgeable and experienced consultants able to utilise an array of business techniques and software tools which allow project teams to work quickly and effectively to develop and communicate ideas and results in building the business case for change and the implementation of new working practices.

With over 30 years experience of assisting companies to secure business advantage from implementing complex change, EDS believes that it is uniquely placed to support clients through the stages of committing to and executing major business performance improvement initiatives. Recent examples where EDS has supported European clients in the design and implementation of process improvement include:

- Review and redesign of significant elements of the Pan European financial systems of a global manufacturing organisation

- Review and redesign of the core processes of a major Government Agency

- Redesign of the order fulfilment, service provision and financial systems for the Pan European operations of a global computer hardware manufacturer.

F

McKinsey – Views on *Business Process Reengineering*

McKinsey, the leading strategic management consultancy, which has traditionally been regarded as an "art technology" firm, has recently been stressing the need to recognise that the innovative use of Information Technology has now become a prerequisite of success. McKinsey believes that successful companies will be those which create an environment of continuous organisational evolution and a constant exploration of leading-edge technology.

Core Process Redesign

McKinsey is a proponent of Core Process Redesign, which it claims pre-dates CSC Index's development of BPR, but which is a similar management philosophy.

McKinseyís most fundamental quarrel with Business Process Redesign, as currently practised, is that it is offered as an occasional, bolt-on-initiative that a corporation will take from time to time to promote a step change in business performance.

McKinsey defines that in order to redesign a core process, a company or corporation first has to be able to identify it. The concept that corporate activities comprise a small number of global core processes can only be understood by taking a holistic and horizontal view of the company. In order to do this, it is necessary to ignore traditional "value chain" or "business system" frameworks, which view a company as a sequence of functional activities – essentially as a set of interrelated departments. Core processes cut across functional, geographic, units and even company boundaries.

Exhibit B-9

Core Process Versus Business Views

Core Process

| Suppliers | New product development
Order generation and fulfillment
Integrated logistics | Customers |

Business System

Marketing	R&D	Manufacturing	Distribution	Sales	Service
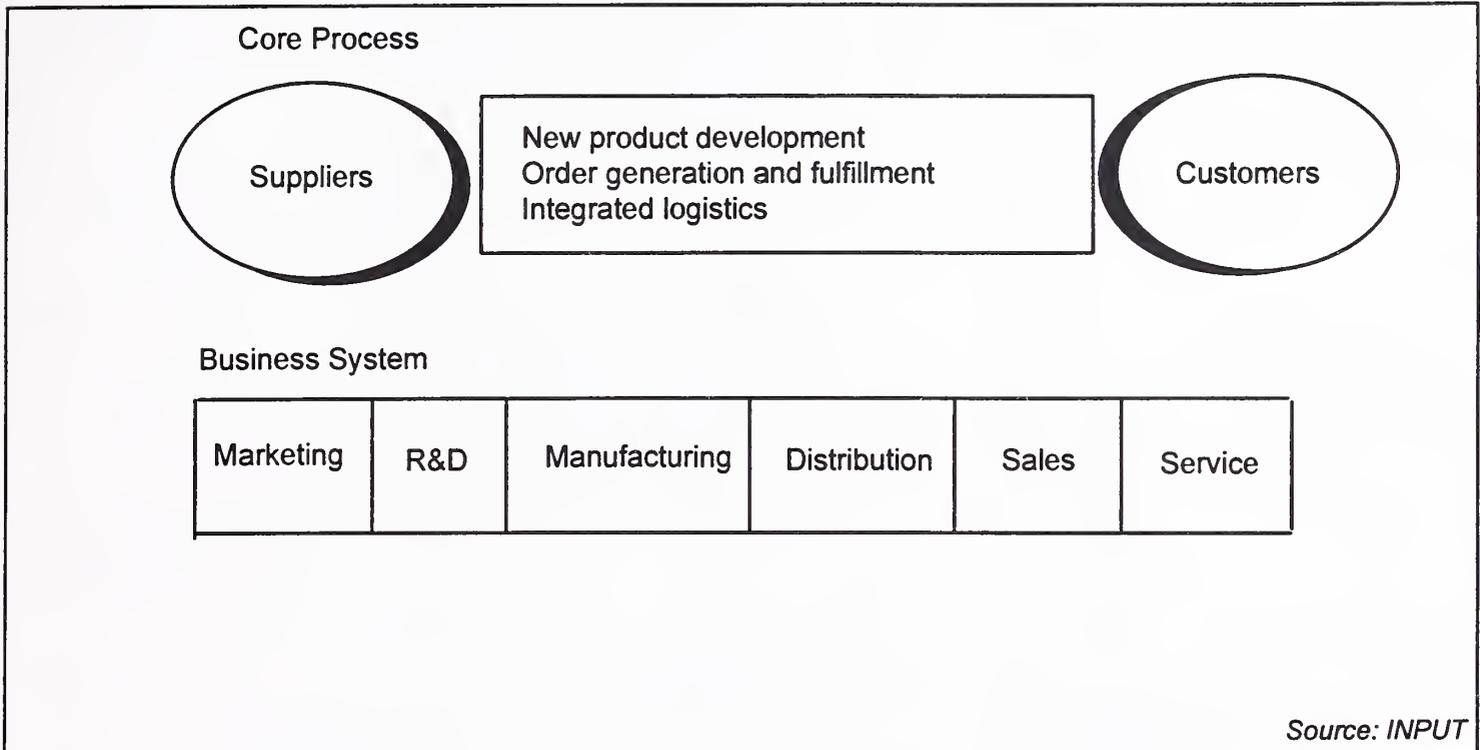
Source: INPUT

The power of core process redesign lies in the breadth of definition of a core process. Redesign, reorients an organisation from performing a cluster of functions – pursuing their own and often conflicting objectives – to one which integrates activities within a limited number of core processes. Each core process focuses on achieving one or two overall objectives of competitive success.

