MAY 1992

CANADIAN INFORMATION SERVICES MARKET

1992-1997

INPUT®

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Canadian Information Services Market, 1992-1997

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Abstract

This report provides an analysis of the Canadian information services market in 1992 and projections of growth for the period 1992 through 1997. Performance is analyzed for the processing services, applications and systems software products, turnkey systems, systems integration, systems operations, professional services and network services delivery modes, and for selected industries including discrete and process manufacturing, banking and finance, insurance, wholesale distribution and government. Interest in and potential use of new technology and outsourcing is also explored.

Research for this report included reviews of secondary sources of information and intensive data gathering from vendors and users about the use of information services and the reasons and selection criteria that are involved. One of the factors involved—the preference for Canadian vendors that some users state they have—is analyzed further. User ratings of a group of vendors in regard to general strengths is also included.

Results of the research indicate that the Canadian economy and the free trade agreements are having a severe impact on users of information services, but that the outlook for the use of these services offers opportunities to vendors who analyze conditions in the market. Results also indicate that the attitudes of users in the Canadian market toward services vendors are different from those in the U.S. market and should be factored into marketing plans.

This report contains 128 pages, including 99 exhibits.

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Introduction

A
Purpose and Scope

This study of the information services market in Canada draws upon a comprehensive study of the market that INPUT performed in late 1990 and the study of the Canadian federal marketplace that INPUT delivered in 1991. As in the previous study of the information services market, this report examines:

- The growth of the information services market as a whole over the next five years. Expenditures for the eight delivery modes of services and their components are developed for the five-year period.
- Expenditures for information services in six industry markets were also developed for the five-year period. These markets include manufacturing, banking and finance, insurance, wholesale distribution, federal government and the remainder of the market, which is referred to as "other" industries in this report.
- The driving forces, inhibiting factors and new information technology that are having an impact on the use of delivery modes in the Canadian market.
- The selection factors that can have an impact on the choice of vendors as well as the attitudes and factors that can influence users to select Canadian vendors.

Differences in the outlook of vendors and users regarding driving forces, and other factors that can have an impact on purchases are also explored. These differences are important enough to make the Canadian market challenging to vendors who have entered or plan to enter it.

The unique environmental conditions and opportunities of the Canadian market are also explored in relation to the impact they have on the use of information services.

- The use of these services and of IS equipment has expanded during the past two years despite poor economic conditions.
- There is a general acknowledgement that the use of information services will expand to counter business problems and aid in the recovery of the economy.

B
Methodology

1. Research/Analysis

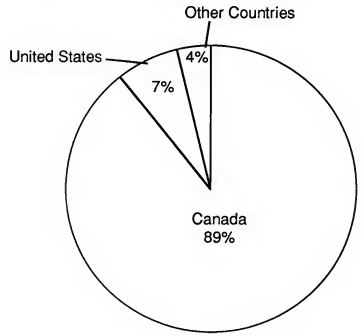
Extensive primary and secondary research was conducted for this report.

- The primary research included telephone interviews with executives, managers and analysts at 53 user organizations and 25 vendors of information services. A selection of information from this report will be provided to these firms as an incentive for contributing to this report.
- The user interview respondents were selected from lists that included a range of companies by revenue size. Interview procedures were followed to secure interviews from a selection of firms in each industry market of interest to this study as described above. More information on user respondents is included later in this chapter and in Appendix B.
- The vendor interviews included Canadian companies, branches or subsidiaries of U.S. companies established in the Canadian market and U.S. companies that have recently begun to do business in Canada or are considering such a move. Additional information on vendor respondents is included later in this chapter and in Appendix B.

As Exhibit I-1 demonstrates, the vendors and subsidiaries or branches of U.S. firms that are active in the Canadian market earn most of their revenue from the Canadian market, although two Canadian firms—SHL and DMR—have sizable revenues from other countries. Subsidiaries of U.S. firms provided revenue information only in reference to the Canadian subsidiaries, although this did include some non-Canadian business in which some of these subsidiaries engaged.

EXHIBIT I-1

Geographic Source of Vendor Revenue, 1991 (Among Respondents)



The percentage of vendors that participated in the study that were active in each delivery mode is shown in Exhibit I-2 with the percentage of users included in the study who used each delivery mode.

EXHIBIT I-2

Respondent Coverage by Delivery Mode

	Users	Vendors
Processing Services	52	38
Network Services	57	29
Systems Software	85	19
Applications Software	77	48
Turnkey Systems	40	33
Systems Integration	30	48
Professional Services	79	95
Systems Operations	26	48

2. Forecasts

The financial data collected and assembled for presentation in this report are in Canadian dollars. At the time the data were collected, the exchange rate was 1.18 Canadian dollars to one U.S. dollar.

All expenditures are aggregated for the industry groupings selected for this report. They would be separated into industry-specific, cross-industry and other (which includes systems software) categories and forecast separately in the U.S.

Following the conventions of the last report, the forecast data do not reflect adjustments for the inflation rate. The inflation rate is now around 2% , and it is not regarded as significant in terms of generating pressure on current information services prices.

Some revenue figures may be rounded for display purposes in the exhibits. Appendix C provides more accuracy and expansion of revenue information, including CAGRs.

C
Report Organization

The chapters following this introduction are divided into five groups as follows:

- Chapter II is an executive overview of the report.
- Chapter III describes the Canadian information services market, including the economic, political, and other environmental factors. Market drivers, inhibitors, technological factors, vendor selection criteria, attitudes about non-Canadian vendors and forecasts by delivery mode and industries of interest are included in this section.
- Chapters IV-X provide specific information about each service delivery mode, and address points raised in Chapter III that pertain to each mode.
- Chapter XI presents conclusions and recommendations about the information services market in Canada and steps that vendors should take in regard to this marketplace.
- Appendixes provide detailed information regarding the definition of terms used in the report, respondent demographic data, the industry forecast data base and a comparison with the forecast previously prepared for the Canadian market.

D
Related INPUT Reports

Other reports from INPUT that are of interest in relation to this report include:

- *Canadian Federal Government Information Technology Market, 1991-1996*
- *Worldwide Information Services Forecast, 1991-1996*
- *European Information Services Industry Analysis and Forecast, 1991-1996*
- *U.S. Information Services Industry Forecast Book, 1991-1996*

II

Executive Overview

This overview provides a general assessment of the business environment in Canada as it relates to information services, and a high-level review of the information services marketplace, the key factors that have an impact on it, and conclusions and recommendations that have been developed in this report.

A
Business Environment

The Canadian economy is still suffering from the recession that began in the third quarter of 1990, and there is no definite projection of when the economy may recover.

In addition to the recession, a number of other factors are currently depressing the economy, as shown in Exhibit II-1.

EXHIBIT II-1

Business Environment

- Recession
- Impact of free trade
- Low productivity
- Federal budget and taxes
- Need for improved business systems and telecommunications
- Limitations on funding automation

- The impact of free trade is, after the recession, the leading concern. U.S. companies that had plants in Canada to avoid import tariffs have been moving activity back to the U.S. or to other locations, thereby increasing unemployment in Canada.

- The relatively low level of productivity in Canadian plants has contributed to the situation described above, according to business analysts such as Kenneth Porter.

- The weight of the federal budget and taxes, particularly to support health care, also have a depressing effect upon business.

As noted in Exhibit II-1, however, there is a general realization in Canadian companies that improved business systems and telecommunications are needed. Canadian companies report that they need to upgrade ordering, accounting, manufacturing and other systems and expand network contact between offices as well as with suppliers and customers in order to improve productivity and compete more effectively.

Business conditions and situations differ between industry groups, as shown in Exhibit II-2. Users in some industries are much less likely to have funds available for automation. There are arguments for increased use of information systems to reduce costs or meet competition that can outweigh funding limitations in several markets.

- Expansion of information systems use in the federal government is quite limited by commitments to keep budget increases to a minimum.

- Although expansion is limited by business conditions in manufacturing, pressures to improve productivity and expand connectivity within companies or with suppliers and customers will lead to some expansion in the use of information services.

- In finance (banking and brokerage activities) and insurance, the possibility of lowering costs through increased automation and the need for application systems to support restructuring will lead to a healthy demand for information services despite lending problems and the condition of the economy.

- Automation will continue to expand in wholesale distribution due to demand for network services, particularly EDI, as a means of expediting business and reducing costs. There is also demand for new systems in warehouse operation, expanded use of bar code technology, and more responsive supply capabilities.

There is also significant growth in other industry markets that were not investigated as thoroughly as the markets described above due to the interests of the sponsors of this report.

EXHIBIT II-2

Selected Industry Characteristics

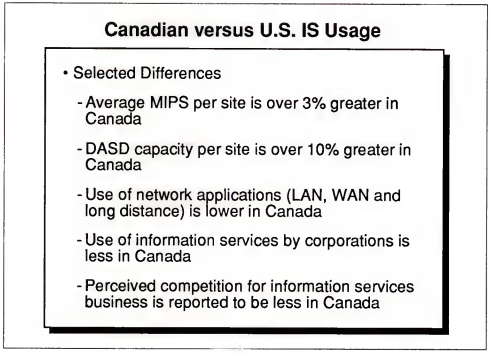
Industry	Selected Factors
Manufacturing	• Free trade impact • Need for increased productivity • Tax burden • Need for network capabilities • Funding limitations
Banking/finance and insurance	• Lending problems • Condition of economy • Pressures to save costs through automation • Restructuring • Diversification from basic business
Wholesale distribution	• Increasing automation • Need for more network capabilities •Weakness in manufacturing • Tax burden
Federal government	• Very tight budgets • Need for more automation
Other	• Expanding need for automation in telecommunications • Need for improved business systems and networks • Funding limitations

- In particular, the telecommunications industry and provincial governments are seeking technical assistance in obtaining economical means of expanding their use of information technology.

- Cost savings and more efficient business operation are driving the use of information services in retail distribution.

As noted in Exhibit II-3, one of the differences that respondents report in the use of information systems in the Canadian market as opposed to the U.S. market is less use of information services for corporations of similar sizes and less competition for that business. Other differences listed in Exhibit II-3 that were reported or obtained from secondary sources suggest that Canada is slightly behind the U.S in decreasing use of mainframes and moving toward more use of workstations and networks.

EXHIBIT II-3



One factor that stands out across all industries in regard to the use of information technology is the shortage of available funds, as noted in Exhibit II-1.

- This factor has been important in the rapid growth of outsourcing of operations because it is a means of reducing up-front investments in technology as well as personnel costs.

- This factor also has an impact on the selection of vendors. Because there is awareness of limitations in the expenditures that companies can make for information technology, some Canadian users as well as vendors feel that a preference should be shown for Canadian vendors, as noted in Exhibit II-4. Several users noted that subsidiaries of U.S. companies were really not Canadian in this regard.

EXHIBIT II-4

User Preferences for Information Services Vendors in Canada

Selected Factors	User Preferences
Nationality of Vendor	Preference for Canadian reported (but can include some Canadian offices of U.S. firms)
Software Products	Most highly evaluated or frequently used even if U.S. products
Key Vendor Characteristics Sought	Overall reputation Low cost Technical capability Knowledge of client's business
Vendor Image Considered Desirable	Large, stable company Close, supportive relations with client

The preference for Canadian vendors is not expressed in terms of computing hardware since it doesn't appear economic to support manufacturers in Canada, but it is expressed strongly in regard to most information services.

Although there is a general feeling that there are enough U.S. information services vendors in the market at present and that Canadian vendors should be favored, users report qualifications for vendors that could favor some U.S. companies, as shown in Exhibit II-4.

- Subsidiaries or even offices of U.S. companies with which they have been in contact for a period of time are looked upon as natives by some users, showing that investment of contact time and good relations can be effective for U.S. vendors.

- The general willingness of Canadian companies to use the best known and rated software, wherever it comes from, also shows that there is not a strong barrier against U.S. companies in many situations.

- The characteristics and image that Canadian firms report as important in vendor evaluation, shown in Exhibit II-4, can serve as arguments for favoring large U.S. vendors. Smaller Canadian vendors could find themselves at a disadvantage in regard to reputation, technical capability, knowledge of a client's business and/or lower costs when competing with some large, well-known U.S. firms.

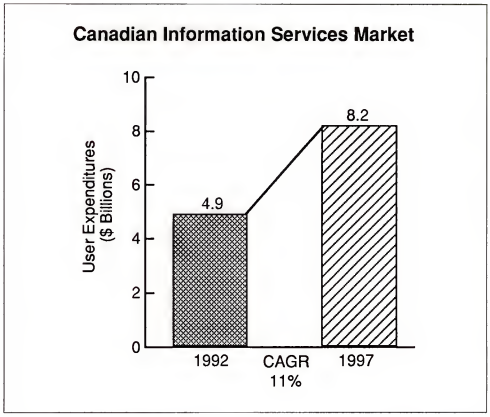
The relationships with past clients or contacts that Canadian vendors have counted on in the past must not be overlooked in evaluating competition, however. This will continue to be a strong factor in some contract awards.

B

Summary of Information Services Forecasts

INPUT's forecast of the information services market in Canada is shown in Exhibit II-5. INPUT forecasts that the market will grow at a compound annual growth rate (CAGR) of 11%, from $4.9 billion in 1992 to $8.2 billion in 1997. In Chapter III, Section E INPUT provides its projection of the total spending on information technology in the Canadian market.

EXHIBIT II-5



- Areas of high growth in CAGR and dollar volume will include systems operations (outsourcing of applications processing in particular), software products and professional services.

- Systems operations will grow at a CAGR of 22%, reaching over $800 million in 1997.

- The use of applications software products will grow at a CAGR of 13% and reach a level of nearly $1.4 billion in 1997. Expenditures for applications and systems software products, which amount to about $1.4 billion today, will grow to $2.4 billion by 1997.

- Expenditures for professional services, which will remain the largest individual delivery mode, will grow from $1.2 to about $2.1 billion at a CAGR of 12%.

- Network services—including the use of EDI—will grow at a high CAGR of 17%, reaching over $530 million in 1997.

- The CAGR of systems integration will decrease to 9% while growing to $1.1 billion in 1997 because of a reluctance to commit to and invest in large projects. Some vendors will report substantial revenue in this mode of service delivery, however, since there are large companies reporting a pressing need for projects that will require the integration of products to meet complex needs in financial and manufacturing applications.

- Industry-specific processing services will experience a sharp fall in growth over the next five years (a CAGR of 2% over that period) due to the movement of work in-house to client/server and other platforms or a shift to full systems operations.

The largest gains in additional business are summarized by delivery mode and selected industries in Exhibits II-6 and II-7.

EXHIBIT II-6

Largest Gains in Information Services Delivery Modes, 1992-1997

Delivery Mode	CAGR 1992-1997 (Percent)	Projected Additional Business, 1992-1997 ($ Millions)
Professional Services	12	870
Applications Software Products	13	640
Systems Operations	22	505
Systems Integration	9	385

EXHIBIT II-7

Largest Gains at Information Services in Selected Industries

Industry Group	Growth in $ Millions, 1992-1997	CAGR 1992-1997 (Percent)
Banking and Finance	765	14
Discrete and Process Manufacturing	310	6
Insurance	215	13

Several changes or possible trends in the use of information services were mentioned by both users and vendors. One trend is that some users have undertaken or are considering systems integration projects.

- Rather than commit to the investment and vendor relations of an SI project, some users have been formulating and implementing solutions to problems using an internal systems integration approach. This has stimulated the growth of both the professional services and applications software products modes and depressed the growth rate of systems integration to some extent.

- Several vendors report that they are supporting the approach mentioned above by consulting with users and supplying project management, technology assistance, network capabilities and other professional services in step-by-step projects to meet user needs.

The second trend concerns the use of systems operations. The interest in outsourcing platform and application processing to a vendor, who can help to plan and fund the investment in information technology as well as lower expenses for skilled personnel, is extremely strong. It is accompanied by growing interest in other types of outsourcing, including moving the responsibility for managing and performing application development and maintenance to a vendor, as is now being done in the U.S.

C
Technology Trends

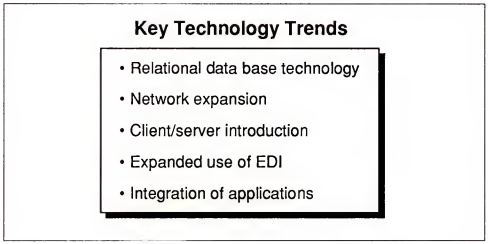
The use of information services is reported to be highly influenced by trends in the use of information technology in Canada, according to users and vendors in the market.

- The desire to expand network capabilities and take advantage of EDI are two of the technological factors that are having an impact in industry markets, as noted previously.

- LAN use and the introduction of client/server technology has led to greater use of professional services consulting and software products. Some vendors, however, have reported that they think this technology, as well as projects to downsize application systems, will reduce sales of their software products and services for minis and mainframes.

