ON-LINE DATABASE SERVICES MARKET STRATEGIES

VOLUME III

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Headquarters
2471 East Bayshore Road
Suite 600
Palo Alto, California 9430
(415) 493-1600
Telex 171407

Detroit
340 N. Main Street
Suite 204
Plymouth, Michigan 4817
(313) 459-8730

Washington, D.C.
1730 North Lynn Street
Suite 400
Arlington, Virginia 22209
(703) 522-2118

II Center II
Central Expressway
Texas 75206
91-8565

rk
Plaza West-I
Brook, New Jersey 07662
68-9471

ATES

Australia
Centre, 7-9 Merriwa St.,
P.O. Box 110,
Gordon N.S.W. 2072
(02) 498-8199
Telex AA 24434

London, W.1.
England
01-439-4442
Telex 269776

JAPAN
INPUT Japan
Suite 1106
7-7-26 Nishi-Shinjuku
Tokyo
Japan 160
(03) 371-3082

Italy
PGP Sistema SRL
20127 Milano
Via Soperga 36
Italy
Milan 284-2850

INPUT Planning Services for Management

ON-LINE DATABASE SERVICES
MARKET STRATEGIES
VOLUME III

JULY 1981

ON-LINE DATABASE SERVICES MARKET STRATEGIES
VOLUME III

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1 INTRODUCTION

I INTRODUCTION

A. PROGRAMME OBJECTIVES

- The primary objectives of INPUT's International Market Opportunities for On-Line Database Services multiclient programme are to:

  - Evaluate and forecast the markets evolving from the provision of on-line database services to end users.

  - Categorise this market by information sector, end user and supplier type in order to compare market growth and development activities within the principal West European countries and between the United States and West Europe as a whole.

  - Identify and evaluate the major factors affecting the development of the market.

  - Identify the major actual and/or potential participants within the marketplace and evaluate their likely impact.

  - Forecast, by sector and geography, the growth of revenues in the short term, to 1983 - and medium term, to 1985.

- Provide marketing and business recommendations to the study subscribers on the courses of action most likely to succeed in approaching the markets nationally and internationally.

B. REPORT STRUCTURE

- Three volumes were prepared and delivered to clients as part of the multi-client programme.

  - Volume I - U.S. Market Opportunities for On-Line Database Services

  - Volume II - Western European Market Opportunities for On-Line Database Services

  - Volume III - On-Line Database Services Market Strategies

- The key sections of Volume I were:

  - An analysis and forecast of 14 information sectors from 1979 to 1985.

  - A description of participant companies.

  - A series of business and marketing recommendations.

- The key sections of Volume II were:

  - Identification of key issues and driving forces.

  - A country-by-country analysis of on-line database activities.

  - An analysis and forecast of 10 information sectors from 1980 to 1985.

- A description of current and potential participants.

- The key sections of this report, Volume III, are:

  - An executive summary containing strategic recommendations.

  - A comparison between U.S. and European market development trends.

  - An appraisal of the impact of Videotex, Euronet, and Postal, Telegram and Telecommunications Authorities' (PTT) plans and activities.

C. WEST EUROPEAN PROGRAMME SCOPE

1. GEOGRAPHIC COVERAGE

- The market forecast for Western Europe was subdivided into five principal regions.

  - France.

  - United Kingdom.

  - West Germany.

  - Italy.

  - Rest of Europe.

- Detailed research and interviews were conducted in the four major countries listed above. In addition, information was collected from and interviews were held in other countries and with international agencies.

- It became clear that developments in Holland and Switzerland will have a major impact on the European market and interviews were conducted in both countries.

- Both Scandinavia and Iberia received some attention because of their growing importance as an on-line database services market.

2. MARKET SEGMENTATION

- Exhibit I-1 shows the structure of the market segmentation scheme adopted for Western Europe compared to that used for the analysis of the U.S. market.

- Five major subdivisions were established for the European market to highlight the common business development elements within these areas. These major areas were:

  - Business information services.
  - Marketing.
  - Industry specific.
  - Bibliographic.
  - Other database services.

- The segments are defined and discussions of overlaps and interactions are included in Chapter IV (Market Sector Forecasts) of Volume II.

- In addition to this primary approach, the markets were also segmented by:

  - Database source.
    - Domestic.

EXHIBIT I-1

MARKET SEGMENTATION OF
ON-LINE DATABASE SERVICES FOR
WESTERN EUROPE AND THE UNITED STATES

MAJOR END USER SECTORS	EUROPEAN MARKET SUBSECTORS FORECASTED	U.S. MARKET SUBSECTORS FORECASTED
BUSINESS INFORMATION SERVICES	SECURITIES AND COMMODITIES	SECURITIES AND COMMODITIES
	FINANCIAL AND ECONOMIC	FINANCIAL AND ECONOMIC
	ECONOMETRIC	ECONOMETRIC
	CREDIT	CREDIT
MARKETING	MARKETING	DEMOGRAPHIC, MARKETING
INDUSTRY SPECIFIC	INDUSTRY - SPECIFIC	INDUSTRY, REAL ESTATE
BIBLIOGRAPHIC	BUSINESS ABSTRACTS	BIBLIOGRAPHIC, NEWS
	TECHNICAL AND SCIENTIFIC	BIBLIOGRAPHIC, PROPERTIES
	PROFESSIONAL	LEGAL/ACCOUNTING, MEDICAL
OTHER DATA-BASE SERVICES	OTHER	RESOURCES, INTER-NATIONAL, OTHER

    - Other European.
    - United States.
- Domestic markets.
- Vendor type.
    - Information provider.
    - Supermarket remote computing service (RCS) vendor.
    - Integrated vendor.
- Service Type.
    - Access & Inquiry.
    - Computational.
    - Promotional.