The core process approach involves a fundamental rethinking of how a company does business. Work flows, decision making, organisation and information systems are redesigned in a parallel, integrated fashion rather than sequentially or independently. Although fully implementing a redesign is a major, multi-year effort, a detailed diagnostic can yield substantial near-term benefits through a series of practical, high-value short-term recommendations for action.

Information Technology — A Key Enabler

McKinsey identifies information technology as a key enabler for making this transformation. Networked communications, relational databases and expert systems are among the many technological advances that allow greater co-ordination between formerly discrete activities. Information technology provides options for totally restructured work flows and decision-making processes.

However, McKinsey observes that, over the last decade, the failure of computer technology to deliver proven bottom-line value, as well as the highly visible nature of many over-ambitious systems disasters, has led top management to abandon the notion, developed in the 1980's, that IT can be used to gain competitive advantage.

The recent emergence of *Business Process Reengineering* has reinforced this "Low Tech" focus. Recent cases and methodology manuals for BPR are studded with advice to "first redesign the process, then find out if technology can add any further value".

This return to technophobia, says McKinsey, could be dramatically mis-timed. Recent case histories of BPR show that, especially in information intensive industries such as financial services, new approaches to redesign bring only incremental benefit, often of the order of 5% or less in productivity improvement, unless they tackle the issue of how to apply technology effectively.

Rebalancing Human and Machine Skills

McKinsey's analysis of historical IT investment is that failure to reconfigure human skills and organisational forms around IT has been as important as specific problems in implementation of IT.

Rebalancing human machine interfaces has been proven to double or better clerical productivity, and, free front line administrative employees for service and customer management in a wide range of industries from finance to equipment maintenance.

The role of IT in building individuals' skills may well prove to be the most valuable application of information technology so far discovered, says McKinsey. Effective redesign will increasingly depend on how well technology is harnessed to the different needs – and different skill requirements — of different core processes.

Parts of banks handling commercial credit, for example, will need high levels of individual skill, sophisticated on-line decision support and information access systems, and streamlined administrative processes that make the best use of skilled people's time. The parts handling personal credit will need expert systems for credit scoring, automated work scheduling and administrative processes, and screen-based scripts to guide low-skilled operators through standard procedures.

Accelerating the Payback: The Surround Approach to Old Technology

Important lessons can be learned from companies that have been able to achieve competitive gain through combining IT with innovative process redesign. In high profile cases such as American Airlines and Direct Line Insurance, the top executive managers have had a permanent and personal commitment to acquiring and using IT as a key corporate resource.

Drawing on techniques developed by telecommunications companies, "interfacing technologies" provide a "surrounding layer" between new and old technology. Investments on both sides of legacy and new systems can proceed at a different pace, and there is little pressure to take risks in the old environment when change can be supported in the new.