The specific technology trends mentioned most frequently by users and vendors are summarized in Exhibit II-8. In addition to the topics just mentioned, relational data base use and the integration of applications were also highlighted.

EXHIBIT II-8



- Relational data base use and network expansion were mentioned by users who were implementing application systems that tied together operations at a number of sites and offices as well as by users who were implementing client/server applications on LANs. Both types of users were interested in software products and consulting services that could be of use in obtaining and controlling access to data..

- Integration of applications was mentioned in regard to efforts to consolidate functions and reduce costs within companies as well as in relation to network applications that served multiple purposes.

Although other technological topics such as the use of CASE and productivity tools were also mentioned, they were not emphasized as much as those discussed.

- Several users noted that their current emphasis was on getting jobs done to lower costs or improve performance.

- This could involve the use of vendors if it was cost effective, but would not focus on training the vendor's staff to use new tools, because that could lengthen the time and raise the cost of completing jobs.

The price of vendor services and other nontechnological factors that were mentioned in relation to vendors in Exhibit II-4 can have more of an impact in vendor selection than the technological factors just discussed.

- Price and the reputation of the vendor and/or its size and stability may be the critical factors in selecting a vendor.

- Relations between the vendor and the prospect based on past work or regular contact could also be the most important consideration. This could be more important in the Canadian than in the U.S. market.

- U.S. vendors who submit a remote bid for a Canadian job and focus on price, technical capabilities, company reputation, size and application knowledge—because these are rated highly in the Canadian market—may be surprised to find out the extent to which relationships may outweigh these factors.

D
Selected Information Services Vendors

Selected vendors of information services in Canada that are shown in Exhibit II-9 include leading hardware, Big Six and information services vendors from the U.S. as well as Canadian vendors.

- Some Canadian vendors feel that the large U.S. or international vendors (or their subsidiaries) like IBM, DEC, EDS and Andersen, which are included in this list, are taking over more of the market.

- Recent strong moves into outsourcing by SHL and ISM illustrate that Canadian firms have the ability to lead areas of the market. In fact, IBM has joined ISM in efforts to obtain outsourcing work.

Smaller Canadian firms active in a narrow range of software products or services have legitimate fears that additional strong U.S. vendors will enter Canada and have lower fees, knowledge of industries and application systems that can appeal to prospects in need of rapid productivity improvements or cost savings.

EXHIBIT II-9

Selected Vendors of Information Services Canadian Market (1991)

Company	Market Share (Percent)*	Key Products/Services
Andersen	1-2	Professional services, SI
CGI	1-2	Professional services, SI, systems operations
DEC	4-6	Software products, SI, professional services, network services
DMR	1-2	Professional services, SI
EDS	1-2	Systems operations, professional services
IBM	over 10	Software products, professional services, SI, processing, SO
ISM	6-8	Processing, systems operations, professional services
IST	1-2	Processing, turnkey systems, professional services
LGS	1-2	Professional services, software products
SHL	3-5	SI, systems operations, professional services

* Noncaptive information services

Several Canadian companies noted that they can take action against new competitors by using their relationships with prospects to research and address opportunities first or as a means of attracting a U.S. or other Canadian company as an ally.

The mix of information services products offered by U.S. vendors differs somewhat from products offered by Canadian firms. The large, U.S. hardware vendors offer a larger range of software products than do the largest Canadian vendors. As noted, the Canadian firms have been more active in systems operations, although EDS has some business in this area.

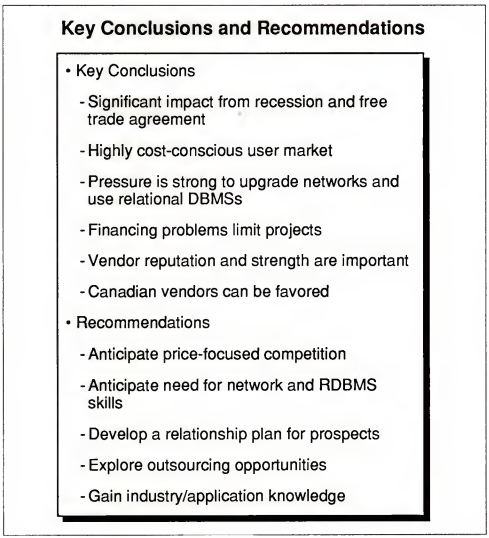
Canadian users do feel that U.S. firms may have more up-to-date knowledge of technology or are better able to perform strategic planning, however.

E

Key Conclusions and Recommendations

As summarized in Exhibit II-10, the most notable factors in the Canadian information services market are the impact of the recession and free trade and the cost-conscious attitude of IS users.

EXHIBIT II-10



- This is reflected in the difficulties that users report in obtaining funding for projects and activities.

- The fact that near-term savings and benefits can be achieved through the use of information services to upgrade applications and networks or reduce the cost of using older systems is having a mitigating effect on funding limitations in some situations, however.

The importance of achieving savings or expanding business is making users more interested in vendors who have experience and knowledge that is applicable to their problems.

- Vendor reputation, strength in terms of size and financial stability, and pricing can be more important in competition for work, however.

- Canadian vendors can also be favored, as previously discussed. The favoritism may be due more to the familiarity that Canadian vendors have with the market and customers than to other factors. This favoritism principally involves a previously established relationship with prospects.

The key recommendations outlined in Exhibit II-10 emphasize means of addressing the Canadian market, including an emphasis on developing a relationship plan for prospects.

- The plan could include gaining industry and application knowledge as a means of establishing a relationship as well as preparing for bids and work.

- The plan must include an ongoing program of contacts in prospect companies to establish confidence in the vendor and vendor representatives.

Vendors should also be prepared with network and relational data base capabilities and experience that are needed by their prospects. Network needs can be wide ranging, including LAN network managers, electronic mail or imaging as well as knowledge of older software products such as CICS.

Because some decisions and awards will be price focused, the plan for developing relations with a customer should include steps to assess the importance of price as well as arguments that could overcome resistance to higher prices.

Methods of reducing the impact of fees, such as outsourcing application development and/or maintenance and enhancement that could lead to savings in personnel, should also be explored.

Market Summary

The continuing recession and problems resulting from the trade agreement have left the Canadian economy in a situation that has proved injurious to many corporations in Canada and to vendors—including information services firms—that provide them services. An analysis of specific industry markets and of information services use within these markets must be made before vendors offering these services can decide how investments to expand their business should be made or redirected.

A
Political and Economic Setting

The recession in the Canadian economy—which began in the third quarter of 1990 according to economists at Canadian banks—started as a downturn brought about by efforts to reduce inflation through monetary controls.

- The Bank of Canada and other banks began to raise short-term interest rates in 1989.
- The economy was reported to be declining by a rate of 1.6% by the second quarter of 1990.
- By late 1990, demand for industrial machinery as well as residential construction had fallen.

Both industry demand and consumer confidence have remained low since that time.

During the more favorable economic period between 1988 and 1989, trade agreements were entered into that have added to economic ills in Canada.

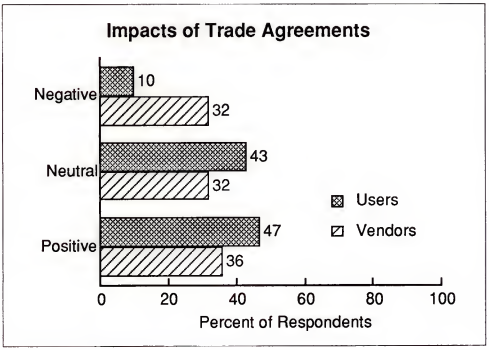
- Tariffs were lowered that had made it necessary for U.S. firms to maintain plants in Canada to avoid taxes.

- The plants might have stayed there if productivity was equal in the U.S. and Canada, but productivity proved to be lagging in Canada, so many U.S. companies moved their production south or to another country.

The trade agreements can provide positive impacts in some situations because Canadian companies can seek lower prices for services or products by using vendors from the U.S. as well as from Canada. Similarly, U.S. companies can use Canadian vendors if prices are lower.

Although this situation might be viewed as favorable for Canadian users of information technology because it would provide opportunities to gain products and services at lower prices, over half of the users interviewed feel neutral or negative about it, as shown in Exhibit III-1.

EXHIBIT III-1



- This is due primarily to the feeling that the trade agreements overall are having a bad impact on the Canadian economy.

- At the time of the last study, the feeling was not as pronounced; 60% of users reported that they were positive about these agreements.

Canadian information services vendors report more positive feelings about trade accords than at the time of the last study, however.

- Thirty-six percent report positive feelings versus 9% at the time of the previous report.

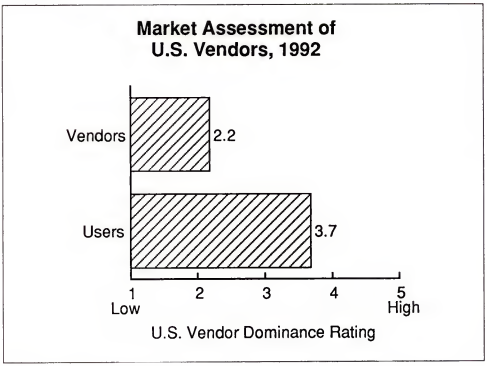
- Negative feelings have decreased from 39% to 32%.

The change in the attitude of some Canadian vendors, particularly larger ones and subsidiaries of U.S. firms, is due to the fact that these vendors feel that they have opportunities to sell in both the U.S. and Canadian markets. However, almost one-third of the vendors still feel negative about the accords.

- The vendors with negative attitudes tend to feel that their prices would suffer or have to be lowered to meet competition with U.S. vendors.
- Other fears are that business would go to U.S. firms because they were more familiar with new technology or had products or experience with solutions that were needed by prospects.

Overall, vendors active in the Canadian market feel that the dominance of U.S. vendors in the information services market is at a relatively low average rating of 2.2 out of 5 (high dominance), as shown in Exhibit III-2.

EXHIBIT III-2



- This is lower than the previous average rating of 2.5 that vendors reported in 1990.
- Users, however, report a higher average rating of 3.7 for dominance by U.S. vendors—raised from the average rating of 3.5 reported in 1990.

Vendors who rated U.S. dominance as low (below 3) are apt to assess the opportunities of U.S. vendors as low because they feel that "the playing field is level" or that U.S. vendors are primarily interested in hardware and related software, as shown in Exhibit III-3. This exhibit also shows that some users share the last-mentioned opinion or feel that U.S. vendors are not dominant since a local presence is needed, or consideration is given to Canadian vendors when awarding contracts.

EXHIBIT III-3

Reasons for Low Market Assessment of U.S. Vendors

Factor	User Rank	Vendor Rank
U.S. has bigger presence in hardware and software than in services	1	2
The playing field is level	-	1
Local presence needed	2	-
Low U.S. interest in market	-	3
Canadian vendors are considered for contracts	3	-

A number of other users as well as vendors feel that there are marketplace factors that can help U.S. vendors to be dominant, as shown in Exhibit III-4.

- Some users point to the fact that major hardware and software vendors are U.S. firms that can use their sales contacts to sell other products and services. These users appear to classify Canadian subsidiaries of major U.S. hardware/software suppliers as U.S. vendors.

- Users also note that reasons for U.S. dominance are that U.S. products and services are currently being utilized and that U.S. vendors are experienced in more markets.

- Some of these users are pointing out factors that must have been considered in their own decisions about information services vendors.

EXHIBIT III-4

Reasons for High Market Assessment of U.S. Firms, 1990

Factor	User Rank	Vendor Rank
U.S. has major hardware and software vendors	1	1
U.S. products and services are utilized	2	-
U.S. vendors have experience in more markets	3	2
Ability to invest	-	3

A number of vendors also believe that the position of U.S. vendors in hardware and software sales and their ability to invest and compete in more markets are reasons for their dominance.

- Overall, vendors do not feel that these factors will make the difference that users think they will. This could be short sighted for some Canadian vendors in view of the advantages users feel that U.S. vendors have.
- It might be useful, particularly for Canadian vendors who feel at a disadvantage, to try to uncover and address factors that could influence specific users.

B
Environmental Factors

1. Business and Technological Forces

Forces that users and vendors report as most important in generating information services expenditures are listed in Exhibit III-5.

- Users appear to be more focused on immediate issues such as the cost savings that can be generated by using services or the need for skills to get a job done.
- Needs to increase productivity, respond to business goals, meet competition or handle growth are recognized by users but ranked below immediate needs.

EXHIBIT III-5

Forces Driving Information Services Expenditures

Factor	User Rank	Vendor Rank
Cost savings	1	4
Skills need	2	8
Productivity	3	1
Response to business need	4	3
Competition	5	2
Growth	6	-
Distribution	-	5
Quality	-	6
Outsourcing	-	7

The current emphasis of users is due to the economic environment to a great extent. Although users have longer term objectives in mind, they report that they are driven by opportunities to generate cost savings more rapidly or use lower cost alternatives and by needs to find sources of technical skills, particularly network and data base capabilities that are critical to current projects.

As Exhibit III-5 indicates, some vendors are apt to concentrate on longer term issues and lose sight of the emphasis on cost issues that can drive decisions.

Differences in the outlook of vendors and users can also be seen in the average rankings that are given to technological factors that will be important during the planning period, as shown in Exhibit III-6.

EXHIBIT III-6

Ranking of Technology Importance

Factor	Average User Rank	Average Vendor Rank
Relational data base	1	-
Distributed data base	2	-
LAN	3	6
Client/server	4	1
Network	5	5
EDI	6	8
Electronic mail	7	-
Open systems	8	4
CASE use	9	-
Downsizing	10	7
Outsourcing	11	2
Imaging	-	3
Re-engineering	-	9

- Users are focusing on data base capabilities that will support integration of applications as well as client/server implementation.

- Users also have a high level of interest in network use in general, and in the use of LANs and client/server technology in particular.

Vendors have generally anticipated much of the interest of users in network, LAN and client/server use as well as their interest in EDI, but they do not appear to appreciate the interest that users have in new relational and distributed software technology.

Several of the ratings in Exhibit III-6 need further analysis.

- Outsourcing appears to be of greater interest to vendors than to users. Outsourcing currently involves a small percentage of the user market, so it receives less attention from users overall. However, the revenue that can be gained from this small number of large users makes it of interest to vendors.

- User comments also indicate that many users are more likely to view outsourcing as a method of service than a technological factor.

- Concern about open systems and CASE use is more significant than their ratings indicate. Larger users in manufacturing and banking are considering use of these technologies.

- There is also more user interest in downsizing than the average rating indicates. Some users do not associate the term downsizing with the movement of applications from a mainframe environment to client/servers or standalone workstations. They tend to think of that as distribution of functions or gaining local capabilities.

2. Inhibiting Factors

The chief factors that can inhibit users are reported to be economic conditions or expense constraints, as listed in Exhibit III-7.

EXHIBIT III-7

Forces Inhibiting Outside Services Expenditures

Factor	Average User Rank	Average Vendor Rank
Economy (or recession)	1	1
Higher cost of using services	2	-
Expense constraints	3	2
Government regulations	4	-
Impact on user organization	5	-
Downsizing	-	4
User doesn't have enough knowledge to utilize vendor	-	3
Loss of control by user	-	5

- Users also note that government regulations and impacts of using information systems on user organizations can be inhibiting factors.

- Users report that vendor pricing can be an inhibiting factor in some situations. Most vendors seem unaware of this factor.

Although vendors recognize that the economy and internal financial constraints can inhibit expenditures, some of them also stress other factors such as the introduction of downsizing, which they feel can limit revenue from software products and services. The vendors who are worried about downsizing have mostly been involved in selling software products and services for mainframe environments.

The impact of information systems on user organizations noted by users is similar to a factor noted by vendors—the loss of control of work by users.

Vendors also feel that some users do not have sufficient knowledge of what they want to do or how to utilize a vendor to ensure that projects are successful.

Although the factors regarding impacts on users, user control and the ability to use vendors successfully are not the leading inhibitors to information services use, they can be important factors in determining whether work will be successful. These factors should be revealed and addressed in selling and implementing projects.