3. WEST EUROPEAN INTERVIEW PROGRAMME

- INPUT compiled an extensive directory of database activities including the offerings and interests of:
    - Information providers.
    - Publishers.
    - Specialist on-line information companies.
    - Remote computing service vendors.

- Government ministries and bodies.

- National PTTs.

- INPUT selected from this group a cross-section of industry participants with varying interests for face-to-face and telephone interviews.

  - Government bodies and PTTs were interviewed in each of the major countries.

  - Companies with both international and national interests were included.

- Exhibit I-2 is a listing of the number and type of interviews held in each country and the rest of Europe.

- Copies of the interview forms used are contained in Appendix C.

- The firms interviewed were initially very secretive and declined to share data and information with INPUT. The basic reasons for this attitude were:

  - Many companies felt that their activities and understanding of their own particular sector of the market represented some unique competitive advantage. They were, therefore, naturally reluctant to share their knowledge.

  - Many other companies showed a hesitancy to disclose the very low level of their actual billings. They felt that their images, often substantial in themselves, could be damaged by the publication of this information.

- INPUT respected these attitudes and, therefore, made a commitment to all respondents that no data would be published in the report in relation to a specific company without that company's permission.

EXHIBIT I-2

INTERVIEW PROGRAMME

COUNTRY	FACE-TO-FACE INTERVIEWS	TELEPHONE INTERVIEWS	TOTAL INTERVIEWS
UNITED KINGDOM	24	12	36
FRANCE	21	6	27
ITALY	18	5	23
WEST GERMANY	9	6	15
REST OF EUROPE	5	5	10
TOTAL	77	34	111

- On the strength of this commitment most companies interviewed furnished sufficient data for INPUT to derive the current market and short-term forecasts with considerable confidence.

D. FORECAST METHODOLOGY FOR WESTERN EUROPE

1. THE MARKET DEFINED

- The total market for on-line database services in this report is defined as the sum of expendiures by end users to receive information services and by information providers to have their data available for end users, as illustrated in Exhibit 1-3.

  - Expenditures by information providers are usually in the form of advertising payments and are typically paid to the hosts.

- The effect of Videotex is included in each subsector appropriate for the information type delivered.

  - However, because of its importance in Europe, a separate section of the report is devoted to a discussion of this topic and a market forecast derived for information provided over Videotex services for each of the information sectors listed in Exhibit 1-1.

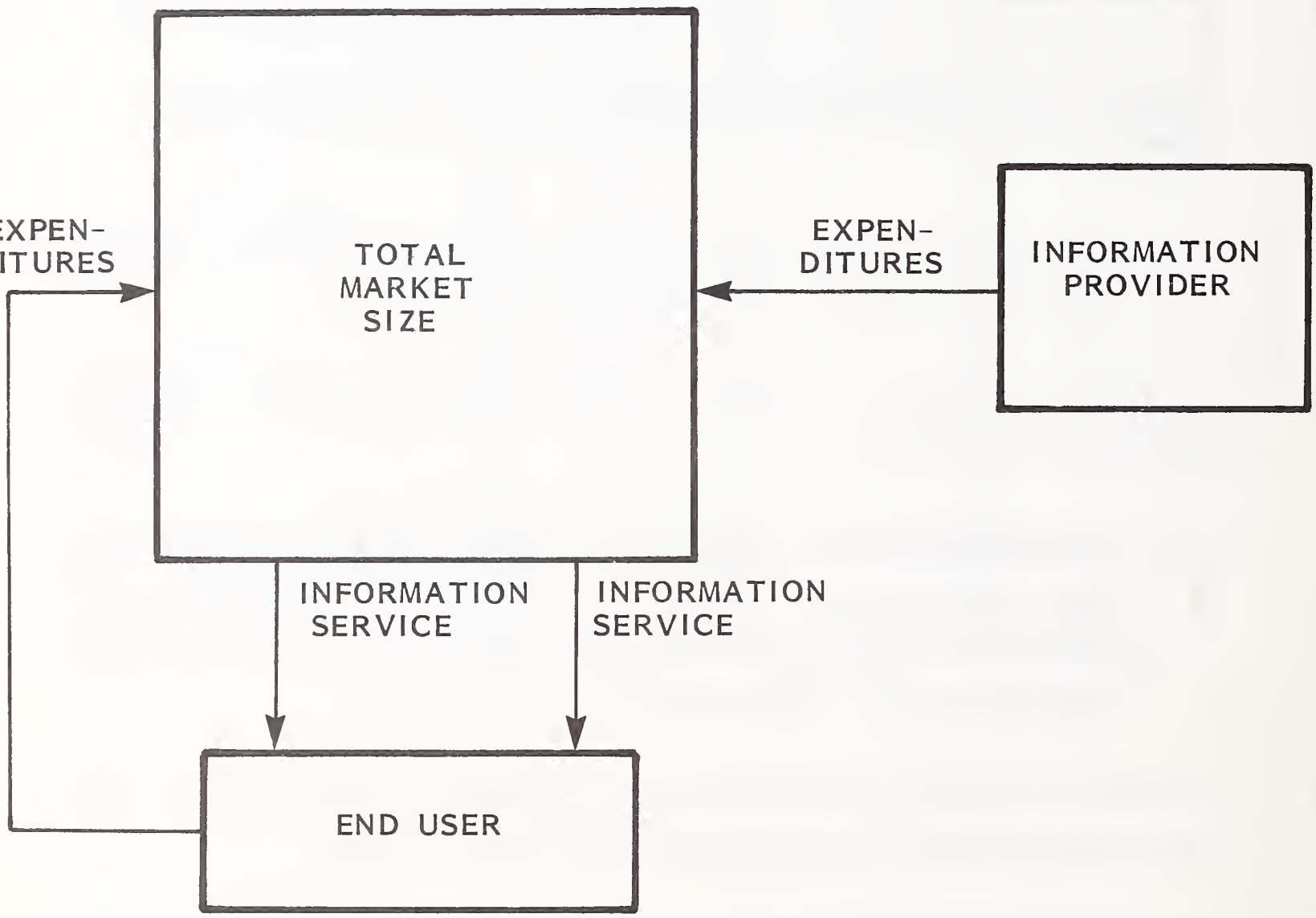
- A number of activities and revenue sources significant to participants in the industry were excluded from the market valuation and forecast.