Exhibit B-10

Interfacing Old and New Mainframe Technology in IT Architecture

Evolving but separate mainframe systems

New Business focused front ends

Old "legacy" software

New packaged software

New custom software

SURROUND TECHNOLOGY

Front ends by business unit

Front ends by process

Source: *INPUT*
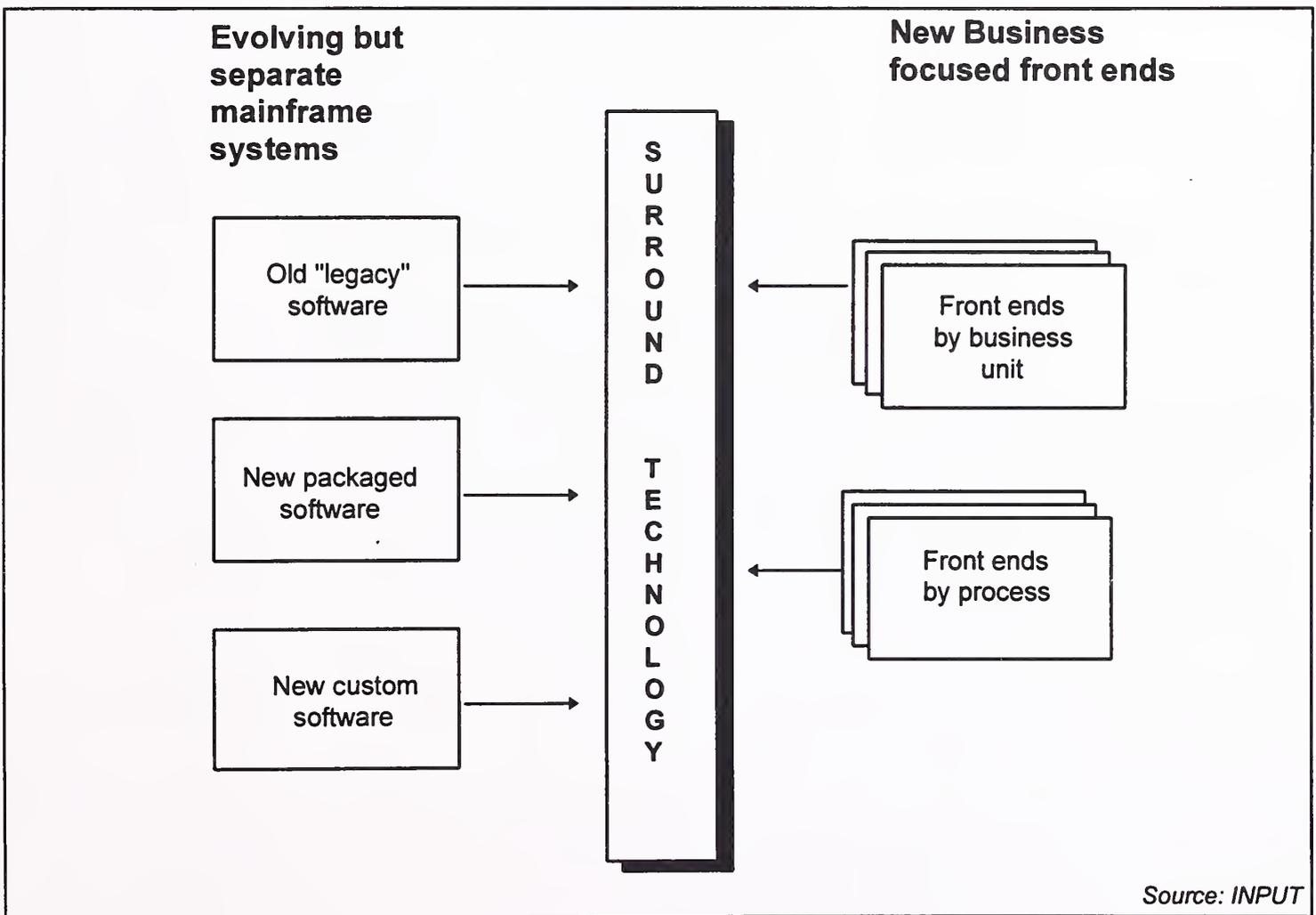
A handful of retail banks, insurers and other customer-focused organisations have developed this concept (see Exhibit 10). A major European bank has built a totally new, telephone-based bank on the back of the old software portfolio of its parent in less than nine months. Key to success was innovative use of an interfacing front-end software technology similar to the telecoms "surround" and establishing a totally new type of IT department on the user side of the front end.

When attempting to replace a large software portfolio piece by piece, a considerable amount of continuing effort is needed to build "bridges" that link the new and old environments.

Surround technology avoids many of these problems, as the software helps with the bridge building. One financial institution that McKinsey has been working with has reduced its product development time to weeks, using this facility.

In McKinseys opinion, probably the single greatest contributor to the present disenchantment with IT delivery has been the waste of money on huge "data and application architecture" projects. With a surround strategy, those back-end changes that are needed can be tackled as a slowed down and carefully managed set of enhancements to existing architecture's, or more radically, as is now practised in many financial institutions, through the addition of a separate back-end system to handle the need for new functionality behind the common interfacing facilities of the "surround".

Combining Human Skills and the Surround Approach

McKinsey argues that its 7"S" framework, which aligns organisational Structure, incentive Systems, management Style, Staff selection criteria, employee Skills and Shared cultural values, against the Strategic intent of each business unit, has proved a precise and useful tool. However, to rebalance human and machine skills to solve today's problems of complexity, the 7"S" technique needs to be extended to cater for the technology component.

Traditional claims processes in the insurance sector have been both highly complex, due to the intricacy of the unique underwriting decisions to be taken in each case.

Some innovative insurers are now recognising that intelligent use of technology-enabled process redesign can transform intractable organisational problems. One company has built a sophisticated new working environment, interconnected to its Legacy systems. In the new process, all paper handling has been removed by Image Processing, thus freeing up almost one third of time spent on manipulating voluminous

files. Even more importantly all work scheduling and prioritisation is now controlled by sophisticated workflow management technologies that free up operatives from the complexity controlling complex transactions. Careful attention to the detailed process engineering of the operator's job has reduced training times to days rather than months. Further, the underwriting process has also been significantly improved. Expert systems help categorise and resolve many claims decisions and, where an expert is needed, their services are available on-line throughout the organisation.

McKinsey observes that matching the 7"S" of behavioural factors to the capabilities of effective use of technology has been aligned due to the competitive need to improve claims service. The step change in efficiency of the system, which allows even archived records to be available on-screen in less than 30 seconds, has proven attractive to the insurer's broker and direct customers. The claims system has therefore been configured as much as a customer service as a productivity improvement move, by installing it both remotely in their field support branches, and through an integrated telephone systems in its fast response centre.

Accelerating Process Innovation

Current methodologies for *Business Process Reengineering* follow standard system analysis approvals.

Prototyping has proved to be an effective approach to developing innovation incrementally, through "learning by doing". This occurs in "living laboratories", where flexible developers and work in partnership improve the effectiveness of technology application.