C
Forecasts of the Canadian Market

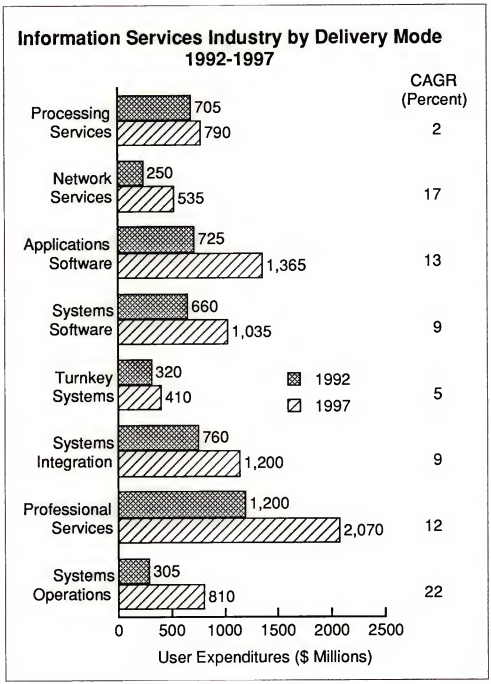
1. Forecast of Information Services

In Exhibit III-8, INPUT's forecast of the Canadian market for the period from 1992-1997 is shown by delivery mode. The forecast data base upon which this exhibit is based can be found in Appendix C. Please note that all forecasts are expressed in Canadian dollars and are shown in constant dollars without inflation.

Overall, INPUT's forecast of the market indicates that expenditures for information services will grow at a CAGR of 11% and increase from $4.9 billion in 1992 to $8.2 billion in 1997.

- As Exhibit III-8 indicates, expenditures for network services, applications software products, professional services and systems operations are growing at a faster rate than the market as a whole.

EXHIBIT III-8



- Expenditures for systems integration, turnkey systems, systems software products and particularly processing services are growing at CAGRs below that of the market.

Users report specific demands and needs for information services that are having an impact on some modes of delivery.

- Demands for EDI and electronic mail are driving demands for network services.

- A desire to find software products that can economically meet business needs or solve business problems with little modification is fueling demand for applications software products.

- A desire to use services to implement application systems more rapidly so that cost savings can be initiated sooner is driving the use of professional services.

Professional services use is also being driven by needs for aid with the use of new relational data base capabilities and with the use of client/server, LAN and network technology. Specific products/technologies in which users expressed interest included Oracle, DB2, Rdb, LAN Manager, NetView, TCP/IP and CICS.

Interest in lowering personnel costs and up-front investments in technology and having a vendor supply technical expertise and handle planning for upgrades in equipment and software products was mentioned as incentive for using systems operations.

Need for aid with large projects that required the products and services of multiple vendors was also mentioned in regard to SI, but some users also mentioned that there was a reluctance to commit funds to these projects because they could be costly to stop or delay once they were under way.

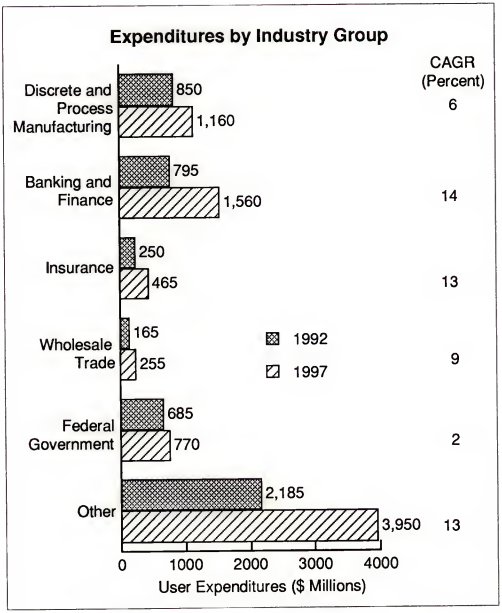
The use of turnkey systems was mentioned as a means of meeting needs through the efforts and control of one vendor. The fact that this vendor could also be called upon for support in the future was felt to be a strength of this delivery mode. The movement of many turnkey solutions to workstation/PC platforms was felt to be a reason for slower growth of expenditures for this mode.

The five-year CAGR of the overall market from 1992-1997 declined by two percent from the 13% rate forecast for 1990-1995 in the previous forecast, due principally to slower growth rates for systems integration and processing services. The low growth rate for turnkey systems also contributed to the drop in CAGR.

2. Forecast by Industry Group

Expenditures by the five industry groups that sponsors chose for this report and for the remainder of the market (which is referred to as other) are shown in Exhibit III-9.

EXHIBIT III-9



- Growth in manufacturing is inhibited and is held to a CAGR of 6% by the recession and the impact of free trade. Nevertheless, there is need for upgraded and new application systems for MRPII, shop floor applications and integrated manufacturing, and for expanded communication within plants and corporations as well as with suppliers and customers.

- Despite problems in lending and the impact of the recession on new business, the banking/finance and insurance markets will have CAGRs of 14% and 13% respectively, driven by needs to restructure and to save costs by upgrading lending, trust and customer account processing and by making greater use of EDI and other network services.

- Wholesale trade, both as an independent activity and as a segment of manufacturing activities, is increasing its use of information services at a CAGR of 9%, driven by needs to reduce costs through further automation of ordering and customer account processing and the use of EDI.

- Growth in the federal government is being held to a CAGR of 2% due to commitments to hold budget increases to a low level.

- Growth in industries other than those specified in this report is taking place at a CAGR of 13% due to activity in provincial government, retail trade, telecommunications and other industries.

3. Comparison to the U.S. Market

The comparison of information systems growth in the U.S. and Canada given in Exhibit III-10 shows that there are three delivery modes with similar rates of growth: professional services, network services, and applications software products.

EXHIBIT III-10

Information Services Growth in Canada versus the U.S.

Delivery Mode	CAGR in Canada, 1992-1997 (Percent)	CAGR in U.S., 1991-1996 (Percent)
Processing	2	8
Network Services	17	16
Applications Software Products	13	14
Systems Software Products	9	12
Turnkey Systems	5	9
Systems Integration	9	18
Systems Operations	22	17
Professional Services	12	12

- The growth of processing services will be well below the U.S. rate, due partially to the fact that movement from processing services to in-house workstations/PCs was delayed in Canada and is now catching up rapidly. Budget limitations in the Canadian federal government and manufacturing sectors will also have an impact on the relative rates of growth.

- Limitations in the growth rate of systems software products in the federal government market, and the drop-off in the sales rate for mainframe computers explain the slightly slower growth rate of user expenditures for systems software products in the Canadian versus the U.S. market.

- The more recent move to lower cost workstation/PC platforms for turnkey systems and the tendency of users to select applications software products rather than turnkey systems will result in a lower CAGR for turnkey systems in Canada than in the U.S.

- The effect of the continuing recession and the impact of free trade on the economy will have a sharp effect on the use of SI in the Canadian market, as shown in Exhibit III-10. Many users are inclined to take steps involving consulting, applications software products and professional services to achieve the solutions that they might have addressed with SI.

- Systems operations will benefit from the economic situation in Canada because users view it as a means of obtaining staff and cost savings as well as the benefits of new technology without making up-front investments.

The comparison of growth in industrial markets in Canada and the U.S. between 1992 and 1997 shown in Exhibit III-11 reveals the similarities and differences.

- The CAGRs for the entire market and the insurance, wholesale distribution and other grouping are relatively close.

- There are larger differences in manufacturing, finance and the federal government.

The growth of information services in the Canadian federal government will be held down by budget plans. Growth in manufacturing will be held down in comparison to the U.S. by the impact of free trade and the recession. Growth in finance will be higher than in the U.S. due to the need to upgrade systems to save costs and handle restructuring, as noted previously.

EXHIBIT III-11

Growth in Selected Industries in Canada versus the U.S.

Industry Market	Information Services (Percent)	
	Canada, 1992-1997	U.S., 1991-1996
Discrete and Process Manufacturing	6	12
Banking and Finance	14	10
Insurance	13	11
Wholesale Distribution	9	11
Federal Government	2	10
Other	13	13
Total	11	12

D
Analysis of the Market

1. Opportunities for Expansion

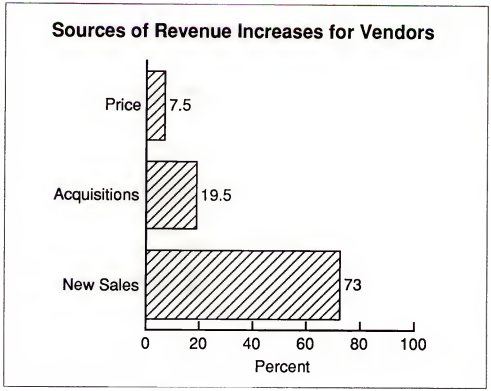
As Exhibit III-12 indicates, the principal means of expansion reported by respondents for 1991 was new sales.

- Due to economic conditions, price increases are not feasible in many situations.

- Acquisitions are also utilized to add volume in the delivery modes and industries currently served as well as to enter new markets and add delivery modes, according to industry respondents. Alliances are also used to obtain revenues from new modes or industries.

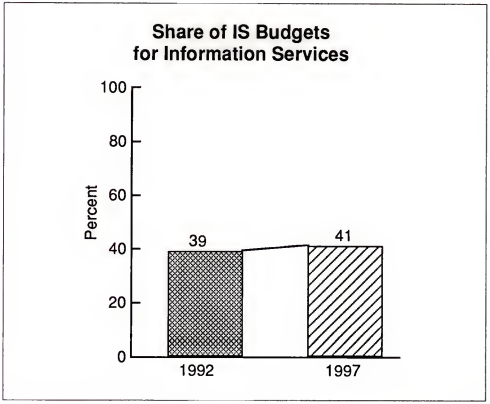
Additional sales can be obtained from IS as well as user budgets.

EXHIBIT III-12



- The percentage of IS budgets devoted to information services will increase over the planning period, as shown in Exhibit III-13.

EXHIBIT III-13



- This percentage will increase, partially to avoid the addition of personnel to budgets. It will also increase to meet needs for skills and to obtain applications software products to lessen in-house development work.

Functional business departments will also obtain information services directly from vendors. The full range of services, particularly SI and systems operations services, will be obtained directly by some users.

The future plans of corporations that can lead to the use of information services vendors are listed in Exhibit III-14.

EXHIBIT III-14

Future Plans and Use of Vendors

Plan	Respondents Who Plan This (Percent)	Respondents Who Will Utilize Vendor (Percent)
Integrating/upgrading networks	85	19
Integrating applications	75	23
Developing new applications	75	25
Maintaining applications	75	30
Migrating to new operating system	73	29
Developing strategic systems plans	71	30
Downsizing applications	65	33
Migrating to new DB environments	64	37

- Users expect to use vendor aid with application systems and networks as well as with migration, downsizing and strategic systems plans.

- Respondents plan to seek aid least often with networks, partially because they have or expect to add knowledgeable personnel to help with this task. The aid that they do seek could be highly influential in regard to their use of other capabilities.

- Aid will be sought most often in migrating to new data base environments and in downsizing applications. This points out that the fear that some vendors have about losing business as a result of downsizing could be addressed by supplying the software products and professional services aid that may be required for downsizing. Several large vendors who offer mainframe software products in the U.S. are adopting this strategy for client/server products.

2. Competitive Factors

Considerations that will be important in the future for selecting vendors for the aid mentioned above are listed in Exhibit III-15. These considerations do not correspond exactly with the considerations of driving forces discussed in Section B.

EXHIBIT III-15

Key Considerations in Vendor Selection

Factor	Relative Importance*
Overall reputation	1.0
Confidence in vendor staff	2.0
Technical capability	2.5
Low cost	2.5
Large and stable company	3.0
Experience in client's business	3.0
Becoming a strategic partner	4.0
Broad range of services	4.0

* Where 1 = High; 3 = Medium; 5 = Low Importance

- They emphasize the overall reputation of the vendor and confidence in the vendor staff. These attributes can be bolstered through a program of contact and presentations.

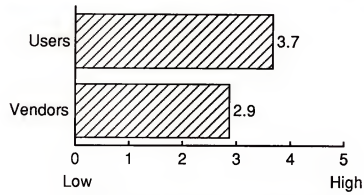
- Other considerations include technical capability, cost and experience in the business of the user. Cost may not be emphasized as much in this analysis because users are thinking of plans for the future without regard to current cost pressures.

- Considerations such as becoming a strategic partner or offering a broad range of services do not appear to be important.

One of the other factors that must be considered in regard to evaluation of vendors in the future is the extent to which U.S. vendors will be at an advantage or a disadvantage in the Canadian market. As Exhibit III-16 shows, users and vendors expect U.S. vendors to show strength in the Canadian market in 1997.

EXHIBIT III-16

Market Assessment of U.S. Vendors, 1997



- Users feel that U.S. vendors will continue to have the high level of strength that users accorded them in 1992.

- Vendors have raised their estimate of the strength of U.S. vendors from the level of 2.2 they gave for 1992.

Some users and Canadian vendors do not feel that U.S. vendors constitute a threat because the market is large enough to accommodate all players, or they feel business relations or sensitivity to the market will favor Canadian vendors, as shown in Exhibit III-17.

EXHIBIT III-17

Reasons for Decline of Strength of U.S. Vendors

Factor	User Rank	Vendor Rank
Canadian industry will grow	1	1
Business relations between Canadian vendors and industry	2	-
Canadian vendors know market needs better	3	-
U.S. style is not sensitive to market	-	2
Canadian vendors have areas of dominance	-	3

The majority of users and vendors who thought that U.S. dominance would be at a level of 4 or 5 out of 5 by 1997 felt that there would be strong reasons for this dominance, as shown in Exhibit III-18.

EXHIBIT III-18

Reasons for Increase of Strength of U.S. Vendors

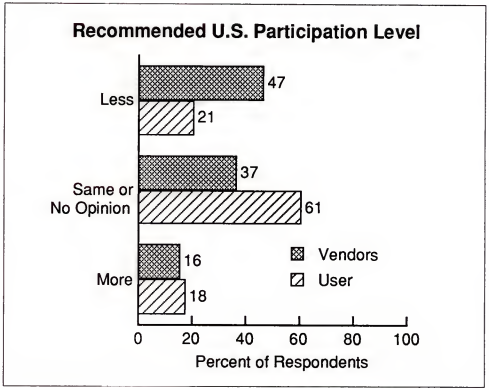
Factor	User Rank	Vendor Rank
More U.S. vendors in market	1	-
Increasing U.S. investment/ acquisitions	2	1
U.S. vendors will become more aggressive	-	2
Canadian companies cannot cover entire market	-	3

- These users feel that the number of U.S. vendors that would be in the market and the investments/acquisitions that they made would lead to more dominance.

- The Canadian vendors in this subset feel that U.S. vendors' investments, aggressiveness and ability to cover more of the market than Canadian vendors will lead to greater dominance.

Although some users and vendors would like U.S. vendors to increase their participation in the market, most would like their share to stay the same or decrease, as shown in Exhibit III-19.

EXHIBIT III-19



Reasons some vendors and users would like to have U.S. vendors maintain or increase their strength include providing aid with new technology. As Exhibit III-20 points out, users view U.S. vendor presence as a means of obtaining products and services that might not be available from Canadian vendors, as well as a means of obtaining lower prices through competition.

EXHIBIT III-20

Reasons U.S. Vendors Should Maintain Market Strength

Reason	User Rating	Vendor Rating
Provide missing products/ services	1	-
Canada needs aid with new technology	2	1
Compete with lower prices	3	-
Market should be open	-	2

Reasons other users and vendors would like to have U.S. vendors lose strength in the market are listed in Exhibit III-21.

EXHIBIT III-21

Reasons U.S. Vendors Should Have Less Market Strength

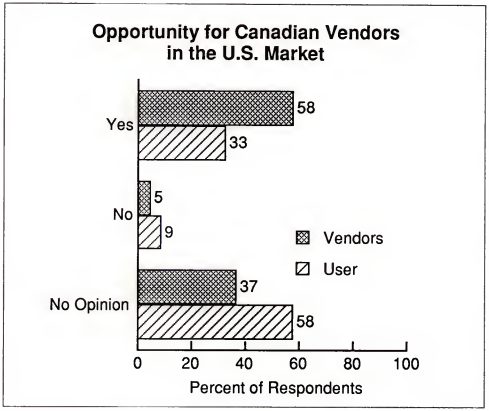
Reason	User Rating	Vendor Rating
Help Canadian firms financially	1	1
Too many U.S. vendors now	2	-
Insufficient market for both	-	2
Will enable Canadian vendors to improve service	3	-
Will depress prices, otherwise	-	3
Will enable Canadian vendors to compete in U.S.	-	4

- Users feel that this would aid Canadian firms financially and enable them to improve service.

- Vendors are concerned that business will be lost or prices will be depressed if U.S. vendors do not lose strength in the Canadian market.

Not all Canadian vendors feel that they are at disadvantage when competing against U.S. vendors. In fact, over half of vendor respondents felt that they had the capabilities for competing in the U.S. market, as indicated by Exhibit III-22. A smaller percentage of users feel that Canadian vendors have this opportunity.

EXHIBIT III-22



The limitations that some users feel Canadian vendors would have include resource limitations, small size and weak management, as shown in Exhibit III-23.