  - Associated consulting.

  - Conventionally printed material sold in support of or in conjunction with an on-line service.

EXHIBIT I-3

MARKET DEFINITION FOR
ON-LINE DATABASE SERVICES
IN WESTERN EUROPE



- Costs and revenues associated with the development and maintenance of on-line services.

- All market data are given in U.S. dollars to aid in comparing market size and growth rates among the different West European countries and the U.S.

  - The quantities were derived by converting forecasts done in local currencies at current values to dollars at a constant exchange rate.

  - Assumed consumer price indices and conversion rates are provided in Exhibit III-4 of Volume II. A forecast of resultant price increases is contained in Exhibit III-5 of Volume II.

  - In some instances data are provided (in Volume II) excluding the effects of price increases to obtain a comparison of "real" growth rates.

2. FORECAST BASIS FOR WESTERN EUROPE

- The key elements underlying the basis for the forecasts included:

  - A careful determination of the current level of activity by each of the major participants in each of the countries covered in the analysis.

    . Individual company sales data are not divulged in accordance with agreements made between INPUT and the vendors during the interviews.

  - A comparison of the development of traditionally based services in the U.S. with allowances for the political, social and particularly communications environment differences in Europe.

  - An analysis of existing trends in Europe relative to user spending on particular types of information, marketing efforts by the major participants and disclosed investment and product development plans.

- An analysis of informed opinion, solicited from selected respondents regarding the potential within their own specific sectors.

- An analysis of other relevant developments.

  . The historic development of RCS markets.

  . PTT service and capacity development.

  . Investment levels.

  . Government subsidies and support.

  . National advertising expenditures.

- Market data are provided for 1980, 1983 and 1985 to delineate short- and medium-term growth trends.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. OVERVIEW

- Information technology (Telematique) Markets will grow dramatically in Europe over the next five years.

  - Government programmes in all West European countries are aimed at creating the necessary infrastructure to ensure its application to all sectors of the community - business, education, and social.

  - Commercial concerns, especially those in publishing and computer services, are seeking new markets, or new ways of serving their existing markets.

  - There are increasing levels of activity by U.S. firms with the experience and resources required.

  - Technology companies - computer manufacturers and manufacturers of related technology products, in communications particularly - are seeking to educate and develop markets for their products.

- Although the final objectives of all these activities are some way from realisation, the environment already created is ideal for those companies with the right mixture of capabilities. These capabilities include:

- Access to proprietary, volatile, and valuable information.

- Understanding of the technologies and products available to distribute such information.

- Management capability to develop and operate these new information distribution systems.

- The financial resources to invest now for returns which may be three to four years away.

- The opportunities exist. Certain sectors of the market place are ready for the new products and services; those that are not, particularly in the home or domestic environment, will be better serviced by companies who have developed the necessary capabilities and standards of service within business and commercial markets.

  - Business, industry specific, and marketing information sectors will offer short-term potential and already provide profit to a number of the participants.

  - Technical information, particularly that targetted at specific professions, is similarly in demand.

  - Information to the education and home markets, although offering considerable long-term rewards, will have less earnings impact over the next three years.

- European vendors, or U.S. companies operating in Europe, have the great advantage of learning from the experience gained in developing products and services for the U.S. market over the last five years.

- With these tested services setting the standard, a marked improvement in the communications environment, and government commitment to develop the

market, private enterprise in all West European countries has a chance of creating significant profit opportunities over the next five years.

B. EUROPEAN MARKET DEVELOPMENT

- The market for on-line database services is considerably smaller in Western Europe than it is in the United States, as shown in Exhibit II-1.

  - Western Europe's 1980 market of $123 million is less than 10% of the comparable United States market.

  - Even though the European market will grow at a rate of 63%, which is almost three times greater than the U.S. market growth rate, the 1985 revenues produced in Europe will still be slightly less than those for the 1980 U.S. market.

- INPUT's 1985 European market forecast, outlined in Volume II, ranged from a 'pessimistic' level of $1,282 million, through the 'most likely' amount of $1,400 million, shown in Exhibit II-1, to an 'optimistic' forecast of $1,634 million.

  - These three forecasts were based on different scenarios related to the implementation timing of government programs, especially Videotex.