McKinsey claims that technologies are now available to allow a successful building block approach to system development. Further, the escalating acceptance of "Open Systems" standards has brought a new range of major vendors into the market place, who not only provide common products and services, but are working with a wide number of packaged software suppliers to ensure that their products can be easily married to new networks.

Exhibit B-11

Five-Phased Approach to Process Redesign

Identify Core Processes	→	Define Performance Requirements	→	Pinpoint Problems	→	Develop the vision	→	Make it happen

Source: INPUT
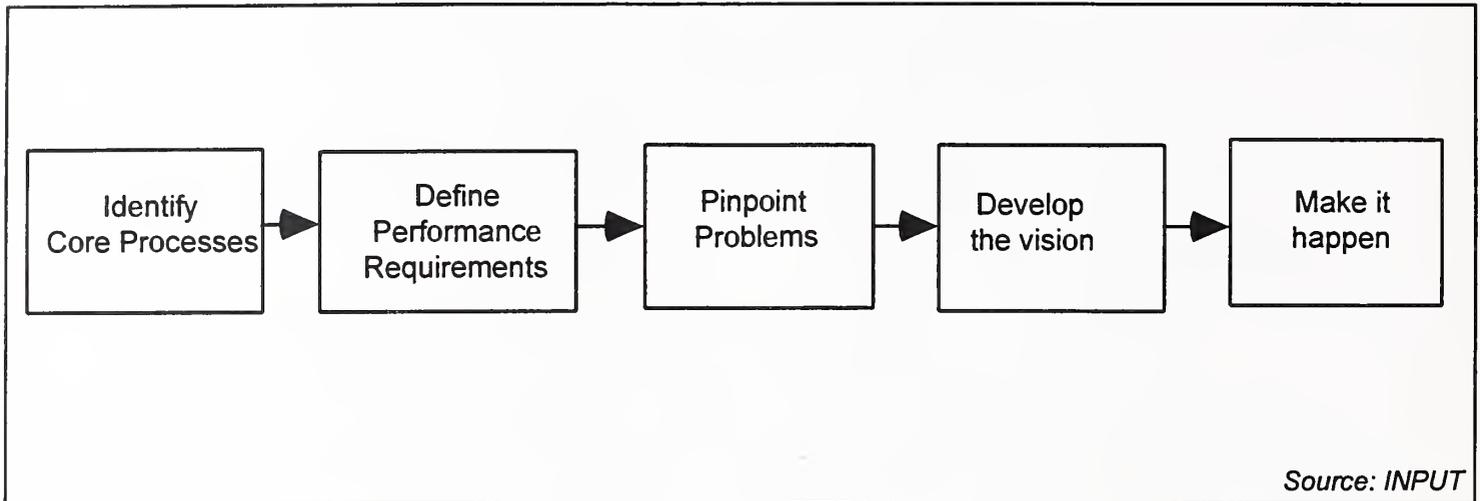
In these environments, companies must rethink their notions of competitive advantage, when the underlying process innovation is freely available to both existing and new industry players. In this emerging world, sustainable advantage will increasingly be gained by being faster to commercialise available innovation to unique advantage in specific markets, rather than hoping to breakthrough with a unique investment in differentiating process infrastructure.

A Structured Approach to Redesign

To achieve breakthrough levels of performance improvement, major changes are frequently required throughout the organisation.

McKinsey advises that companies should take a broad-based, structured and phased approach, which can be divided into five phases – as shown in Exhibit 11.

McKinsey has found that certain principles apply to defining all core processes. Process definition should address major strategic directions and key problems in competitiveness (for example, the company lags competitors in time-to-market). Also, the definition should make as much sense from an external (customer or supplier) as from an internal perspective.

All major processes and information flows affecting throughput time, total cost, and quality (service levels and rework rates) should be included. The processes need to be defined at levels high enough that redesign can yield "breakthrough" improvements, yet not so high as to be unmanageable.

Performance gaps can be evaluated by talking with customers and suppliers and benchmarking against leading-edge competitors and "best-of-breed" companies. Once performance gaps have been identified, a detailed diagnostics can be used to pinpoint causes of performance gaps and, identify specific opportunities for change.

McKinsey advises that a good implementation plan should ensure that improvement potential is realised through detailed planning, low-risk testing, and early wins to build momentum. Because of the magnitude of change involved, refining the redesign using pilots and prototypes is generally important.

To build ownership of change, roll-out efforts need extensive front-line participation, going beyond simple training to include opportunities for input of redesign ideas, experimentation and modification of new work processes and systems.

The key factors for success which have to be in place, says McKinsey, are: strong leadership, cross-functional involvement, creativity, a rigorous approach, a single point of accountability for overall process performance and the generation of early wins.

Investing in Organisational R & D

Innovation is often driven from a combination of advances in new technology and the breakthroughs developed by niche solution providers. The speed of such developments may be startling and rapidly erode competitive advantages developed by industry leaders.

McKinsey has seen a number of far-sighted companies respond to this dynamism in technology innovation by setting up permanent teams to identify and experiment with new technologies and their process organisational implications. In some cases, such experimentation has been started before the underlying technologies have been fully mature. For example, one company ran a full-scale field pilot using image processing technologies, before these were available at justifiable price performance ratios. Yet, the experience that the organisation gained in the organisational and service potential of the new technologies enabled them to gain a competitive head start on other industry players, when the technology price curves dropped to commercial levels.