EXHIBIT III-23

Advantages or Limitations of Canadian Vendors in the U.S. Market

Users	Vendors
+ Know U.S. market sufficiently	+ They are selling in U.S.
+ They are selling in U.S.	- Canadian companies have disadvantages
- Resource limitation	- U.S. market protects U.S. vendors
- Canadian vendors are too small in general	
- They don't have strong enough management	

+ = Advantage, - = Limitation

- Other users (who have contacts or locations in the U.S.) feel that there are Canadian vendors who know the U.S. market sufficiently.
- Some users point out that Canadian vendors are doing business in the U.S. market already.
- Canadian vendors who feel that they can compete in the U.S. also point out that there are Canadian vendors who have succeeded in that market.

A number of Canadian vendors do feel that they would be at a disadvantage and that the U.S. market protects U.S. vendors, as illustrated by Exhibit III-23.

The specific limitations to which some users point in regard to Canadian vendors include not providing or supporting leading software products, not having certain skills and not offering certain delivery modes or services, as noted in Exhibit III-24.

EXHIBIT III-24

Limitations in Products and Services of Canadian Vendors

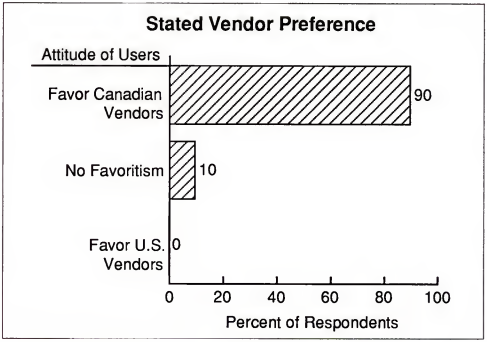
- Leading software products
- Knowledge of new technology
- Specialized technical skills
- Networking capabilities
- Some delivery mode services

- Canadian vendors need certain skills such as network application and data base skills, which users in the Canadian market stress should be addressed by vendors.

- One means of overcoming such deficiencies is to use alliances. SAP and other foreign vendors have used alliances with U.S. vendors to supply systems integration services and skills needed by prospects in the U.S. market.

Since there is favoritism for Canadian vendors that many users express, as shown in Exhibit III-25, some vendors may count on exploiting that preference rather than finding out whether the users with whom they are in contact or have business feel that they have limitations in skills or experience.

EXHIBIT III-25



The reasons given for favoring Canadian vendors do not stress their capabilities, as Exhibit III-26 points out.

EXHIBIT III-26

Reasons for Preference for Canadian Vendors

Reason	Percentage of Respondents
Canadian vendor can do most jobs	80
Rather spend on a Canadian company	51
Less travel time or costs	30
More knowledge of market	9
Other reasons	10

- The majority of users state that Canadian vendors can do most jobs and that they would rather spend money on a Canadian company.

- Less than one-third of users justify their preference by stating that it may cost less because less travel will be involved.

In order to gain further information about users' perceptions of information systems vendors in the Canadian market, users were asked to rate a group of vendors on strategic consulting, system building and technical consulting, as shown in Exhibit III-27.

- As might be anticipated, general consultants are ranked higher for strategic consulting than for other categories.

- Vendors who were given higher ratings for technology consulting were vendors whose companies and parents were associated with information technology.

- Companies that were given a higher ranking in strategic consulting or systems building included only four of the vendors that were ranked, and none of those vendors was ranked higher in both categories.

- Five vendors stood out in regard to technical consulting, and four of these five vendors started business in Canada.

EXHIBIT III-27

Rating of Information Services Vendors in the Canadian Market

Vendor	Ratings of Respondents for		
	Strategic Consulting	System Building	Technical Consulting
Andersen Consulting	5	3	3
CGI	3	3	3
Coopers & Lybrand	3	2	1
DMR	3	4	4
EDS	3	3	4
Ernst & Young	3	3	3
ISM	3	3	4
LGS	3	3	4
SHL	3	4	4

1 = Low, 5 = High

When vendors are considered on an individual basis, Canadian vendors receive a better evaluation from users.

One of the opportunities that Canadian vendors could utilize to differentiate their services, based on Exhibit III-27, would be to strengthen their capabilities and image in regard to strategic consulting.

DEC and IBM were not included in the list of Canadian vendors rated, because it was not possible for users to express opinions about these vendors based only on their information services business.

E

Total Information Technology Spending

Exhibit III-28 provides INPUT's estimate of total spending in the Canadian market on information technology and the related staff and facilities. INPUT uses this projection to define the total opportunity for information services and software products companies—the total information technology spending identifies the total market potential.

EXHIBIT III-28

Total Information Technology Expenditures
Canada, 1992-1997

Category	1992 ($B)	Percent	1997 ($B)	Percent	CAGR (Percent)
People	3.8	27	5.4	25	7
Equipment	3.1	22	4.3	21	7
Data Communications	0.4	3	0.9	4	18
Software Products and Turnkey Systems	1.7	12	2.8	13	10
Other Information Services	3.2	23	5.4	25	11
Equipment Services	0.4	3	0.6	3	8
Facilities and Overhead	1.4	10	1.9	9	6
Total	14.0	100	21.3	100	9

The total spending on information technology is estimated to be $14.1 billion and will grow to $21.3 billion by 1997.

With the outsourcing trends and the impact of downsizing on the internal information systems function, the portion of spending that goes to software products and information services vendors will grow from 35% of the total in 1992 to 38%. Should these fundamental shifts in approach to the deployment of information technology increase in impact, the percentage will grow even more.

IV

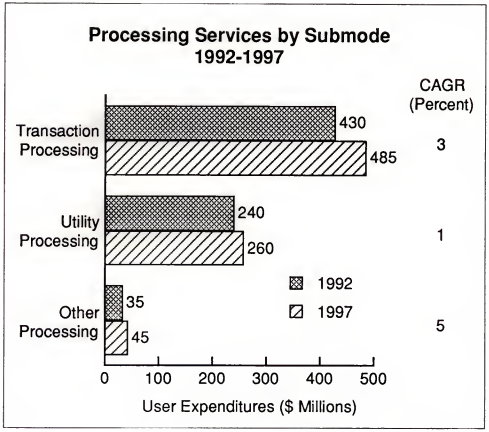
Processing Services Market

A

Processing Services Market, 1992-1997

The slow overall growth of 2% forecast for this market between 1992 and 1997 is caused by slow rates of growth for utility and transaction processing, as illustrated by Exhibit IV-1.

EXHIBIT IV-1



- Forecast growth for both of these modes has decreased by 3% or more since the last report because of the negative effect of the economy and movement of work to systems operations or to workstations and client/server technology.

- Other processing, which includes disaster recovery and backup, is increasing at a faster rate than transaction and utility processing, but this mode is much smaller in volume of expenditures.

Although processing is growing at a slow rate, there are industries in which processing continues to have sufficient growth to be of interest to vendors.

- As Exhibit IV-2 indicates, one of these industries is manufacturing.

- Additional industries with relatively high growth rates for processing services include components of the "other" group, including transportation and retail distribution.

EXHIBIT IV-2

Industries In Which Processing Services Are Growing Most

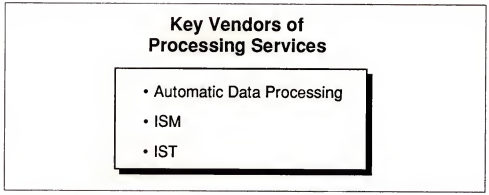
Industry	Growth 1992-1997 ($ Millions)
Manufacturing	18
Other (particularly transportation and retail distribution)	51

B

Processing Services Vendors

Selected vendors of processing services are listed in Exhibit IV-3. Two of the three companies listed started business in Canada.

EXHIBIT IV-3



- The U.S. vendor, ADP, has extended its capabilities and ability to gain market share in the U.S. market to the Canadian market, but the market is dominated less by U.S. vendors than are most other information services markets in Canada. This is partially because a significant portion of processing services are delivered locally or regionally.

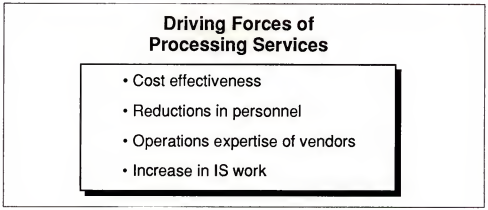
- Both of the Canadian vendors identified in Exhibit IV-3 have sizable amounts of revenue from other delivery modes, including systems integration and professional services. ISM also has business in the systems operations delivery mode. Processing has been one of the pathways to systems operations work in the Canadian as well as the U.S. market.

There are additional Canadian firms with a small amount of processing work related to their other business, such as InfoGlobe and HTS.

C
Factors in the Processing Services Market

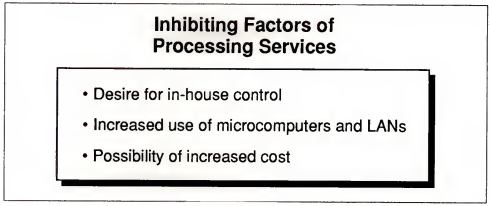
Forces that are continuing to drive the use of processing services include cost effectiveness and reductions in personnel, as noted in Exhibit IV-4. The possibility of gaining operations expertise from vendors as well as increasing in-house IS work can also promote the use of processing vendors.

EXHIBIT IV-4



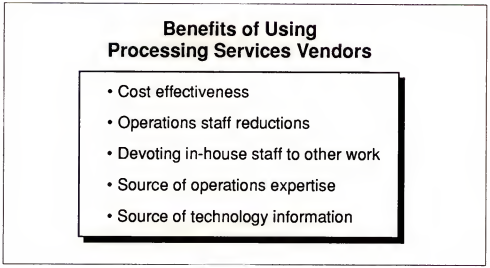
Inhibiting factors listed in Exhibit IV-5, such as possible loss of control of work, increased use of microcomputers and LANs, and the possibility of increased cost can limit the extent to which vendors of processing services can be used.

EXHIBIT IV-5



The benefits of using processing vendors are reported to be chiefly cost effectiveness and operations staff reductions, as pointed out in Exhibit IV-6. Using these vendors can also be a source of operations expertise and technology information for the in-house IS staff.

EXHIBIT IV-6



V

Network Services Market

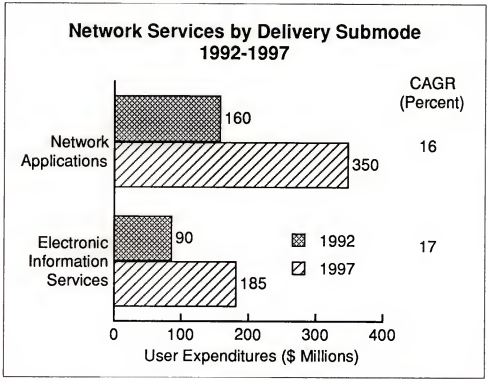
A

Network Services Market, 1992-1997

The overall CAGR of the network services market, 17%, has remained close to the previous forecast of this market. (See Appendix C.)

Exhibit V-1 shows that the fastest growing and largest component of network services is network applications, driven by the use of EDI and, to a lesser extent, electronic mail. Electronic information services will also enjoy growth as more companies make use of on-line files of corporate, general business and other information.

EXHIBIT V-1



The use of network services is growing very rapidly in banking and finance, as shown in Exhibit V-2.

EXHIBIT V-2

Industries In Which Network Services Are Growing Most

Industry	Growth 1992-1997 ($ Millions)
Banking and Finance	66
Manufacturing	29
Insurance	18
Other (particularly transportation, provincial government and retail distribution)	164

- Use in banking and finance is driven by demand for EDI and for on-line data bases of equity prices and other business information.
- Network services are also being used to a significant extent in industries other than those specified for this report, particularly transportation, provincial government, retail distribution and health services.

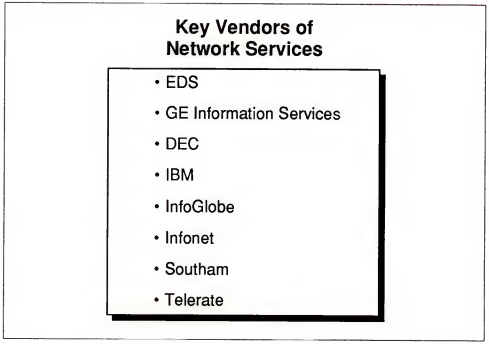
B

Network Services Vendors

As Exhibit V-3 illustrates, there are Canadian vendors such as InfoGlobe and Southam and U.S. vendors such as Telerate and GEIS that are well known for network services in this market.

- Vendors known principally for other information services, such as IBM, also offer services in this market.
- In addition, there is interest in network services on the part of vendors who are not presently offering services in the market. The growth rate for network services is encouraging information services vendors to become interested in the possibility of selling these services to their contacts.

EXHIBIT V-3

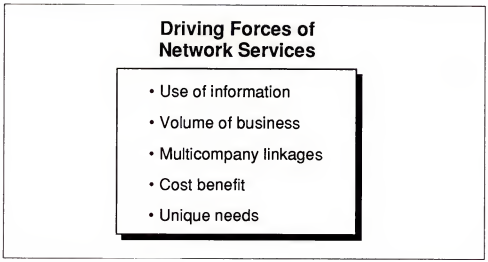


C

Factors in the Network Services Market

The driving forces that respondents mention in regard to network services include companies' use of information and the volume of their business transactions, as illustrated in Exhibit V-4.

EXHIBIT V-4



- The first force refers to the use of information obtained from electronic information services and was mentioned by manufacturers, banks, and insurance companies as well as companies in the other category.

- The second force was used by manufacturers, distributors and members of other industries to refer to the use of network applications to aid with EDI or other means of communicating with customers or suppliers.

The ability to achieve multicompany linkages for business purposes or to obtain cost benefits through the substitution of electronic for paper communication are also driving forces, according to respondents.

Respondents also indicated that internal systems and the possibility of other alternatives such as CD ROM for on-line information were possible inhibiting factors, as pointed out in Exhibit V-5. Vendors of network services mentioned that consolidations could also inhibit or limit use of network services by reducing the number of users or the distances that were involved.

EXHIBIT V-5

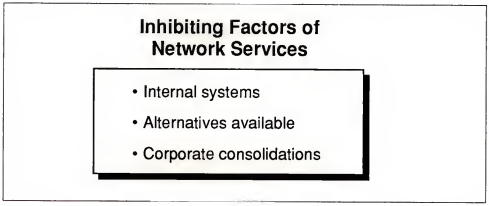
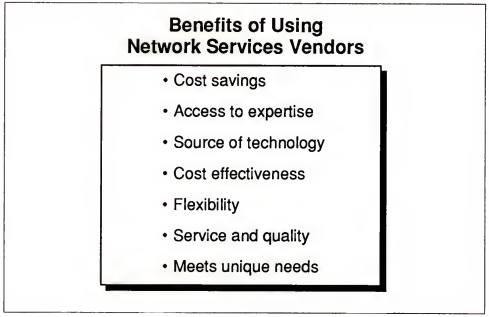


Exhibit V-6 illustrates that users feel that there are multiple benefits to the use of vendors with this mode of service.

- Network services vendors can enable users to achieve the savings possible with this mode of service and to obtain the expertise required for network services implementation.

- Network services vendors know how to obtain and utilize the technology that is involved and can ensure that quality and service are exercised. They can also ensure that cost-effectiveness, flexibility and unique needs are achieved, according to users.

EXHIBIT V-6



Software Products Markets

A

Applications and Systems Software Products Markets, 1992-1997

The CAGRs for software products expenditures have decreased 1% to 2% since the prior report, due to the movement of work to workstations/PCs and client/server systems (See Appendix C.), which generate lower levels of software product revenues than do mainframe and mini platforms.

As Exhibits VI-1 and VI-2 illustrate, the mainframe and mini markets for systems and applications software products are growing much more slowly than the market for workstation/PC products.

EXHIBIT VI-1

Systems Software Products by Delivery Submode 1992-1997

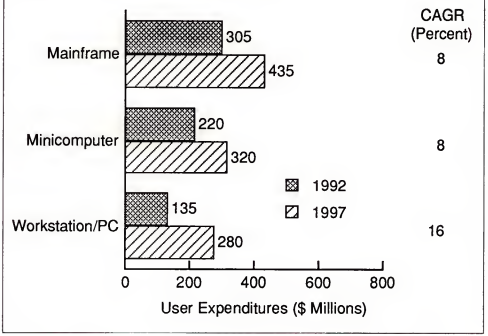
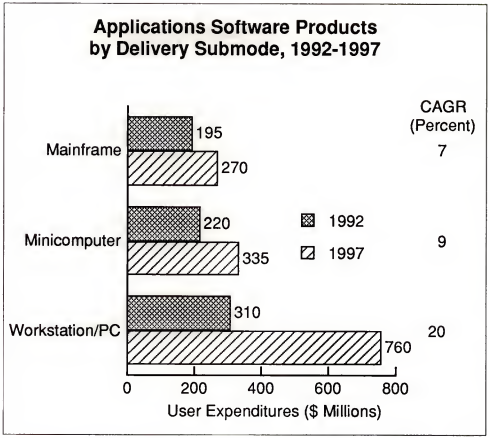


EXHIBIT VI-2



- The relative growth rate of mainframe and mini products has slowed since the prior report.