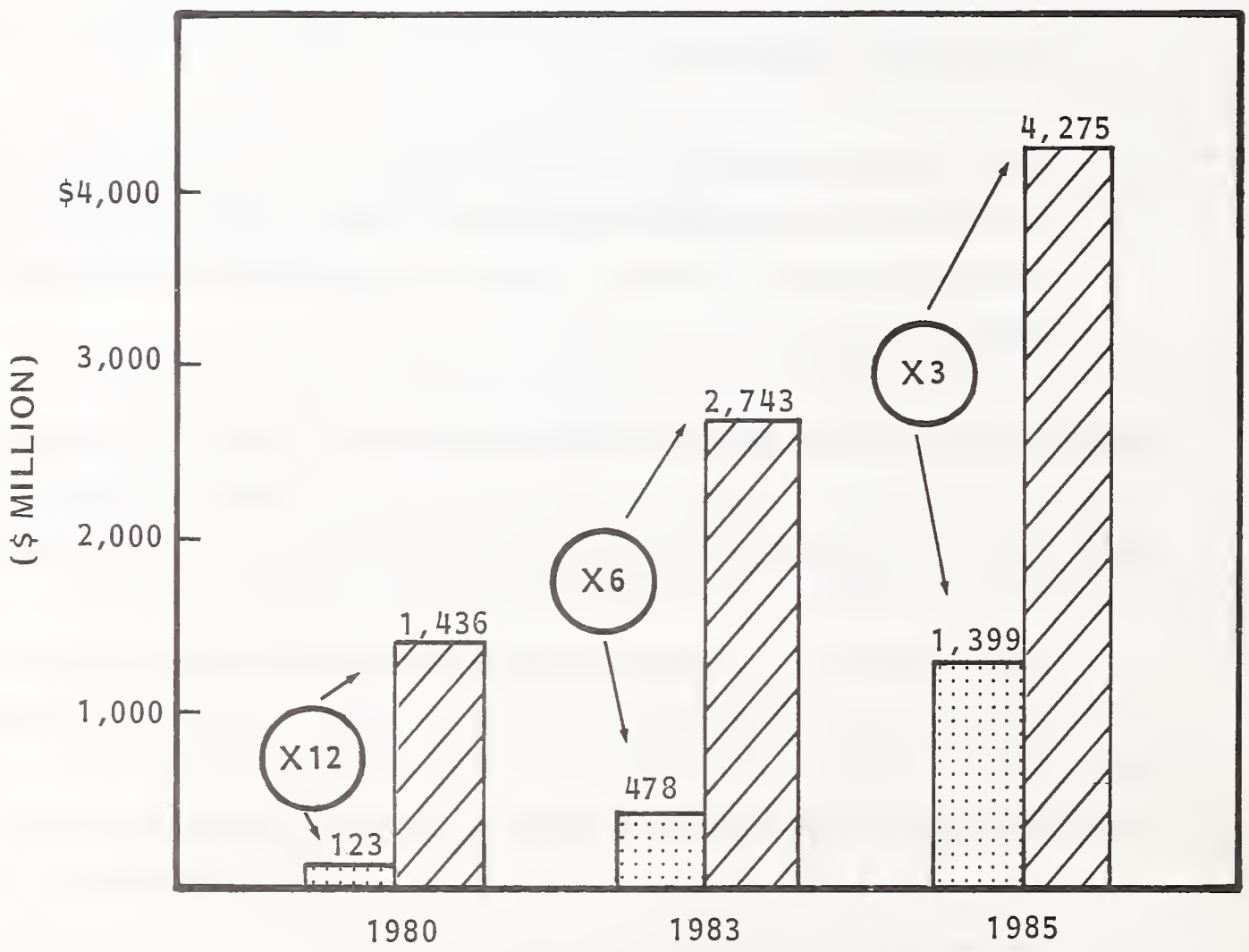
  - The recent victory of the socialist presidential candidate in France may lessen that country's pioneering efforts in 'Informatique' and increases the probability for the pessimistic forecast.

- The key reasons for the small current market size result from difficulties and uncertainties which vendors and/or potential vendors encounter when attempting to make an investment decision.

- Potential returns on investment seem meager and uncertain because of the large outlays which have been required to capture relatively small markets.

EXHIBIT II-1

COMPARISON OF U.S. AND WEST EUROPEAN MARKETS
FOR ON-LINE DATABASE SERVICES,
1980-1985



- The small market size stems from the nonhomogeneous nature of the European environment. Substantial sums must be added to any investment programme to make most database services saleable in more than one European country.

- Communications costs are high and networking choices are bewildering, if not within any single country, then definitely in establishing a multinational capability.

- The remote computing industry infrastructure was extremely important to the rapid growth of on-line database services in the United States. This infrastructure is much weaker and less developed in Europe.

- Government activities have in many instances hindered the development of on-line database services by:

  . Placing barriers against foreign organisations, such as Euronet - Diane's ban on non-EEC hosted databases being allowed on its system, or Germany's refusal to provide leased lines into the country for firms trying to establish database services.

  . Openly competing with private industry, as exemplified by Prestel in the United Kingdom and Prestel International elsewhere.

- A comparison of several computer services market segments in the United States and Europe, as contained in Exhibit II-2, shows some interesting points.

  - While the total West European computer services market in 1980 is 57% as large as that in the U.S., certain segments are almost equal.

EXHIBIT II-2

A COMPARISON OF SELECTED UNITED STATES AND WESTERN EUROPEAN MARKETS
($ million)

	WESTERN EUROPE	UNITED STATES	WESTERN EUROPE AS A PERCENT OF THE UNITED STATES
TOTAL 1980 COMPUTER SERVICES INDUSTRY	$8,100	$14,200	57%
1979 PROFESSIONAL SERVICES MARKET	2,150	2,950	73
1979 PROCESSING SERVICES MARKET	3,590	7,240	50
1979 BATCH PROCESSING SERVICES MARKET	2,140	2,480	86
1979 REMOTE COMPUTING SERVICES MARKET	1,225	3,530	35
1979 INTERACTIVE REMOTE COMPUTING SERVICES MARKET	430	1,850	23
1980 ON-LINE DATABASE SERVICES MARKET	123	1,436	8.9

- Those parts of the European market which are characterised by personal relationships, small investments, and limited geographical spread such as professional services and batch processing services are a much higher percentage of the U.S. market than the average.