Long lifecycle planning methodologies and the organisational principles that underlie them will be fatally crippling to this need to permanently "beat the process innovation curve", warns McKinsey. Adopting best practice in change enabling disciplines, such as Human Resources Management, and Information Technology, and in the field piloting and roll-out techniques that reap the maximum commercial value from the new businesses and the services they deliver, will be as important as beating the competition to the punch in the underlying process innovation which makes the new game possible. Time will become the critical measure of process delivery efficiency.

McKinsey believes the barriers to exploiting the potential of the new Intelligent Technologies probably lie as much in the need to rethink the way in which major corporations have been managed over the last fifty or so years as the imperative to acquire new levels of technical literacy. However McKinsey is aware that changing established ways in the most fundamental areas of modern business management theory will not be easy.

G

OASiS Delivers Rapid, Profound and Sustainable Improvements

OASis was founded in 1986 as a company focused on business-led process development. The proposition to its clients is one of delivery of "rapid, profound and sustainable business performance improvements". Since its foundation, OASiS has grown extremely rapidly at an average compound rate in excess of 60% and employs over 100 consultants. Its annual revenue last year was about $17m (£11m), of which $10m (£7m) was from UK clients.

In November 1993, OASiS was acquired by Sybase, the relational database supplier, for $21m. The acquisition does not appear to have had any marked impact on the business strategy or positioning of OASiS to date.

OASiS Service Portfolio

OASiS has specialist capabilities in disciplines such as marketing, sales, procurement, management information systems, business administration and human resources. Its range of support services start with Board level strategic consulting and extend to detailed planning, managing the programme execution and undertaking the associated management development.

The core offerings of the company, amounting to some three quarters of its revenue, are concentrated in the area of *Business Process Reengineering.*

Parallel *Reengineering* of Processes and Information Systems

OASiS stresses that its practice is to address the *reengineering* of organisational processes and information systems in parallel. In this way, it maintains, high energy levels can be achieved and sustained and fast project paybacks can be generated to reinforce enthusiasm and fund some of the more radical changes.

The achievement of rapid benefits from *reengineered* processes can be put at risk if the information systems changes are subject to the traditional lengthy methodologies for detailed design, building and testing. OASiS itself uses, and advises on the selection and application of, rapid systems development tools to shorten the cycle. It also seeks the opportunity for minor additions and changes to existing systems that can act as key enablers to "early wins".

Partnership and Skills Transfer

OASiS prefers to work in close partnership with its clients: doing it with the client and not to the client. A common way of working is to carefully select joint client and consultant project teams which provide a balance of skills and experience and also personal style. At each stage of a project, OASiS believes in generating commitment and establishing client ownership of key decisions. The make up of the project team strengthens this involvement and each party accepts accountability for achieving the agreed changes and the improved business results.

The joint project team approach is one of the measures which OASiS employs to enhance the client's capability. It also trains client personnel in the techniques necessary to create and manage process improvement projects. OASiS believes that an important component of its added value lies in the transfer of skills to its clients.

OASiS often works with the clients in-house IT department to implement the systems which arise from *reengineered* processes. However, it also has significant experience of subcontracting to and working collaboratively with other IT services organisations.

Delivery

OASiS starts its work by agreeing the vision of critical objectives and a set of challenging strategic goals. The current capabilities of the client organisation are then examined in depth to establish the basis for performance improvement.

Organisational design and development lays the foundation of structure, responsibilities and skills for the *reengineered* business processes. It is in this stage that the overall information requirements are also specified.

As described earlier, detailed process redesign and systems development proceed in parallel to achieve rapid results.

The migration from the current position to the new processes, organisation and supporting systems is carefully managed. The management of change includes not only the communication and education programmes essential to generate commitment and new skills but also extends to innovative approaches for piloting the new environment.

H

Unisys Continues Transformation to an Information Services Company

UNISYS continues its transformation into an information services company. Chairman and Chief Executive, James Unruh, has established a vision of a company that is "client-driven, technology-based and services-led".

Malcolm Coster, President of UNISYS Europe-Africa Division (recruited from Coopers and Lybrand in early 1994) is relaunching UNISYS Europe as a business solutions organisation, with the service offerings spearheaded by qualified consultants.

UNISYS Information Services Division

The worldwide Information Services Division headed by Victor Millar takes the lead role in the reorganised company. Information Services (which includes Systems Integration) is now the largest single source of revenue for UNISYS Corporation, accounting for 25% of total revenue, having grown 22% in the nine months ending 30th September 1994.

UNISYS is continuing to invest heavily to expand its service capabilities. It plans to nearly double the employment of Information Services Principals — its senior consultants by year end 1994. UNISYS will recruit up to 900 qualified consultants in Europe, mostly from the "Big 6". Malcolm Coster, President of UNISYS Europe-Africa Division and also Chairman of the UK company, was responsible for international business development, ran the UK consultancy service and looked after strategy and planning for Coopers and Lybrand.

Coster has recently hired another senior Coopers partner, Winston Muktarsingh, and has been active in making other senior hires from PA Consulting, Ernst & Young, and Price Waterhouse, to support the Customerize^{SM} initiative, which is now the foundation stone of the delivery of all business integration services.

Managing the UNISYS Client Relationship

In 1993, UNISYS indicated clearly its move away from its positioning as a hardware vendor by establishing the Information Services Division and by creating the position of Client Relationship Manager (CRM) for each of its major accounts.