- The ratio of mainframe to workstation/PC software products being sold in Canada is slightly higher than it is in the U.S., but the CAGR for workstation/PC products is significantly higher than the CAGR for mainframe products in both countries. The software products market has shifted heavily toward workstation/PC products in both countries.

Exhibit VI-2 indicates that the market for applications software products on workstation/PC platforms is growing faster than the market for systems software products.

- The difference in rates is more marked than it is in the U.S., suggesting that there is more of a rush to use workstation/PC applications in Canada at the present time.

- This is probably due to the fact that mainframes have been emphasized to a greater extent in Canada during the past few years and a rush to move applications to workstations/PCs and take advantage of downsizing is resulting from that.

Industries in which systems software products are increasing in use most rapidly include banking and finance, manufacturing, and areas in the other set of markets, as shown in Exhibit VI-3. In addition to these markets, applications software products are increasing rapidly in use in insurance and business services, as illustrated by Exhibit VI-4.

EXHIBIT VI-3

Industries In Which Systems Software Products Are Growing Most

Industry	Growth 1992-1997 ($ Millions)
Banking and Finance	73
Manufacturing	58
Other (particularly transportation, provincial government and retail distribution)	210

EXHIBIT VI-4

Industries In Which Applications Software Products Are Growing Most

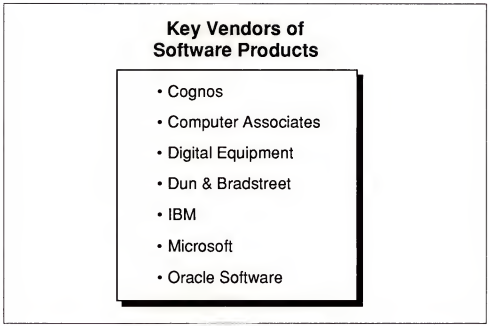
Industry	Growth 1992-1997 ($ Millions)
Banking and Finance	122
Manufacturing	45
Insurance	42
Other (particularly provincial government, health, retail distribution and business services)	416

- Use of mainframe systems and applications software products is increasing particularly in banks and provincial governments.
- Workstation/PC software products are growing rapidly in use in manufacturing and retail distribution as well as in banking/finance.
- Minicomputer software products continue to grow in use in most markets and particularly in manufacturing and wholesale distribution.

B
Software Products Vendors

The vendors of applications software products listed in Exhibit VI-5 are mostly vendors from the U.S.

EXHIBIT VI-5



- There are a number of Canadian vendors who sell a small amount of applications software products, such as Bryker, or who are engaged in other work primarily but also sell software, like IST and LGS.
- The U.S. vendors include hardware vendors who are selling both systems and applications software products and major software product vendors such as Computer Associates and Microsoft.

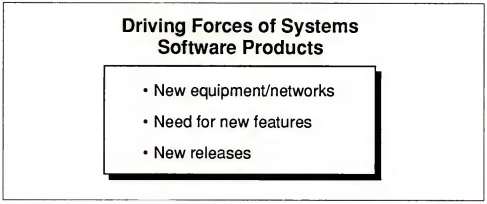
The sales of U.S. vendors are aided by the attitude of many users, which favors the use of well-known and popular software products.

C

Factors in the Software Products Market

The expanding use of systems software products is driven by the growth of network and distributed computer use as well as by the use of new features and releases, as is noted in Exhibit VI-6.

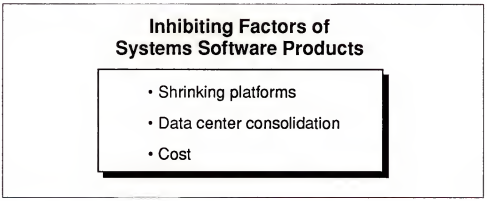
EXHIBIT VI-6



- As downsizing occurs or workstations and LANs are ordered instead of mainframes, revenue for systems software can decrease because of shrinkage in platforms.

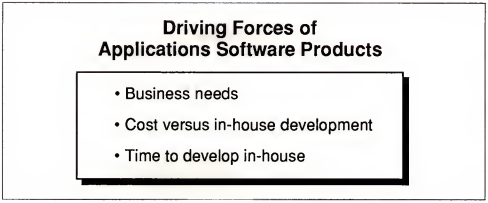
- This shrinkage and consolidation of data centers or cost avoidance in plans to upgrade software can inhibit the growth of systems software products, as indicated in Exhibit VI-7.

EXHIBIT VI-7



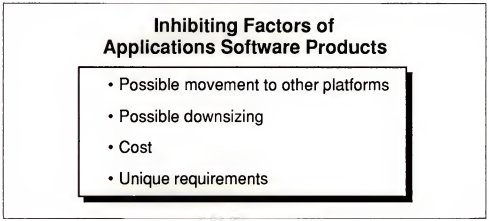
Business needs and the ability to implement a system more rapidly and for less total cost drive the use of applications software products, as illustrated in Exhibit VI-8.

EXHIBIT VI-8



- Where there are uncertainties, such as the possible move to a new platform or downsizing, there may be reluctance to invest in applications software products, as noted by Exhibit VI-9.

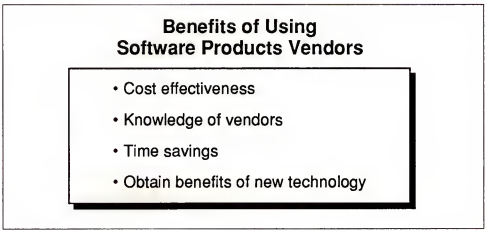
EXHIBIT VI-9



- The investment required for some software products or unique requirements can also be a factor that inhibits the purchase of applications software products.

The benefits of using vendors of software products include cost effectiveness as well as profiting from the knowledge vendors have gained, as pointed out in Exhibit VI-10.

EXHIBIT VI-10



- The latter benefit is usually thought of in regard to the knowledge that vendors have embedded in software products based on their knowledge of hardware/software or of industries, business functions and application systems in regard to applications software products. Today, it also can apply to the aid and insight that a vendor can provide when selling and helping install software products.

- There are also benefits in terms of the time savings that can be achieved by using software products, even if some modifications have to be made to products to make them meet the needs of clients.

- Software products enable new technology to be used in many cases, as well.

VII

Professional Services Market

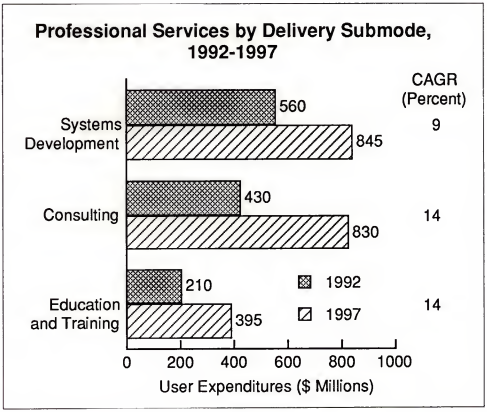
A

Professional Services Market, 1992-1997

The CAGR of 12% forecast for the growth of the professional services market for 1992-1997 is 3% below the five-year forecast of the previous report. (See Appendix C.)

As Exhibit VII-1 illustrates, the growth of professional services consulting is forecast to outpace the growth of systems development, as it did in the last report.

EXHIBIT VII-1



- The reason for the higher CAGR for consulting is that consulting is used for more purposes, today, than it was previously. It may be used to plan the use of automation to support business activities, to plan changes in the use of technology, or to review business plans that can lead to the use of systems integration, systems operations or software products.

- Education and training also has a higher CAGR than systems development because it can be sold apart from systems development with other delivery modes or as a standalone service.

The growth of professional services is notable in the banking and finance, manufacturing, provincial government and telecommunications industries, as shown in Exhibit VII-2. Professional services are being used to help plan the use of information services, develop systems, train, and—in this period of economic problems—meet needs for IT skills by using temporary personnel instead of hiring staff.

EXHIBIT VII-2

Industries In Which Professional Services Are Growing Most

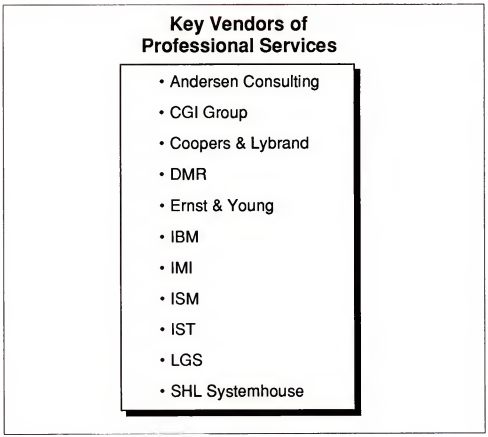
Industry	Growth 1992-1997 ($ Millions)
Banking and Finance	255
Manufacturing	91
Insurance	42
Other (particularly provincial government and telecommunications)	416

B

Professional Services Vendors

The list of professional services vendors in Exhibit VII-3 includes a number of firms that started this type of business in the U.S. and established offices or a subsidiary in Canada, as well as companies that started business in Canada.

EXHIBIT VII-3



- Three of the U.S.-affiliated companies are Big 6 companies that can obtain leads from their consulting practices in Canada. The other, IBM, can obtain leads from clients for computing equipment.

- There are also professional services firms from the U.S. that have entered the Canadian market, such as CTG and IMI.

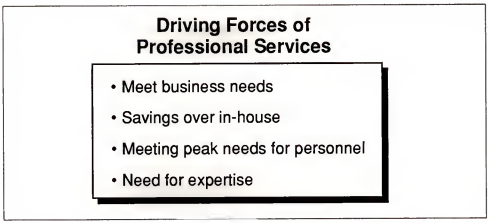
Two of the firms listed in Exhibit VII-3 that started in business in Canada, DMR and SHL, have also been successful in entering the U.S. market.

C

Factors in the Professional Services Market

Two of the driving forces that respondents mention in regard to professional services in Exhibit VII-4 are meeting business needs and saving funds (in comparison to doing a job in-house using the experience and knowledge of vendors).

EXHIBIT VII-4

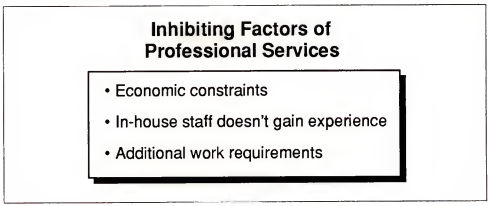


- One of the other drivers noted by respondents—the need for expertise—emphasizes the fact that professional services firms are now being used based on their ability to supply specific business or IT expertise when needed.

- Meeting peak needs for personnel, particularly those with certain skills, through the use of vendors rather than hiring is another motivation for using professional services.

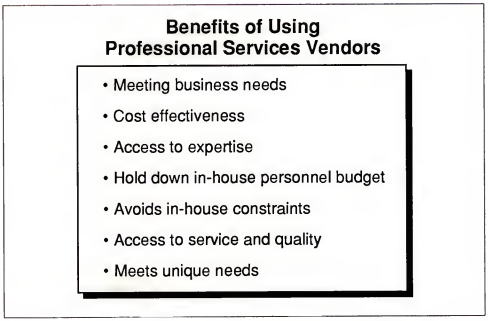
There are factors that can inhibit the use of professional services, however, as shown in Exhibit VII-5. The chief of these is economic constraint, but the facts that in-house staff may not gain experience or that requirements may grow during a professional services assignment were also mentioned.

EXHIBIT VII-5



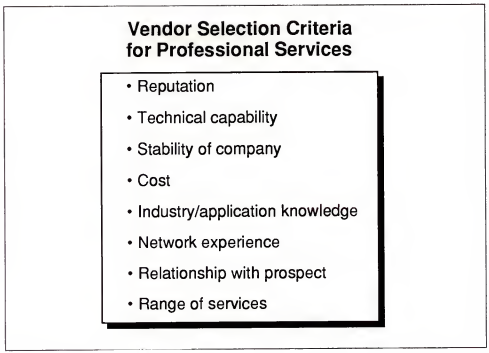
The benefits of using professional services vendors mentioned in Exhibit VII-6 focus on meeting business needs and saving costs or personnel, although attention is also given to the fact that vendors can provide service and quality work.

EXHIBIT VII-6



Although respondents were quick to mention price when discussing selection criteria for a professional services vendor, the leading criteria mentioned when they were asked to rank their criteria were reputation and technical capability, as shown in Exhibit VII-7.

EXHIBIT VII-7



- Industry and application knowledge as well as network knowledge are still important, although cost was mentioned above them. Cost can be the most important item in many bids.

- The relationship with prospects was not given a high rank here, but many users and vendors feel that it has to be considered in obtaining business.

VIII

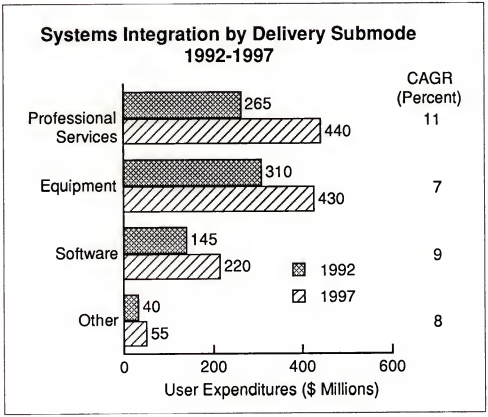
Systems Integration Market

A

Systems Integration Market, 1992-1997

The delivery submodes of systems integration shown in Exhibit VIII-1 are all forecast to grow at a CAGR of 4% to 6% below the CAGRs of the previous report. The fall-off in growth for systems integration is mostly due to the weak economy, which is discouraging companies from making the investments and commitment that systems integration projects would require.

EXHIBIT VIII-1



Despite its reduced CAGR of 9% between 1992 and 1997, systems integration will show notable growth in use in banking and finance and provincial government markets, as indicated in Exhibit VIII-2.

EXHIBIT VIII-2

Industries In Which Systems Integration Is Growing Most

Industry	Growth 1992-1997 ($ Millions)
Banking and Finance	129
Insurance	40
Manufacturing	28
Other (particularly provincial government and utilities)	174

B

Systems Integration Vendors

The list of systems integration vendors shown in Exhibit VIII-3 contains large vendors of information services who started business in the U.S. as well as several vendors who started business in Canada.

EXHIBIT VIII-3

Key Vendors of Systems Integration

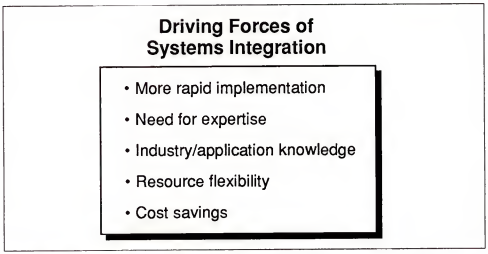
- Andersen Consulting
- CGI
- DMR
- Digital Equipment
- IBM
- LGS
- SHL Systemhouse

- The resources required for large SI projects often require vendors to have deep pockets.
- There are smaller Canadian vendors present in the SI market who have successfully used their local information services business as a means of expanding in systems integration.

C
Factors in the Systems Integration Market

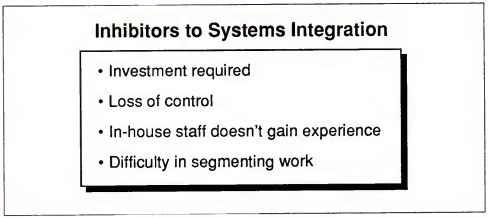
As Exhibit VIII-4 indicates, users regard systems integration as a means of gaining more rapid implementation of projects that require high levels of industry/application knowledge and expertise.

EXHIBIT VIII-4



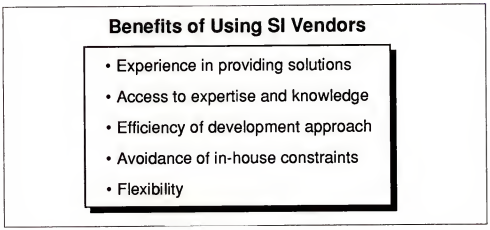
The investment required for SI projects and the loss of control that takes place when a vendor acts as a contractor for a project can inhibit SI work, according to users (see Exhibit VIII-5). Users also feel that these projects can limit the experience obtained by in-house staff or make it difficult to specify segments of work that can be done by in-house staff.

EXHIBIT VIII-5



Users do identify benefits that can be gained by using SI vendors, which are shown in Exhibit VIII-6.