- However, those segments which rely on communications, especially those requiring international networks and larger investments, are a substantially smaller percentage.

  . The communications environment is now rapidly improving in Europe. The development of public packet switched networks and their planned international linking is providing a framework for increased RCS activity.

  . The implementation of Euronet has already provided a considerable impetus to the on-line database business.

  . More and more RCS companies, both European and U.S., are developing enhanced network offerings.

- A number of factors are converging which will add a real impetus to the growth of the European market during the next five years. Many of these will develop during the next several years and will lead to a higher rate of growth for the 1983 to 1985 period than for 1980 to 1983.

  - The on-line database services market will increase at a 58% annual rate from 1980 to 1983 and then at a 71% rate from 1983 to 1985.

- The following factors will decrease the level of investment required and, to a smaller degree, increase the potential international market:

- The publicity generated, facilities created, and financial investments provided by government agencies for their various programmes are raising the awareness of potential business and domestic users as well as exciting the imagination of prospective vendors.

- Lower communications costs are made possible by national Videotex systems and Euronet-Diane. This situation should continue to improve as the public, packet switched, data networks (PDNs) become operational and are interconnected internationally.

- The incorporation of 'gateway' facilities by the national Videotex systems will eliminate some of the fundamental shortcomings of the original Videotex concept. Gateways will allow the interconnection of national systems but, even more importantly, will permit other hosts with full computational and search facilities to interconnect to Videotex systems.

- Electronic techniques, currently being adopted by the publishers, will lower the cost of converting large files to a computer readable format.

- Experienced U.S. vendors in Europe are increasing their activities, with local partners or on their own.

• Exhibit II-3 compares the development of the major on-line database services information sectors in the United States and Western Europe.

- The data in this chart were derived in a 'bottoms-up' manner for each of the information subsectors listed in Exhibit I-1 in Volumes II and III.

- The similarity between the structure of today's U.S. market and that forecast for Europe in 1985 is striking.

- The primary differences are in the industry specific sector because of the impact of the Videotex system in Europe and the marketing sector