Previously, account managers were mainly product salesmen whose primary contact was the client's IS management. The CRM is now expected to form a business partnership with the client at the highest possible level.

Exhibit B-12

Role of the Client Relationship Manager
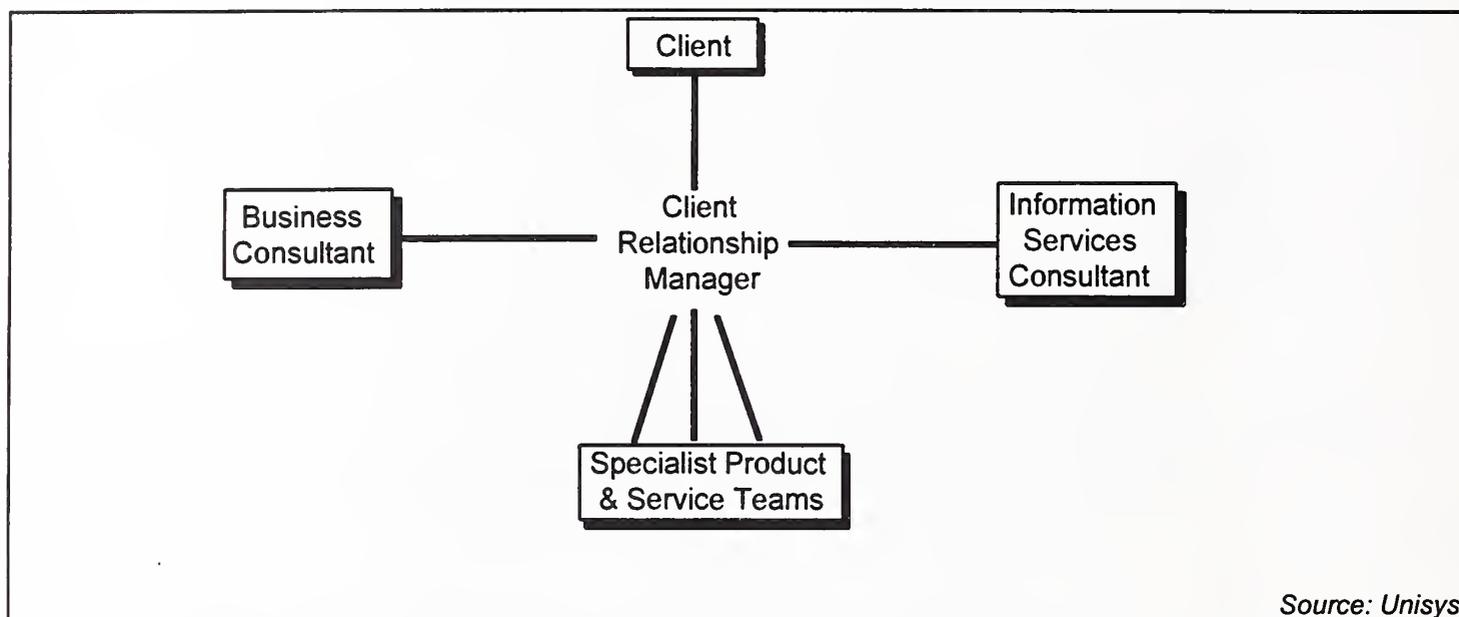
Source: Unisys

The role of the CRM is illustrated in Exhibit 12. It is expected that this concept will be taken a stage further by the appointment of Principal Consultants to the role of CRMs. This will move UNISYS yet another step closer to the "services-led" aspect of its vision.

Importance to UNISYS of *Business Process Reengineering*

UNISYS Information Services sees *Business Process Reengineering* as an essential, high value-added component of its services portfolio. It serves to strengthen the business relationship between UNISYS and its customers. It is also the key to accessing the large Systems Integration and Outsourcing revenue opportunities.

UNISYS encourages its clients to consider the main purpose of *reengineering* to be that of focusing on the needs and expectations of their own customers. UNISYS has coined the brand name Customerize[SM] to encapsulate the strength of this focus. The Customerize[SM] offering is designed to help clients embed customer service objectives within their information strategy.

Methodology for Process Redesign

It is through business processes that the service needs of customers are fulfilled. The UNISYS methodology for Process Redesign is at the heart of its *Business Process Reengineering* service.

The UNISYS "wheel of service" concept identifies the essential service expectations and components needed to deliver a specific buyer value, such as value for money or speed of service. Each segment of the wheel shares a common "service infrastructure" — a combination of process, technology and communications which enables delivery at the point of service.

In the *Mobilisation* phase, the key processes are selected, resources and people are committed and a plan for performing the redesign is established.

Assessment is the phase in which a more thorough understanding is built of the customer performance expectations from the redesigned processes, where the improvement challenges are found and the causes are of some current inhibitors are identified.

Redesign is the phase in which detailed objectives are established and detailed future process designs are created.

Build is the phase where the redesigned organisation, processes and systems are constructed and tested in a simulated environment. Detailed roll-out plans are developed during this phase.

Implementation is the phase where the built designs are fully realised, tested under realistic conditions, and finally rolled out into full production.

Throughout the project, there is a recognition of the interrelated contribution of *Process, Organisation* and *Technology* to the solution being designed.