EXHIBIT VIII-6



- SI vendors have experience in providing solutions to complex problems.
- SI vendors have the knowledge and expertise required and use efficient development approaches.

The use of SI vendors can also make it possible to avoid in-house constraints and be more flexible in designing and implementing systems.

Systems Operations Market

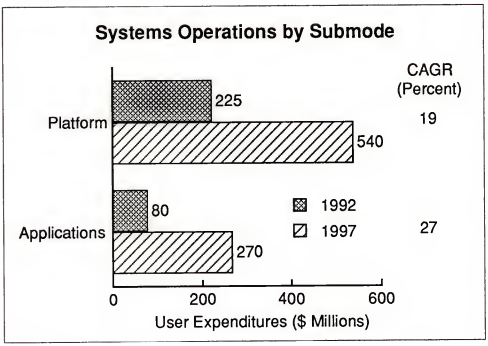
A

Systems Operations Market, 1992-1997

Systems operations has become a market of great interest in Canada because of the contracts and potential contracts of ISM and SHL Systemhouse.

- As shown in Exhibit IX-1, the CAGRs for both platform and applications submodes are high.

EXHIBIT IX-1



- Applications systems operations is forecast to become more popular as users become more interested in outsourcing the operation of applications rather than just the operation of hardware/software platforms.

Industries in which systems operations will increase rapidly in use include banking and finance, telecommunications and provincial government, as illustrated in Exhibit IX-2.

EXHIBIT IX-2

Industries In Which Systems Operations Is Growing Most

Industry	Growth 1992-1997 ($ Millions)
Banking and Finance	107
Insurance	39
Other (particularly telecommunications and provincial government)	311

B

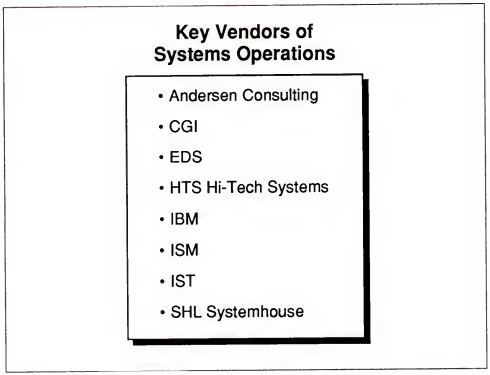
Systems Operations Vendors

The major vendors discussed in regard to systems operations among those listed in Exhibit IX-3 are the Canadian vendors ISM and SHL Systemhouse.

- IBM has just increased its investment in ISM to 51%.
- SHL has recently gained investment from the phone industry.

EDS has mostly captive business in this delivery mode in Canada, but it enjoys respect for its business in systems operations in the U.S.

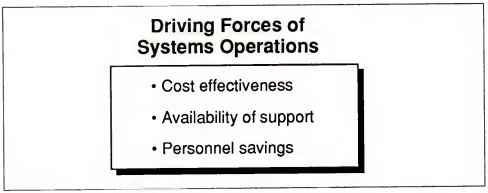
EXHIBIT IX-3



C
Factors in the Systems Operations Market

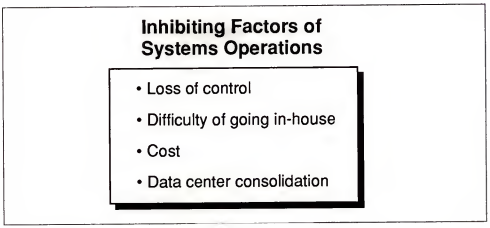
Users report that the principal forces driving the use of systems operations (shown in Exhibit IX-4) include cost effectiveness, vendor support and personnel savings. It is also felt that a large volume of business resulting in substantial computer processing favors the use of systems operations.

EXHIBIT IX-4



Some users feel that systems operations can lead to loss of control and make it difficult to move work back in-house in the future, as suggested in Exhibit IX-5.

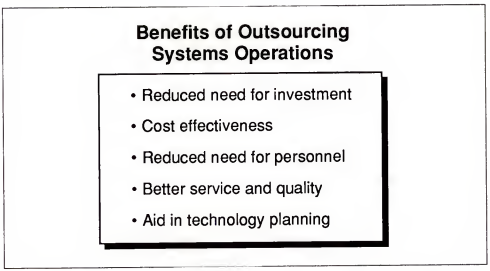
EXHIBIT IX-5



- Some users also feel that costs will mount over time and make this delivery mode less favorable than it seemed originally.
- Another possible inhibitor is internal planning to consolidate data centers.

Overall, significant benefits are seen in outsourcing systems operations, as indicated in Exhibit IX-6.

EXHIBIT IX-6



- In addition to reducing the need to make technology investments because the vendor will plan and make them to meet user needs, there can be personnel savings and more cost-efficient operation.
- Vendors can also raise the level of service and quality for users.

D

Expanding Opportunities for Outsourcing

User interest in outsourcing has risen, and some users are ready to consider outsourcing additional work at the present time, as shown in Exhibit IX-7.

EXHIBIT IX-7

Expectation for Outsourcing

Work to be Outsourced	Now * (Percent)	In 5 Years (Percent)
Systems operations (platform or applications)	14	12
Applications development/ maintenance	8	6
Network management	6	6
End-user support	4	6

*Percent of respondents

Some users responded to this question on outsourcing as though it was a choice as to what point in time they would be ready to consider outsourcing.

- That is why the percentages for outsourcing systems operations and applications development/maintenance went down. The total figure for those interested in outsourcing systems operations is actually between 14% and 26%.

- There will be more users ready to outsource end-user support work in five years, because it is felt that there will be more of this type of work to support by that time.

Responses on outsourcing are still limited by users' lack of experience and acquaintance with it.

The benefits that users expect from outsourcing, listed in Exhibit IX-8, include cost savings, technological aid, more controlled aid in the use of technology and upgrade of applications. These benefits and the end-user support mentioned above suggest that outsourcing could lead to general programs for user aid even in environments where considerable downsizing might be taking place.

EXHIBIT IX-8

Benefits of Outsourcing

Benefits	IS Respondent Rank
Cost savings	1
Reduced in-house staff	2
Expertise in operations	3
Expertise in technology	4
Predictable costs	5
Can focus in-house staff work	6
Reduced staff management	7
Timely installation of applications	8

Turnkey Systems Market

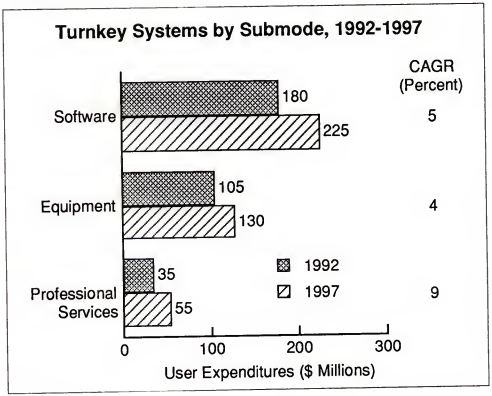
A

Turnkey Systems Market, 1992-1997

The CAGR for the turnkey market is forecast to be 5% for the period between 1992 and 1997 as the volume of user expenditures increases from $320 to $410 million. (See Appendix C to review the forecast and compare it with the previous forecast.)

Although software products will continue to be the largest submode of turnkey systems, as shown in Exhibit X-1, its CAGR for 1992-1997 will be 3% below the CAGR forecast in the last report. This is mostly due to the fact that more turnkeys are based on workstations/PCs and the software products will be priced lower.

EXHIBIT X-1



Growth of turnkey expenditures will be highest in manufacturing and wholesale and retail distribution, as indicated in Exhibit X-2, although overall growth will not be significant because the CAGR for the planning period will be low and the base level of use at present is not significant.

EXHIBIT X-2

Industries In Which Turnkey Systems Are Growing Most

Industry	Growth 1992-1997 ($ Millions)
Manufacturing	18
Wholesale Distribution	17
Other (particularly retail distribution and health)	44

B

Turnkey Systems Vendors

INPUT does not count turnkey revenue for computer manufacturers, because the hardware sale is the primary focus. The software product revenue that computer manufacturers obtain, together with hardware sales, is counted in the software products delivery mode, or the entire project cost is counted as systems integration if the hardware vendor acted as an integrator.

Most of the turnkey systems vendors listed in Exhibit X-3 started business in Canada.

EXHIBIT X-3

Key Vendors of Turnkey Systems

- Calculus
- Geac
- Heron Technology
- IST
- Syntax Systems

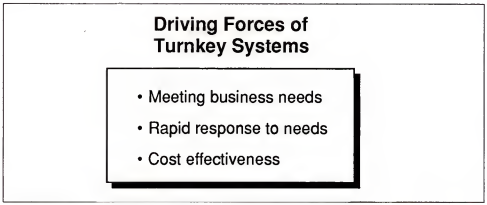
- There are other U.S.-based turnkey vendors active in Canada, such as Ultimate, whose business is based on turnkey sales.
- EDS and HP also have the potential to make an impact on the turnkey business in Canada based on their turnkey business in the U.S.

C

Factors in the Turnkey Systems Market

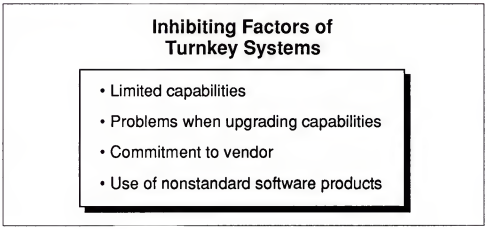
Factors that respondents identify as driving forces in the turnkey systems market include meeting systems needs rapidly and in a cost-effective way, as indicated in Exhibit X-4. There was no significant mention of the knowledge and experience of vendors as driving forces; these factors are emphasized more in the U.S.

EXHIBIT X-4



The inhibiting factors for the use of turnkey systems included the limited capabilities that some of these systems have and the difficulties that can be encountered in upgrading them, as shown in Exhibit X-5. The use of nonstandard software products was also mentioned. As noted before, the Canadian market appears to be sensitive to the possibility of using non-standard software products.

EXHIBIT X-5



The chief benefits that users note about turnkey systems are the relative economy they can offer and the fact that they offer a solution that can be implemented in a relatively short time. Once again, the consideration of cost appears to be a major issue, indicating the sensitivity to price in the Canadian market as a result of economic problems.

Conclusions and Recommendations

A
Conclusions

As Exhibit XI-1 indicates, one set of conclusions that can be made about the Canadian market for information services concerns the economic situation.

EXHIBIT XI-1

Conclusions

- Recession and trade agreement continue to have a negative effect
- Users are highly cost conscious
- Financing difficulties limit project activities
- Present application systems and networks limit business
- Users expect to use more information services
- Vendor knowledge and experience is gaining in importance
- There can be favoritism for Canadian vendors
- Outsourcing is an important opportunity
- Network needs and activities can have a heavy impact on vendor resources

- The recession is continuing to have a negative effect on business and is limiting plans for the use of information services in some industries, particularly manufacturing.

- Users are highly cost conscious and encounter difficulties in financing projects because of the current economic situation.

The continuation of the recession, coupled with the impact of free trade, suggests that conditions will not improve soon.

However, present application systems and networks are recognized as limitations to competition and growth in many businesses, and users expect to use information services to a greater extent to overcome these difficulties.

- Users will look increasingly to vendors for solutions to present system and network limitation problems.

- Consequently, the knowledge and experience of vendors is gaining in importance.

Vendors can find themselves taxed by demands for industry and application knowledge as well as technical skills, particularly network-related capabilities.

Despite the need for vendor aid, vendors in the market have to be prepared for what appears to be favoritism toward Canadian vendors.

- If all other factors are equal, some users will want to select a Canadian vendor or even a vendor that started business in Canada rather than the subsidiary of a U.S. company.

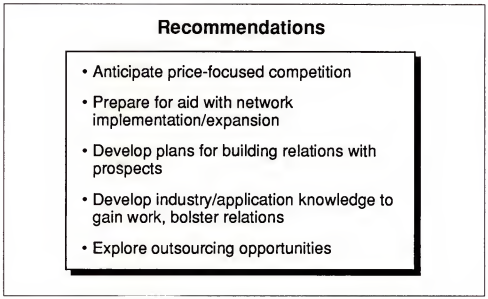
- There are factors that can overcome this preference for Canadian companies, including needed skills and experience. Some U.S. subsidiaries have also managed to make their prospects think of them as Canadian vendors.

Because users have the potential to generate considerable demands for vendor aid to meet business needs and provide skills and knowledge that is in short supply internally, there is a significant opportunity for vendors to gain outsourcing work involved with application development, maintenance and management, and systems and network planning and operation.

B
Recommendations

Vendors should be prepared for competition that is price focused, as emphasized in Exhibit XI-2.

EXHIBIT XI-2



- Pricing strategies should be sought that will make prices appear competitive in terms of benefits or that will divide up prices in relation to the total steps involved in projects.

- Outsourcing approaches may also be effective in a price-sensitive environment.

Being ready to provide the aid needed with complex problems, particularly those involving networks, can outweigh cost considerations in many situations.

In order to anticipate needs for capabilities and build close relations with prospects, a plan for contact should be developed.

- There is a desire for close relations in the Canadian market that vendors as well as users have commented on. This desire is stimulated by the pressing need for more automation, which users want to discuss in many cases, as well as by the nature of business in Canada.

- Closer relations will also help vendors know whether certain vendors have been or may be favored. It can even overcome favoritism toward Canadian vendors, according to one Canadian subsidiary of a U.S. firm.

Close relations with likely prospects through professional organizations or personal contact can also provide insights as to when industry and application knowledge or technical skills are in need.

In the course of contact work, opportunities to meet needs with outsourcing approaches should also be kept in mind because the Canadian market appears to be favorably disposed toward this approach.

Definition of Terms

A

Overall Definitions and Analytical Framework

1. Information Services

Information Services are computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:

- Processing of specific applications using vendor-provided systems (called *Processing Services*)
- A combination of hardware, packaged software and associated support services which will meet a specific application processing need (called *Turnkey Systems*)
- Packaged software products, either systems software or applications software products (called *Software Products*)
- People services that support users in developing and operating their own information systems (called *Professional Services*)
- Bundled combinations of products and services where the vendor assumes total responsibility for the development of a custom solution to an information systems problem (called *Systems Integration*)
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called *Systems Operations*)
- Services associated with the delivery of information in electronic form—typically network-oriented services such as value-added networks, electronic mail and document interchange, on-line data bases, on-line news and data feeds, etc. (called *Network Services*)

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is bundled as part of an overall service offering such as a turnkey system, a systems operations contract, or a systems integration project.

The information services market also excludes pure data transport services (i.e., data or voice communications circuits). However, where information transport is associated with a network-based service (e.g., EDI or VAN services), or cannot be feasibly separated from other bundled services (e.g., some systems operations contracts), the transport costs are included as part of the services market.

The analytical framework of the information services industry consists of the following interacting factors: overall and industry-specific business environment (trends, events and issues); technology environment; user information system requirements; size and structure of information services markets; vendors and their products, services and revenues; distribution channels; and competitive issues.

2. Market Forecasts/User Expenditures

All information services market forecasts are estimates of *User Expenditures* for information services. When questions arise about the proper place to count these expenditures, INPUT addresses them from the user's viewpoint: expenditures are categorized according to what users perceive they are buying.

By focusing on user expenditures, INPUT avoids two problems which are related to the distribution channels for various categories of services:

- Double counting, which can occur by estimating total vendor revenues when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale to end users)

- Missed counting, which can occur when sales to end users go through indirect channels such as mail order retailers

Captive Information Services User Expenditures are expenditures for products and services provided by a vendor that is part of the same parent corporation as the user. These expenditures are not included in INPUT forecasts.

Non-captive Information Services User Expenditures are expenditures that go to vendors that have a different parent corporation than the user. It is these expenditures which constitute the information services market analyzed by INPUT and that are included in INPUT forecasts.

3. Delivery Modes

Delivery Modes are defined as specific products and services that satisfy a given user need. While *Market Sectors* specify *who* the buyer is, *Delivery Modes* specify *what* the user is buying.

Of the eight delivery modes defined by INPUT, five are considered primary products or services:

- *Processing Services*
- *Network Services*
- *Professional Services*
- *Applications Software Products*
- *Systems Software Products*

The remaining three delivery modes represent combinations of these products and services, bundled together with equipment, management and/or other services:

- *Turnkey Systems*
- *Systems Operations*
- *Systems Integration*

Section B describes the delivery modes and their structure in more detail.

B
Delivery Modes and Submodes

Exhibit A-1 provides the overall structure of the information services industry as defined and used by INPUT. This section of *Definition of Terms* provides definitions for each of the delivery modes and their submodes or components.

1. Software Products

INPUT divides the software products market into two delivery modes: systems software and applications software.