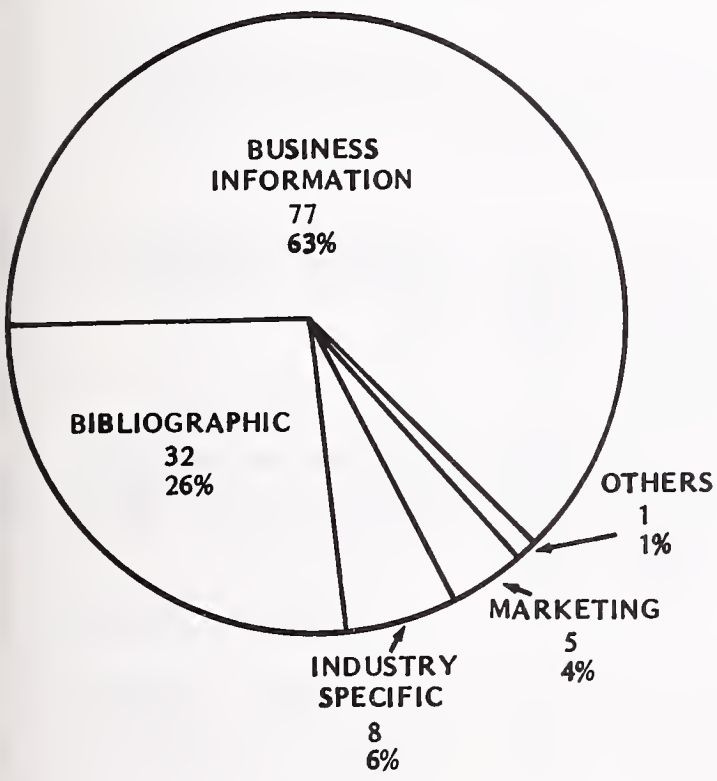
EXHIBIT II-3

ON-LINE DATABASE MARKETS

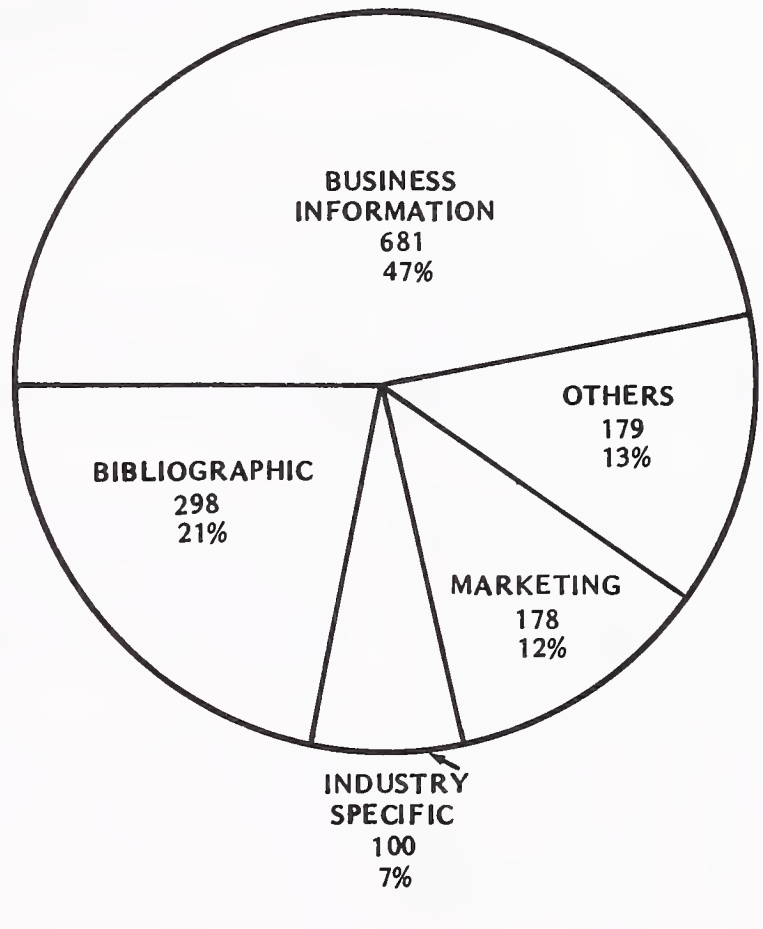
U.S. - WESTERN EUROPE, 1980-1985

($ million*)

WESTERN EUROPE: $123

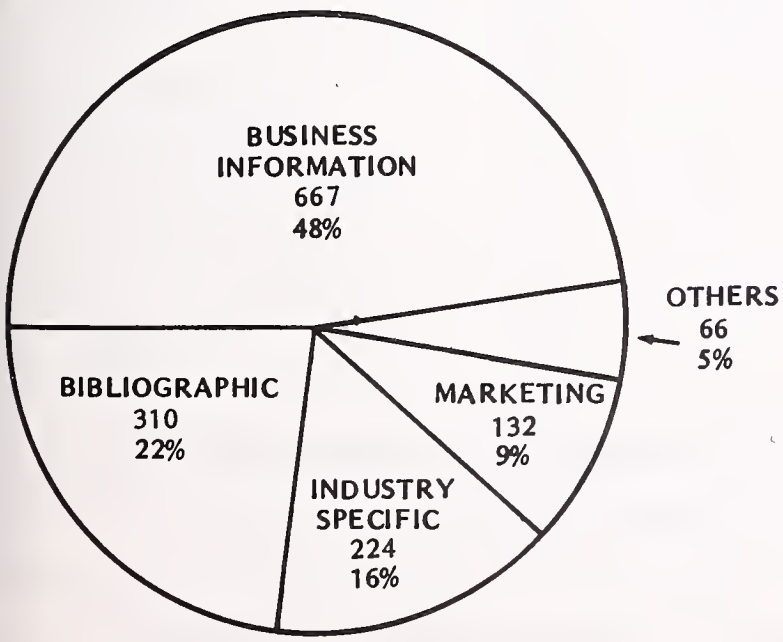


U.S.: $1,436

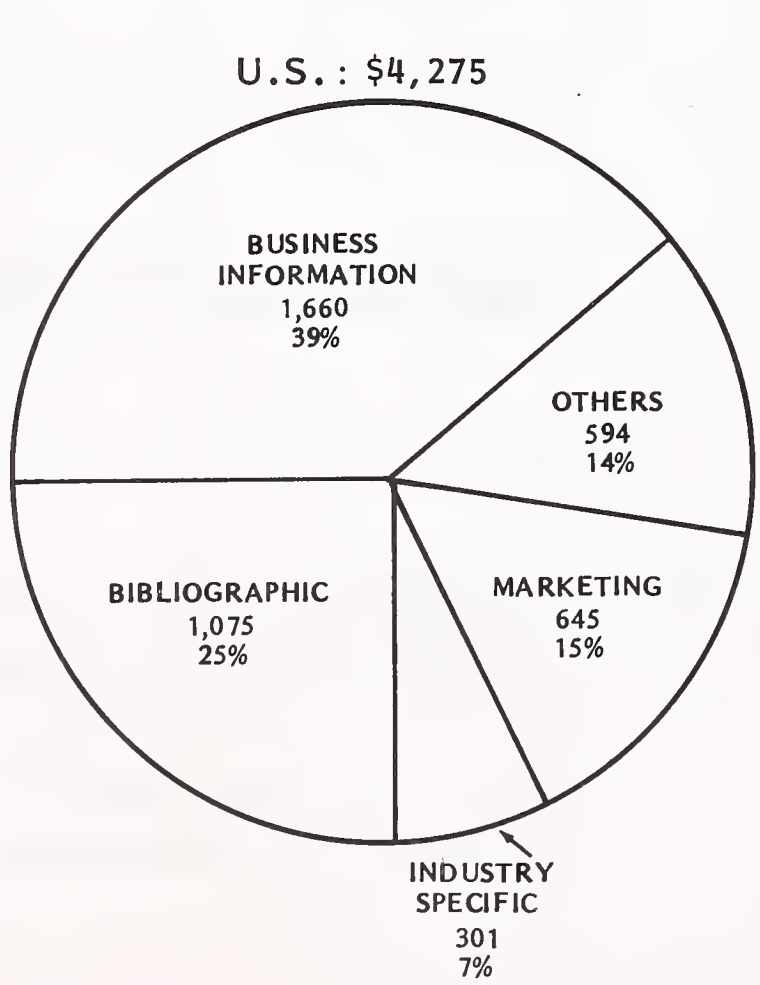


1980

WESTERN EUROPE: $1,399



U.S.: $4,275



1985

*ROUNDED

as a result of much lower expenditures on advertising in Western Europe.