The changes can only be enabled through the successful implementation of *Communications & Change Management* measures throughout its life. These form essential elements of the methodology.

Use of Advanced Technology

UNISYS believes that advanced technology has an important contribution to make in *Business Process Reengineering.*

Much of the empowerment of client agents in contact with their customers can be made possible by improving the scope and quality of the information to which they have access. In many cases, the raw data is contained in heterogeneous databases residing on multiple platforms in different parts of the organisation.

One of the offerings UNISYS has developed is a "software strategy" or set of tools for building, operating and managing an enterprise-level information solution in multivendor distributed client/server environments: SolutionVision.

The components include "best-of-breed" offerings from UNISYS and other vendors that have been pre-qualified and tested to ensure that they work in an integrated manner.

As well as better access to existing information, UNISYS recognises the enhancement to process design and operation that can be accomplished by the use of "expert" or knowledge-based systems to provide intelligent decision support to the client agent at the point of customer contact.

An example of the use of advanced technology in the financial services industry is the concept of a "Credit Workbench" which can automate much of the process of underwriting.

The Workbench enables sales teams and underwriters to establish a unified view of the customer.

The Workbench uses knowledge-based and object-oriented technologies and interfaces with legacy systems.

One business employing this concept has found that its branch managers no longer need to underwrite and can manage the sales force more effectively. The constraints which the old processes placed on growth are removed and the business expects to double its loan book value in the next five years as a result of the *reengineering* project.

Application packages and rapid application development tools form another part of the implementation strategy.

To meet the needs of one of its major industry sectors, UNISYS has developed its Financial Business Architecture (FBA).

FBA Navigator is a programme offering which employs the business model principles of FBA and provides class libraries catering for cashier support, branch administration and control plus product information and cross-selling functions. It is designed especially for developing financial retail delivery systems, via easy-to-learn Graphical User Interfaces, which can be easily maintained and enhanced.

C

C-1
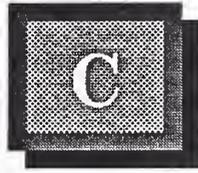
Appendix: Definition of Terms

A
Introduction

INPUT's *Definition of Terms* provides the framework for all of INPUT's market analyses and forecasts of the information services industry. It is used for all US programmes. The structure defined in Exhibit C-1 is also used in Europe and for the worldwide forecast.

One of the strengths of INPUT's market analysis services is the consistency of the underlying market sizing and forecast data. Each year INPUT reviews its industry structure and makes changes if they are required. When changes are made they are carefully documented and the new definitions and forecasts reconciled to the prior definitions and forecasts. INPUT clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.

Exhibit C-1

Information Services Industry Structure – 1994

Systems Software Products	Applications Software Products	Turnkey Systems	Professional Services	Systems Integration	Outsourcing	Processing Services	Network-Based Services
Mainframe	Mainframe	Equipment	IS Consulting	Equipment	Platform Operations	Transaction	Electronic Information Services
Minicomputer	Minicomputer	Software Products	Business Process Reengineering	Software Products	Applications Operations	Utility	Network Applications
Workstation/ PC	Workstation/ PC	Professional Services	Education & Training	Professional Services	Desktop Services	Other	
			Software Development Maintenance	Other	Network Management		
					Applications Management		

B
Overall Definitions and Analytical Framework

1.   Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation development requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price. (Refer to Exhibit C-2).

The components of a systems integration project are the following:

- *Equipment* – information processing and communications equipment required to build the systems solution. This component may include custom as well as off-the-shelf equipment to meet the unique needs of the project. The systems integration equipment category excludes turnkey systems by definition.

- *Software products* – prepackaged applications and systems software products.

- *Professional services* – the value-added component that adapts the equipment and develops, assembles, or modifies the software and hardware to meet the system's requirements. It includes all of the professional services activities required to develop, implement and if included in the contract, operate an information system, including consulting, programme/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance.

Exhibit C-2

Products/Services in Systems Integration Projects

Equipment
• Information systems
• Communications

Software Products
• Systems software
• Applications software

Professional Services
• Consulting
– Feasibility
– Selection of equipment, network and software
• Programme/project management
• Design/integration
– Systems design
– Installation of equipment, network and software
– Demonstration and testing
• Software development
– Modification of software packages
– Modification of existing software
– Custom development of software
• Education/training and documentation
• Systems operations/maintenance

Other Miscellaneous Products/Services
• Site preparation
• Data processing supplies
• Processing/network services
• Data/voice communication services

Source: INPUT

- *Other services* – most systems integration contracts include other services and product expenditures that are not classified elsewhere. This category includes miscellaneous items such as engineering services, automation equipment, computer supplies, business support services and supplies, and other items required for a smooth development effort.

2.   Professional Services

This category includes four segments: consulting, education and training, software development, and *Business Process Reengineering*. Exhibit C-3 provides additional detail.

- *Consulting*: Services include management consulting (related to information systems), information systems *reengineering*, information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and systems operations.

- *Education and Training*: Services that provide training and education or the development of training materials related to information systems and services for the information systems professional and the user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation. Education and training provided by school systems is not included. General education and training products are included as a cross-industry market sector.

- *Software Development*: Services include user requirements definition, systems design, contract programming, documentation, and implementation of software performed on a custom basis. Conversion and maintenance services are also included.