The two delivery modes have many similarities. Both involve user purchases of software packages for in-house computer systems. Included are both lease and purchase expenditures, as well as expenditures for work performed by the vendor to implement or maintain the package at the user's sites. Vendor-provided training or support in operation and use of the package, if bundled in the software pricing, is also included here.

EXHIBIT A-1

Information Services Industry Structure—1991

Source: INPUT

Expenditures for work performed by organizations other than the package vendor are counted in the professional services delivery mode. Fees for work related to education, consulting, and/or custom modification of software products are counted as professional services, provided such fees are charged separately from the price of the software product itself.

a. Systems Software Products

Systems software products enable the computer/communications system to perform basic machine-oriented or user interface functions. INPUT divides systems software products into three submodes.

- *Systems Control Products* - Software programs that function during application program execution to manage computer system resources and control the execution of the application program. These products include operating systems, emulators, network control, library control, windowing, access control, and spoolers.

- *Operations Management Tools* - Software programs used by operations personnel to manage the computer system and/or network resources and personnel more effectively. Included are performance measurement, job accounting, computer operation scheduling, disk management utilities, and capacity management.

- *Applications Development Tools* - Software programs used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Included are traditional programming languages, 4GLs, data dictionaries, data base management systems, report writers, project control systems, CASE systems and other development productivity aids. Also included are system utilities (e.g., sorts) which are directly invoked by an applications program.

INPUT also forecasts the systems software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

b. Applications Software Products

Applications software products enable a user or group of users to support an operational or administrative process within an organization. Examples include accounts payable, order entry, project management and office systems.

INPUT also forecasts the applications software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

2. Turnkey Systems

A turnkey system is an integration of equipment (CPU, peripherals, etc.), systems software, and packaged or custom application software into a single product developed to meet a specific set of user requirements. Value added by the turnkey system vendor is primarily in the software and support services provided. Most CAD/CAM systems and many small business systems are turnkey systems. Turnkey systems utilize standard computers and do not include specialized hardware such as word processors, cash registers, process control systems, or embedded computer systems for military applications.

Computer manufacturers (e.g., IBM or DEC) that combine software with their own general-purpose hardware are not classified by INPUT as turnkey vendors. Their software revenues are included in the appropriate software category.

Most turnkey systems are sold through channels known as value-added resellers.

- *Value-Added Reseller (VAR):* A VAR adds value to computer hardware and/or software and then resells it to an end user. The major value added is usually applications software for a vertical or cross-industry market, but also includes many of the other components of a turnkey systems solution, such as professional services.

Turnkey systems have three components:

- Equipment - computer hardware supplied as part of the turnkey system
- Software products - prepackaged systems and applications software products
- Professional services - services to install or customize the system or train the user, provided as part of the turnkey system sale

3. Processing Services

This delivery mode includes three submodes: transaction processing, utility processing, and "other" processing services.

- *Transaction Processing* - Client uses vendor-provided information systems—including hardware, software and/or data networks—at the vendor site or customer site to process transactions and update client data bases. Transactions may be entered in one of four modes:

- *Interactive* - Characterized by the interaction of the user with the system for data entry, transaction processing, problem solving and report preparation: the user is on-line to the programs/files stored on the vendor's system.

- *Remote Batch* - Where the user transmits batches of transaction data to the vendor's system, allowing the vendor to schedule job execution according to overall client priorities and resource requirements.

- *Distributed Services* - Where users maintain portions of an application data base and enter or process some transaction data at their own site, while also being connected through communications networks to the vendor's central systems for processing other parts of the application.

- *Carry-in Batch* - Where users physically deliver work to a processing services vendor.

- *Utility Processing* - Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), generic applications programs and/or data bases, enabling clients to develop their own programs or process data on the vendor's system.

- *Other Processing Services* - Vendor provides service—usually at the vendor site—such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services, backup and disaster recovery, etc.

4. Systems Operations

Systems operations was a new delivery mode introduced in the 1990 Market Analysis and Systems Operations programs. It was created by taking the Systems Operations submode out of both Processing Services and Professional Services. For 1991 the submodes have been redefined as indicated below.

Systems operations involves the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes where the difference is whether the support of applications, as well as data center operations, is included.

- *Platform systems operations* - the vendor manages and operates the computer systems, often including telecommunications networks, without taking responsibility for the user's application systems.

- *Applications systems operations* - the vendor manages and operates the computer systems, often including telecommunications networks, and is also responsible for maintaining, or developing and maintaining, the user's application systems.

In the federal government market, systems operation services are also defined by equipment ownership with the terms "COCO" (Contractor-Owned, Contractor-Operated), and "GOCO" (Government-Owned, Contractor-Operated).

The ownership of the equipment, which was the previous basis for the systems operations submodes, is no longer considered critical to the commercial market. Most of the market consists of systems operations relationships using vendor-owned hardware. What is now critical is the breadth of the vendor/client relationship as it expands beyond data center management to applications management.

Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the user's information systems (equipment, networks, systems and/or application software), either at the client's site or the vendor's site. Systems operations can also be referred to as "resource management" or "facilities management."

5. Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation 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.

To be included in the information services market, systems integration projects must involve some application processing component. In addition, the majority of cost must be associated with information systems products and/or services.

- *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, and if included in the contract, operate an information system, including consulting, program/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance.

- *Other services* - most systems integration contracts include other services and product expenditures that are not easily 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.

Systems integrators perform, or manage others who perform, most or all of the following functions:

- Program management, including subcontractor management
- Needs analysis
- Specification development
- Conceptual and detailed systems design and architecture
- System component selection, modification, integration and customization
- Custom software design and development
- Custom hardware design and development
- Systems implementation, including testing, conversion and post-implementation evaluation and tuning
- Life cycle support, including
  - System documentation and user training
  - Systems operations during development
  - Systems maintenance

6. Professional Services

This category includes three submodes: consulting, education and training, and software development.

- *Consulting:* Services include management consulting (related to information systems), 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:* Products and services related to information systems and services for the professional and end user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation.

- *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.

7. Network Services

Network services typically include a wide variety of network-based functions and operations. Their common thread is that most of these functions could not be performed without network involvement. Network services is divided into two submodes: *Electronic Information Services,* which involve selling information to the user, and *Network Applications,* which involve providing some form of enhanced transport service in support of a user's information processing needs.

a. Electronic Information Services

Electronic information services are data bases that provide specific information via terminal- or computer-based inquiry, including items such as stock prices, legal precedents, economic indicators, periodical literature, medical diagnosis, airline schedules, automobile valuations, etc. The terminals used may be computers themselves, such as communications servers or personal computers. Users typically inquire into and extract information from the data bases. Although users may load extracted data into their own computer systems, the electronic information vendor provides no data processing or manipulation capability and the users cannot update the vendor's data bases.

The two kinds of electronic information services are:

- *On-line Data Bases* - Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.

- *News Services* - Unstructured, primarily textual information on people, companies, events, etc.

While electronic information services have traditionally been delivered via networks, there is a growing trend toward the use of CD ROM optical disks to support or supplant on-line services, and these optical disk-based systems are included in the definition of this delivery mode.

b. Network Applications

Value-Added Network Services (VAN Services) - VAN services are enhanced transport services which involve adding such functions as automatic error detection and correction, protocol conversion, and store-and-forward message switching to the provision of basic network circuits.

While VAN services were originally provided only by specialized VAN carriers (Tymnet, Telenet, etc.), today these services are also offered by traditional common carriers (AT&T, Sprint, etc.). Meanwhile, the VAN carriers have also branched into the traditional common carriers' markets and are offering unenhanced basic network circuits as well.

INPUT's market definition covers VAN services only, but includes the VAN revenues of all types of carriers. The following are examples of VAN services.

- *Electronic Data Interchange (EDI)* - Application-to-application exchange of standardized business documents between trade partners or facilitators. This exchange is commonly performed using VAN services. Specialized translation software is typically employed to convert data from organizations' internal file formats to EDI interchange standards. This software may be provided as part of the VAN service or may be resident on the organization's own computers.

- *Electronic Information Exchange (EIE)* - Also known as electronic mail (E-mail), EIE involves the transmission of messages across an electronic network managed by a services vendor, including facsimile transmission (FAX), voice mail, voice messaging, and access to Telex, TWX, and other messaging services. This also includes bulletin board services.

- *Other Network Services* - This segment contains videotex and pure network management services. Videotex is actually more a delivery mode than an application. Its prime focus is on the individual as a consumer or in business. These services provide interactive access to data bases and offer the inquirer the ability to send as well as receive information for such purposes as home shopping, home banking, travel reservations, and more.

Network management services included here must involve the vendor's network and network management systems as well as people. People-only services are included in professional services that involve the management of networks as part of the broader task of managing a user's information processing functions are included in systems operations.

C
Sector Definitions

1. Industry Sector Definitions

INPUT has structured the information services market into 15 generic industry sectors, such as process manufacturing, insurance, transportation, etc. The definitions of these sectors are based on the 1987 revision of the Standard Industrial Classification (SIC) Code system. The specific industries (and their SIC Codes) included under these generic industry sectors are detailed in Exhibit A-2.

EXHIBIT A-2

Industry Sector Definitions

Industry Sector	SIC Code	Description
Discrete Manufacturing	23xx	Apparel and other finished products
	25xx	Furniture and fixtures
	27xx	Printing, publishing and allied industries
	31xx	Leather and leather products
	34xx	Fabricated metal products, except machinery and transportation equipment
	35xx	Industrial and commercial machinery and computer equipment
	36xx	Electronic and other electrical equipment and components, except computer equipment
	37xx	Transportation equipment
	38xx	Instruments; photo/med/optical goods; watches/clocks
	39xx	Miscellaneous manufacturing industry
Process Manufacturing	10xx	Metal mining
	12xx	Coal mining
	13xx	Oil and gas extraction
	14xx	Mining/quarrying nonmetalic minerals
	20xx	Food and kindred products
	21xx	Tobacco products
	22xx	Textile mill products
	24xx	Lumber and wood products, except furniture
	26xx	Paper and allied products
	28xx	Chemicals and allied products
	29xx	Petroleum refining and related industries
	30xx	Rubber and miscellaneous plastic products
	32xx	Stone, clay, glass and concrete products
	33xx	Primary metal industries
Transportation Services	40xx	Railroad transport
	41xx	Public transit/transport
	42xx	Motor freight transport/warehousing
	43xx	U.S. Postal Service
	44xx	Water transportation
	45xx	Air transportation (including airline reservation services in 4512)
	46xx	Pipelines, except natural gas
	47xx	Transportation services (including 472x, arrangement of passenger transportation)

EXHIBIT A-2 (CONT.)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Utilities	49xx	Electric, gas and sanitary services
Telecommunications	48xx	Communications
Retail Distribution	52xx	Building materials
	53xx	General merchandise stores
	54xx	Food stores
	55xx	Automotive dealers, gas stations
	56xx	Apparel and accessory stores
	57xx	Home furniture, furnishings and accessory stores
	58xx	Eating and drinking places
	59xx	Miscellaneous retail
Wholesale Distribution	50xx	Wholesale trade - durable goods
	51xx	Wholesale trade - nondurable goods
Banking and Finance	60xx	Depositary institutions
	61xx	Nondepositary institutions
	62xx	Security and commodity brokers, dealers, exchanges and services
	67xx	Holding and other investment offices
Insurance	63xx	Insurance carriers
	64xx	Insurance agents, brokers and services
Health Services	80xx	Health services
Education	82xx	Educational services

EXHIBIT A-2 (CONT.)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Business Services	65xx	Real estate
	70xx	Hotels, rooming houses, camps, and other lodging places
	72xx	Personal services
	73xx	Business services (except hotel reservation services in 7389)
	7389x	Hotel reservation services
	75xx	Automotive repair, services and parking
	76xx	Miscellaneous repair services
	78xx	Motion pictures
	79xx	Amusement and recreation services
	81xx	Legal services
	83xx	Social services
	84xx	Museums, art galleries, and botanical/zoological gardens
	86xx	Membership organizations
	87xx	Engineering, accounting, research, management, and related services
	89xx	Miscellaneous services
Federal Government	9xxx	
State and Local Government	9xxx	
Miscellaneous Industries	01xx	Agricultural production - crops
	02xx	Agricultural production - livestock/animals
	07xx	Agricultural services
	08xx	Forestry
	09xx	Fishing, hunting and trapping
	15xx	Building construction - general contractors, operative builders
	16xx	Heavy construction - contractors
	17xx	Construction - special trade contractors

The forecast for electronic information systems includes forecasts for the 15 industry sectors as well as an additional forecast component that applies to the market as a whole.

- *Systems software products* - All of the submodes (systems control, operations management, applications development) are considered neither industry- nor cross-industry specific. They are only forecasted in total. In addition, each submode forecast is broken down by platform level: mainframe, minicomputer and workstation/PC.

D
Vendor Revenue and User Expenditure Conversion

The size of the information services market may be viewed from two perspectives: vendor (producer) revenues and user expenditures. While the primary data for INPUT's research is vendor interviews, INPUT defines and forecasts the information services market in terms of end-user expenditures. End-user expenditures reflect the markup in producer sales when a product such as software is delivered through indirect distribution channels (such as original equipment manufacturers (OEMs), retailers and distributors). The focus on end-user expenditure also eliminates the double counting of revenues that would occur if sales were tabulated for both producer (e.g., Lotus) and distributor (e.g., BusinessLand).

For most delivery modes, vendor revenues and user expenditures are fairly close. However, there are some areas of significant difference. Many microcomputer software products, for example, are marketed through indirect distribution channels. To capture the valued added through these indirect distribution channels, adjustment factors that incorporate industry discount ratios are used to convert estimated information services vendor revenues to end-user expenditures.

For some delivery modes, including software products, systems integration and turnkey systems, there is a significant volume of intra-industry sales. For example, systems integrators purchase software and subcontract the services of other professional services vendors. And turnkey vendors incorporate purchased software into the systems they sell to end users.

To account for such intra-industry transactions, INPUT uses other conversion ratios to derive the estimate of end-user expenditures.

Exhibit A-3 summarizes the net effect of the various ratios used by INPUT to convert vendor revenues to end-user expenditure (market size) figures for each delivery mode.

EXHIBIT A-3

Vendor Revenue to User Expenditure Conversion

Delivery Mode	Vendor Revenue Multiplier
Applications Software Products	1.18
Systems Software Products	1.10
Systems Operations	1.00
Systems Integration	0.99
Professional Services	0.99
Network Services	0.99
Processing Services	0.99
Turnkey Systems	0.95

Respondent Profile

EXHIBIT B-1

User Respondent Profile
Title

Title	Percent of Respondents
Director/Executive	18
Manager/Supervisor	60
Staff	22

EXHIBIT B-2

User Respondent Profile
Primary Industry

Primary Industry	Percent of Respondents
Manufacturing	35
Finance	11
Insurance	11
Wholesale Distribution	9
Federal Government	13
Other	21

EXHIBIT B-3

Vendor Respondent Profile
Title

Title	Percent of Respondents
Executive/Director	62
Manager	33
Staff	5

EXHIBIT B-4

Vendor Respondent Profile
Primary Industry

Services Offered	Percent of Respondents
Processing Services	38
Network Services	29
Applications Software	48
Systems Software	29
Turnkey Systems	33
Systems Integration	48
Professional Services	95
Systems Operations	48

Forecast Data Base

EXHIBIT C-1

Canadian Information Services Industry
User Expenditure Forecast by Delivery Mode, 1992-1997

Delivery Modes	1991	Growth 91-92 (%)	1992	1993	1994	1995	1996	1997	CAGR 92-97 (%)
Total Canada Information Services Market	4,445	11	4,927	5,439	5,995	6,728	7,347	8,161	11
Processing Services	675	4	705	734	757	772	782	790	2
- Transaction Processing Services	409	5	429	449	465	476	482	487	3
- Utility Processing	234	3	242	249	254	256	258	259	1
- Other Processing	32	6	34	36	38	40	42	44	5
Network/Electronic Information Services	212	17	247	285	333	391	457	533	17
- Electronic Information Services	76	16	88	102	118	138	160	184	16
- Network Applications	136	17	159	183	215	253	297	349	17
Applications Software Products	635	14	726	821	928	1,051	1,197	1,366	13
- Mainframe	176	11	195	210	223	237	253	270	7
- Minicomputer	198	11	220	240	261	284	310	337	9
-Workstation/PC	261	19	311	371	444	530	634	759	20
Systems Software Prod.	599	10	661	726	789	862	943	1,035	9
- Mainframe	280	9	304	332	354	378	406	436	8
- Minicomputer	201	10	221	238	255	275	295	318	8
-Workstation/PC	118	15	136	156	180	209	242	280	16
Turnkey Systems	309	5	323	339	355	372	391	411	5
- Equipment	104	3	107	111	115	119	124	129	4
- Software	172	5	180	188	196	205	215	226	5
- Professional Services	33	9	36	40	44	48	52	56	9
Systems Integration	680	12	760	833	892	969	1,051	1,145	9
- Equipment	284	10	311	335	355	377	401	428	7
- Software	129	12	145	158	171	186	201	220	9
- Professional Services	233	15	267	300	323	359	399	443	11
- Other Services	34	9	37	40	43	47	50	54	8
Systems Operations	261	17	306	364	451	550	672	811	22
- Platform	194	16	226	264	321	385	461	540	19
- Applications	67	19	80	100	130	165	211	271	27
Professional Services	1,074	12	1,199	1,337	1,490	1,661	1,854	2,070	12
- Consulting	379	14	431	492	560	639	727	830	14
- Software Development	512	9	560	608	660	715	777	844	9
- Education & Training	183	14	208	237	270	307	350	396	14

EXHIBIT C-2

Canadian Information Services Industry
Comparison to Prior User Expenditure Forecast

Delivery Modes	1995 Expenditures Forecast		CAGR Forecast	
	As Per 1990 Report	As Per 1992 Report	91-95 Per 1990 Report	91-95 Per 1992 Report
Total Market	7,199	6,728	13	11
Processing Services	830	772	5	3
Network Services	413	391	18	17
Applications Software Products	1,270	1,051	15	13
Systems Software Products	759	862	10	10
Turnkey Systems	396	372	7	5
Systems Integration	1,195	969	15	10
Systems Operations	461	550	16	21
Professional Services	1,875	1,661	15	12

User and Vendor Questionnaires

Canadian Market Forecast—User Questionnaire, 1992

Good morning (afternoon), my name is _____. I am calling for INPUT, a leading market research firm specializing in the information services industry.