- The 'others' category in the U.S. market is a larger share because it contains many directory - and promotionally based services which were included in the industry specific sector in the European analysis.

- The data contained in Exhibit II-4 compare markets at the subsector level and more clearly highlight the differences between the markets.

  - By 1985, the European market for econometric databases and their manipulation will actually be larger than that in the U.S.

    . Fourteen seperate major European economies and the increasing involvement of European countries in international trading will drive the need for econometric information.

  - However, because of vast differences in social practices, the market for on-line services in the credit subsector will be only 6% of that in the U.S.

- Exhibit II-5 shows the growth for each subsector during the forecast period.

C. COMMUNICATIONS ENVIRONMENT

1. INTRODUCTION

- A confusing and restrictive communications environment is one of the key reasons for Europe's underdeveloped on-line database market.

- There are four approaches which a prospective database vendor could, or will soon, be able to use depending on the country involved:

EXHIBIT II-4

SECTOR COMPARISONS OF
ON-LINE DATABASE MARKETS
U.S. – WESTERN EUROPE, 1980–1985
($ million)

SECTOR	1980		1985	
	WESTERN EUROPE	U.S.	WESTERN EUROPE	U.S.
SECURITIES AND COMMODITIES	$20.4	$155	$103	$300
FINANCIAL AND ECONOMIC	42.0	160	320	450
ECONOMETRIC	11.4	80	201	200
CREDIT	3.3	286	43	710
MARKETING	5.0	178	131	645
INDUSTRY SPECIFIC	7.6	100	224	301
BUSINESS ABSTRACTS	4.2	93	75	362
TECHNICAL AND SCIENTIFIC	13.3	68	95	223
PROFESSIONAL	14.0	137	141	490
OTHER	1.4	179	66	594
TOTAL	$122.6	$1,436	$1,399	$4,275

EXHIBIT II-5

WESTERN EUROPEAN ON-LINE DATABASE MARKETS
($ million)

SECTOR	1980	1983	1983-1980 AAGR (PERCENT)	1985	1985-1983 AAGR (PERCENT)
SECURITIES AND COMMODITIES	$20.4	$53.1	38%	$103.1	$39%
FINANCIAL AND ECONOMIC	42.0	125.4	44	319.9	60
ECONOMETRIC	11.4	58.8	73	201.1	85
CREDIT	3.3	18.0	76	43.1	55
TOTAL BUSINESS INFORMATION	$77.1	$255.3	49%	$667.2	62%
MARKETING	5.0	38.8	98	131.5	84
INDUSTRY SPECIFIC	7.6	47.9	85	224.1	116
BUSINESS ABSTRACTS	4.2	23.5	78	74.6	78
TECHNICAL AND SCIENTIFIC	13.3	40.2	45	95.2	54
PROFESSIONAL	14.0	51.5	54	140.6	65
TOTAL BIBLIOGRAPHIC	$31.5	$115.2	54%	$310.4	64%
OTHER DATABASE SERVICES	1.4	21.1	147	66.0	77
TOTAL	$122.6	$478.3	$57%	$1,399.2	$71%

- Leased lines on the conventional switched circuit system.

- Public data networks.

- Videotex systems.

- Euronet-Diane, an international facility which currently permits only European-owned hosts to connect to its system.

- Exhibit II-6 is a tabulation of the responses of those vendors and information providers interviewed about their view of the importance of different barriers to the development of the on-line database industry.

  - The area with the highest concern, the sum of the percents responding with either 'significant problem' or 'problem', is that of language translation. This problem is a real limitation to the multinational offering of on-line database services, particularly in the legal sub-sector.

  - Communications, with a total rating of 62% as a problem, is the next largest barrier.