- *Business Process Reengineering*: This is a new segment within the INPUT definition of professional services. BPR is defined as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measure of performance, such as cost, quality, service and speed.

Exhibit C-3

Professional Services Market Structure

```
                        ┌─────────────────────────┐
                        │   Professional Services  │
                        └─────────────────────────┘
        ┌──────────────────┬──────────────┴──────────────┬──────────────────┐
┌───────────────┐  ┌──────────────┐         ┌──────────────┐      ┌──────────────┐
│ Business      │  │ Software     │         │ Consulting * │      │ Education and│
│ Process       │  │ Development/ │         │              │      │ Training *   │
│ Reengineering │  │ Maintenance  │         └──────────────┘      └──────────────┘
└───────────────┘  └──────────────┘
```

Software Development/Maintenance
- User requirements definition
- System conversion
- Systems design data base design
- Programming
- Testing
- System modification
- Documentation/ technical writing
- Network development
- Other

Consulting *
- Installation planning
- Network planning & design
- Information systems audit
- IS planning
- IS security/audit
- Systems evaluation
- IS personnel planning
- Systems analysis
- IS policies & procedures development
- Project management
- Other

Education and Training *
- Computer operations training
- IS management training
- Analyst/ programmer training
- Systems use training
- Video instruction
- Other

* Related to computer systems, topics or issues

Source: INPUT

Appendix: User Interview Guide

1. *Business Process Reengineering* is a name frequently used but companies have different definitions of what it is—how do you define BPR?

    _____

    _____

2. How has your company used BPR?

    _____

    _____

3. Did any of your BPR projects lead to SI projects or any SI work lead to BPR projects? Was this an expected outcome?

    _____

    _____

4. How did BPR impact any ongoing SI projects?

    _____

    _____

5. Did you find a difference between the type of SI projects resulting from BPR work and your other SI projects?

    _____

    _____

6. Did you find a difference between the type of BPR projects resulting from SI work and other BPR projects you have undertaken?

    _____

    _____

7. Do you expect to use the same vendors for BPR and SI?

    _____

8. Are the same people responsible for selecting BPR as well as SI vendors?

    _____

    _____

9. Did you expect the work in one area to lead to work in the other? If so, how did you organise the contact(s)?

    _____

    _____

10. Do you spend more, less or an equal amount on BPR projects compared with SI? Do you expect this ratio to change over the next 3 years and why?

    _____

    _____

11. Is BPR resulting in increased demand for SI services within certain areas? Can you estimate/measure this increase?

    _____

    _____

12. Who do you see as the top 5 vendors in the BPR field?

    1. _____

    2. _____

    3. _____

    4. _____

    5. _____

13. What characteristics do you look for in a BPR vendor?

    _____

    _____

14. Who are the top 5 SI suppliers?

  1. _____

  2. _____

  3. _____

  4. _____

  5. _____

15. Do you have any other comments you wish to make regarding the relationship between BPR on SI?

_____

_____

16. Do you have an example, that we could briefly describe in the report, of a BPR project that was directly related to an SI project?

_____

_____

Thank you for your assistance

(Blank)
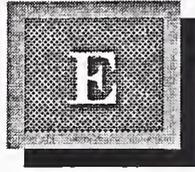
Appendix:
Vendor Interview Guide

1. *Business Process Reengineering* is a name frequently used but companies have different definitions of what it is—how do you define BPR?

   _____

   _____

2. Which parts of BPR, Systems Integration (SI) and Professionals Services (PS) does your company provide? Which companies, if any, do you partner with to provide some of these services? What is the competitive advantage from offering the full range of services?

   _____

   _____

3. Did any of your BPR projects lead to SI work or any SI projects lead to BPR work? If so, why did this occur?

   _____

   _____

4. What percentage of BPR projects led to SI? What percentage of SI projects led to BPR?

   _____

   _____

5. How many BPR projects have you worked on and what percentage of them led to SI projects?

   BPR:

   SI: _____

6.   Did you find a difference between the type of SI project coming out of the BPR work and the usual SI you are asked to perform? Example differences could includes areas such as: scope, pricing, type of contract, client relationship etc.

_____

_____

7.   Did you find a difference between the type of BPR project coming out of the SI work and the usual BPR you are asked to perform? Example differences could include areas such as: scope, pricing, type of contract, client relationship etc.

_____

_____

8.   Do your customers spend more, less or an equal amount with you on BPR compared with SI?

_____

Do you expect this ratio to change over the next 3 years and why?

_____

9.   What are the differences between the BPR and the SI purchase decision makers in the user organisations?

_____

_____

10. Explain any ways in which user interest in BPR affects your service business?

_____

_____

11. In which areas are the skills of your BPR and SI consultants having to change?

_____

_____

12. Who, would you say, are your top 5 competitors in the BPR field?

1. _____

2. _____

3. _____

4. _____

5. _____

13. Who, would you say, are your top 5 SI competitors?

1. _____

2. _____

3. _____

4. _____

5. _____

14. As part of this research we would like to speak with users who have used BPR and SI services. Could you supply us with details of 5 clients who have used your services in this area?

	Company	Contact	Telephone Number
1.			
2.			
3.			
4.			
5.			

15. Do you have any other comments you wish to make regarding the relationship between BPR on SI?

_____

_____

Thank you for your assistance

(Blank)