We are preparing a report on the market for information services in Canada. We would appreciate your help with a number of questions about trends in the Canadian market and your plans for the future. The questions should take about 20 minutes. In return for your assistance, INPUT will provide you with an executive overview of the report when it is complete.

Would now be a convenient time or would you prefer to schedule another time?

_____ Now (Proceed with Introduction and Questions)

_____ Later (Note time and date: _____)

Introductory Note

The questions that follow relate to the purchase of information systems products and services. We are not trying to get information about your internal operations or any specific vendor. We are interested primarily in trends and how your requirements for purchased services may change over the next several years.

Part I

First, we would like to get your opinion of a number of factors that could have an effect on the growth of information services in Canada.

1. On a scale of 1 - 5, with one being low and five being high, to what extent do you think that U.S. companies dominate the Canadian information services market today? Why?

   Rating _____

   _____

   _____

   _____

2. Using the same scale, to what extent do you think that U.S. companies will dominate the Canadian information services market by 1997? Why?

   Rating _____

   _____

   _____

   _____

3. Do you think that there should be more or less participation by U.S. companies in the Canadian information services market? Why?

   More _____ Less _____

   _____

   _____

   _____

4. Do you think that Canadian companies have as much opportunity to participate in the U.S. information services market as U.S. companies have to participate in the Canadian market? Why?

   Yes _____ No _____

   _____

   _____

   _____

5. There are a number of technology trends that many users believe are important to the development of information services. Please provide a rating, on a scale of 1 - 5, of the importance to your firm of the following technologies in information services in Canada over the next five years. (A high rating means that you plan on making increased use of the technology over the next five years.)

Relational Data Base Systems	_____
Distributed Data Base Systems	_____
Electronic Imaging Systems	_____
CASE (Computer-Aided Software Engineering)	_____
Data Center Automation	_____
Network Management	_____
Local-/Wide-Area Networking	_____
Open Systems	_____
Electronic Mail	_____
Electronic Data Interchange	_____
Downsizing	_____

6. Are there other technologies that you believe are important to the development of information services in Canada, that were not mentioned above? Please identify the trends that you believe are important.

_____

_____

_____

7. What do you believe will be the leading factors that will *positively* impact your spending for outside services?

_____

_____

_____

8. What do you believe will be the leading factors that will *negatively* impact your spending for outside services?

_____

_____

_____

9. What effect will the U.S./Canada trade agreement have on growth of the market for information services in Canada over the next five years?

_____

_____

_____

Part II

The second part relates to current and planned expenditures for information services.

10. What was the total amount budgeted for outside information services for 1991, and what were actual expenditures? Please explain variances.

Budget $ _____ Actual $ _____

_____

_____

_____

11. Please indicate the amount of your company's expenditures for each of the following information products and services for 1991. **(Note: All amounts are in thousands of Canadian dollars.)**

Processing Services	$ _____
Network Services	$ _____
Systems Software Products	$ _____
Applications Software Products	$ _____
Turnkey Systems	$ _____
Systems Integration	$ _____
Professional Services	$ _____
Outsourcing	$ _____

12. For each of these categories of services or products, please estimate the percentage increase (or decrease) in expenditures in 1992, as compared to 1991.

Processing Services	_____ %
Network Services	_____ %
Systems Software Products	_____ %
Applications Software Products	_____ %
Turnkey Systems	_____ %
Systems Integration	_____ %
Professional Services	_____ %
Outsourcing	_____ %

13. Approximately what percentage do the services we just discussed represent of your total information systems budget?

_____ %

14. Approximately what percentage will purchased services represent of your information systems budget by 1997?

_____ %

Now we would like to ask a couple of questions about several of these categories of services.

INTERVIEWER NOTE: Ask the following questions for the categories in question 10 that represent 10% or more of the total.

15. **Name of Service:** _____
(see prior page)

15a. Please estimate the average annual percentage increase (or decrease) in expenditures for [name of service] over the next five years.

_____ %

15b. What are the two or three key factors that will cause your expenditures for [name of service] to increase (or decrease) over the next five years?

_____

_____

_____

15c. What are the top two or three reasons you contract for [name of service]?

_____

_____

_____

16. **Name of Service:** _____

16a. Please estimate the average annual percentage increase (or decrease) in expenditures for [name of service] over the next five years.

_____ %

16b. What are the two or three key factors that will cause your expenditures for [name of service] to increase (or decrease) over the next five years?

_____

_____

_____

16c. What are the top two or three reasons you contract for [name of service]?

_____

_____

_____

17. **Name of Service:** _____

17a. Please estimate the average annual percentage increase (or decrease) in expenditures for [name of service] over the next five years.

_____ %

17b. What are the two or three key factors that will cause your expenditures for [name of service] to increase (or decrease) over the next five years?

_____

_____

_____

17c. What are the top two or three reasons you contract for [name of service]?

_____

_____

_____

18. **Name of Service:** _____

18a. Please estimate the average annual percentage increase (or decrease) in expenditures for [name of service] over the next five years.

_____ %

18b. What are the two or three key factors that will cause your expenditures for [name of service] to increase (or decrease) over the next five years?

_____

_____

_____

18c. What are the top two or three reasons you contract for [name of service]?

_____

_____

_____

19. **Outsourcing**

19a. **If Outsourcing is one of the services mentioned above,** what is being outsourced?

	Now	In 5 years
Platform Operations	_____	_____
Application Maintenance	_____	_____
Network Management	_____	_____
End-User Support	_____	_____

19b. What will be the key benefit(s) you will expect (did expect) from outsourcing your applications activity? (Yes or No)

Cost savings	_____
Timely installation of application(s)	_____
Availability of expertise in applications	_____
Availability of expertise in technology	_____
Reduced in-house staff requirements	_____
Risk sharing	_____
Predictable costs	_____
Ability to focus in-house staff on specific activity	_____
Reduced staff management demands	_____
Strong management	_____

20. Since IBM has acquired a share of the Canadian outsourcing vendor ISM, has that made your company more interested in outsourcing? Why?

Yes _____ No _____

_____

_____

_____

21. For each of the following, please indicate whether your firm is:

a) Likely to do it in the next three years (answer yes or no) *and*, if so
b) Whether it is likely to look outside for aid (answer yes or no)

Systems Requirement	Need (a)	Out (b)
Developing Strategic Systems Plans	_____	_____
Developing New Applications	_____	_____
Maintaining Applications	_____	_____
Integrating Applications	_____	_____
Downsizing Applications	_____	_____
Migrating to New Operating Systems	_____	_____
Migrating to New Data Base Environments	_____	_____
Integrating or Upgrading Networks	_____	_____

22. What will be the key considerations in deciding upon a vendor? Rate: High, Medium or Low

Large and stable company	_____
Overall reputation of vendor	_____
Low cost	_____
Confidence in their people	_____
Technical capability	_____
Experience in your business	_____
Willingness/ability to be a strategic partner	_____
Provides a broad range of services	_____

23. How would you rate the following professional services firms? Rate: High, Medium or Low

	Strategic Consulting	System Building	Technical Consulting
Andersen Consulting	_____	_____	_____
CGI Group	_____	_____	_____
Coopers & Lybrand	_____	_____	_____
DMR Group	_____	_____	_____
EDS Canada	_____	_____	_____
Ernst & Young	_____	_____	_____
LGS Group	_____	_____	_____
SHL/Systemhouse	_____	_____	_____
ISM (formerly STM/Westbridge)	_____	_____	_____
IBM	_____	_____	_____
Digital Equipment	_____	_____	_____

Part III

This last part contains a few more general questions.

24. As you consider the use of outside services, do you generally prefer a full-service provider or a provider that has strong expertise in a single specialty?

    Full-Service Provider _____
    Specific Expertise _____

25. To what degree are you able to meet your outside information systems needs with Canadian vendors? Please rate on a scale of 1 - 5, where a 1 means not at all and a 5 means totally.

    Rating _____

26. For which of the services we've discussed are you not able to meet your needs with Canadian vendors? Why?

    _____

    _____

    _____

27. Assuming that two vendors of a service are of equal quality and cost, would you prefer to obtain services from a Canadian vendor? Why?

    Yes _____ No _____

    _____

    _____

    _____

Thank you for your time. Your responses have been very helpful. If we can verify your name and address, we will be pleased to provide a summary of the executive overview when the report is complete.

Canadian Market Forecast—Vendor Questionnaire, 1992

First, we would like to get your opinion of a number of factors that could have an effect on the growth of the Canadian market.

1. On a scale of 1-5, with one being low and five being high, to what extent do you think that U.S. companies dominate the Canadian information services market today? Why?

   _____ Rating

   _____

   _____

   _____

2. Using the same scale, to what extent do you think that U.S. companies will dominate the Canadian information services market by 1997? Why?

   _____ Rating

   _____

   _____

   _____

3. Do you think that there should be more or less participation by U.S. companies in the Canadian information services market? Why?

   _____ More _____ Less

   _____

   _____

   _____

4. Do you think that Canadian companies have as much opportunity to participate in the U.S. information services market as U.S. companies have to participate in the Canadian market? Why?

   _____ Yes _____ No

5. Please identify what you believe will be the top two or three technology trends in Canada for the next five years.

   _____

   _____

   _____

6. Please identify what you believe will be the top two or three driving forces behind growth in the information services market for the next five years.

_____

_____

_____

7. Please identify what you believe will be the top two or three factors that will inhibit growth in the market for the next five years.

_____

_____

_____

8. What effect will the U.S./Canada trade agreement have on growth of the market for information services in Canada over the next five years?

_____

_____

_____

Part II—Revenue and Growth

The second part relates to revenues and revenue sources. Please note that all information is held strictly confidential.

If you are unable to provide revenue data, we would still like to obtain information about revenue sources. These are percentage figures only. Percentage figures are your best estimate.

Please note also that all data is in Canadian currency.

9. Please provide your total information services revenue for 1991.

   $_____ (Millions of Canadian Dollars)

10. Please provide your total information services revenue for 1990.

    $_____ (Millions of Canadian Dollars) % Growth _____

    (Interviewer note: If 1991 revenue is not available, obtain estimate of revenue growth from 1989 to 1990.)

Revenue Sources

11. Please indicate the percent of your company's 1991 (or 1990 if 1991 is not available) information services revenue derived from each of the following market segments (total should equal (100%):

Discrete Manufacturing	____%	Banking/Finance	____%
Process Manufacturing	____%	Insurance	____%
Transportation	____%	Medical	____%
Utilities	____%	Services	____%
Communications	____%	Education	____%
Retail	____%	Federal Government	____%
Wholesale	____%	Provincial/Local Gov't	____%
Cross-Industry	____%		

12a. Please indicate the percent of your company's 1991 information services revenue derived from each of the following services or products:

Processing Services	____%
Network Services	____%
Applications Software Products	____%
Systems Software Products	____%
Turnkey Systems	____%
Systems Integration	____%
Professional Services	____%
Systems Operations	____%

12b. For each of the products or services indicated in 12a (i.e., given a percentage of 1991 information services revenue) please estimate the percentage of the following industry groups:

	Manufacturing	Banking/ Trust	Wholesale	Insurance	Federal Gov't
Processing Services	____	____	____	____	____
Network Services	____	____	____	____	____
Applications Software Products	____	____	____	____	____
Systems Software Products	____	____	____	____	____
Turnkey Systems	____	____	____	____	____
Systems Integration	____	____	____	____	____
Professional Services	____	____	____	____	____
Systems Operations	____	____	____	____	____

13. Please indicate the percent by which your company's 1991 revenues *grew* over 1990 for each of the categories of services. The categories are the same as in the previous question.

_____% Processing Services
_____% Network Services
_____% Applications Software Products
_____% Systems Software Products
_____% Turnkey Systems
_____% Systems Integration
_____% Professional Services
_____% Systems Operations

14. What percent of your company's information services revenue growth for 1991 resulted from *acquisitions/divestitures, price increases,* and/or *sales growth*?

_____% Acquisitions/Divestitures
_____% Price Increases
_____% Sales Growth
100%

International Sales

15. What percent of your company's revenues were derived from sales within Canada, what percent were from U.S. sales, and what percent were from sales to other countries?

_____% Canada
_____% United States
_____% Other Countries
100%

Part III—Service Growth

The following questions should be answered only for delivery modes (processing services, network services, etc.) where percentages reported in question 13 were 10% or greater.

Processing Services

16. What percent of your company's *processing services* revenue was from the following services?

_____% Transaction Processing
_____% Utility Processing
_____% Other
100%

17. For each of these services or products, by what percent did your company's 1991 revenues *grow* over 1990?

_____% Transaction Processing
_____% Utility Processing
_____% Other

Network Services

18. What percent of your company's 1991 *network services* revenue was from network applications and from electronic information services?

_____% Electronic Information Services (data bases)
_____% Network Applications (value-added network, EDI, E-mail)
100%

19. For each of these services, by what percent did your company's 1991 revenues *grow* over 1990?

_____% Electronic Information Services (data bases)
_____% Network Applications (value-added network, EDI, E-mail)

Applications Software Products

20. What percent of your company's *applications software products* revenue was from products for each of the following categories of computers?

_____% Mainframe
_____% Minicomputer
_____% Workstation/PC
100%

21. For each of these products, by what percent did your company's 1991 revenues *grow* over 1990?

_____% Mainframe
_____% Minicomputer
_____% Workstation/PC

Systems Software Products

22. What percent of your company's 1991 *system software products* revenue was from products for each of the following categories of computers?

_____% Mainframe
_____% Minicomputer
_____% Workstation/PC
100%

23. For each of these types of products, by what percent did your company's 1991 revenues *grow* over 1990?

_____% Mainframe
_____% Minicomputer
_____% Workstation/PC

Turnkey Systems

24. What percent of your company's 1991 *turnkey systems* revenue was from each of the following?

_____% Equipment (including systems software)
_____% Applications Software
_____% Customized Software
_____% Professional Services
100%

25. For each of these types of services and products, by what percent did your company's revenues *grow* over 1990?

_____% Equipment (including systems software)
_____% Applications Software
_____% Customized Software
_____% Professional Services

Systems Integration

26. Of your company's 1991 *systems integration* revenues, what percent was from the following services and products?

_____% Equipment (including systems software)
_____% Applications Software
_____% Professional Services
_____% Other (Specify) _____
100%

27. For each of these categories, by what percent did your company's 1991 revenues *grow* over 1990?

_____% Equipment (including systems software)
_____% Applications Software
_____% Professional Services
_____% Other (Specify) _____

Professional Services

28. Of your company's 1991 *professional services* revenues, what percent was from the following services and products?

_____% Consulting
_____% Systems Development
_____% Education and Training
100%

29. For each of these categories, by what percent did your company's 1991 revenues *grow* over 1990?

_____% Consulting
_____% Systems Development
_____% Education and Training

Systems Operations

30. Of your company's 1991 *systems operations* revenues, what percent was from the following services and products?

_____% Equipment (including systems software)
_____% Applications Software
_____% Professional Services
_____% Other
100%

31. For each of these categories, by what percent did your 1991 revenues *grow* over 1990?

_____% Equipment (including systems software)
_____% Applications Software
_____% Professional Services
_____% Other