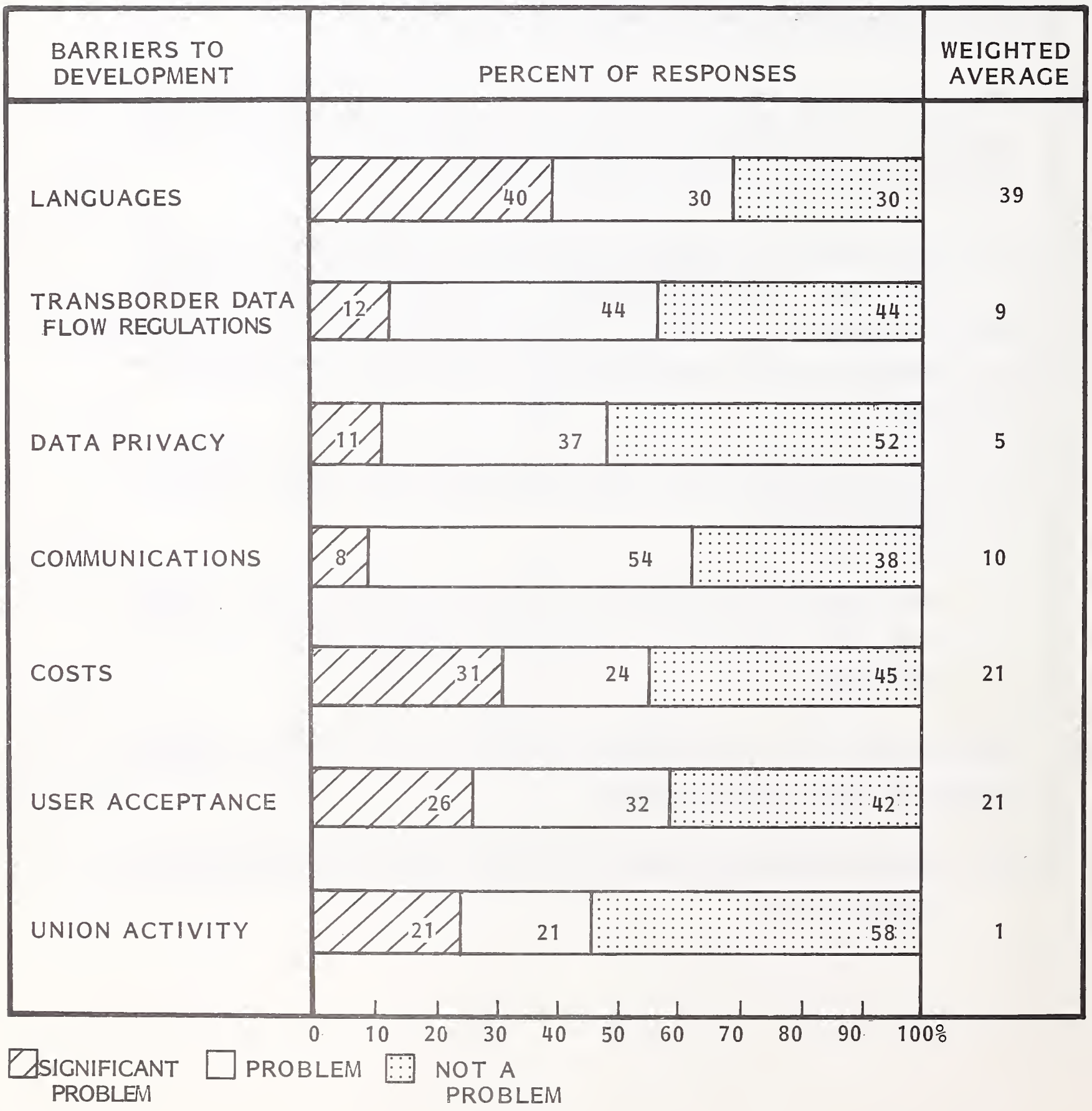
  - User acceptance and cost are two other highly rated barriers, with 26% and 31% respectively of respondents viewing them as significant problems.

- Most of today's leading and established vendors of on-line database services in Europe are using leased line systems.

  - These include Datastream in the U.K., Telekurs in Switzerland, and Cerved in Italy.

EXHIBIT II- 6

BARRIERS TO THE DEVELOPMENT OF THE ON-LINE DATABASE INDUSTRY



- IRS, the European space agency located in Italy, is now using both leased lines and Diane, while Prestel is, of course, using the public switched network and leased lines in the U.K.

- Telesystemes and CISI in France are using Transpac, the French public data network (PDN), and leased lines.

- The effort of the German government to force use of its Datex-P PDN has been partially successful, primarily with national firms. Other supermarket vendors are still using leased line networks as the German deadline for giving these up keeps moving into the future.

- PDNs in the U.K. and especially in Italy are not expected to be important factors for the on-line database business through 1985.

2. COMMUNICATIONS DEVELOPMENT

- It is perhaps too early to be over-optimistic about the future of communications facilities, nationally or internationally, within Europe. Entrenched monopolist practices and a lack of cooperation between PTT authorities still prevail.

- However there are many positive signs and, above all, real pressure from business and government to speed the processes of change and development.

- The liberalisation - or privatisation - of communications environment, within the context of sensible control and regulation, will provide the greatest stimulus to the development of the on-line market.

  - It is already happening in France and the U.K. where investment is beginning to have a real effect.

- One of the first announcements by the new French Administration was an increased commitment to investment in telecommunications.

- The British Government seems likely to accept at least some of the recommendations contained in the 'Beasely' report and further enable private operations within the communications environment.

  - Consortium projects involving major industrial concerns have already been publicly announced.

- The launching of national communications satellites, starting with the French, will accelerate development.

- Virtual agreement on a European Videotex standard, following agreement on X25 packet switching standards and the launch of Euronet, show that international cooperation can be achieved.

D. REVENUE DISTRIBUTION

I. INTRODUCTION

- The structure of the on-line database industry is only now beginning to evolve in Europe. Its pattern of development will, in many ways, parallel U.S. market growth.

- Two types of vendors provide services to the end user in Western Europe.

  - Integrated vendors, organisations which both produce the database and offer it to the end user.

  - Supermarket vendors, primarily RCS companies offering a wide variety of acquired or licensed databases to end users.

  - Both these distinctions will fade with time as integrated vendors place externally purchased or licensed databases on their systems, and

supermarket vendors begin to develop their own databases in selected areas.

- Information Providers (IPs) are those firms which collect the data and prepare and maintain the databases. In many cases these are the publishers.

  - In some cases they will pay the integrated and supermarket vendors to place their information on the system because of the promotional benefits.

  - In other instances, the vendors will pay the IP a license fee for the use of its information.

2. VIDEOTEX REVENUES

- One of the fundamental differences between the U.S. and European markets will be the role played by Videotex (the generic name for Prestel, Bildschirmtext, Teletel, etc.)

- INPUT constructed three different market forecasts, in Volume II, as a result of the very heavy governmental involvements and the uncertainties introduced.

  - The pessimistic, most likely, and optimistic forecasts are based on three different scenarios related to the meeting of specific milestones.

  - Exhibit II-7 shows the resulting forecasts of the total on-line database market provided on Videotex systems for each scenario.

- Videotex will be extremely important in the development of the promotional aspect of the on-line database industry, as well as for domestic applications.

EXHIBIT II-7

VIDEOTEX FORECASTS FOR 1985

SCENARIO	VIDEOTEX REVENUES ($ million)	VIDEOTEX AS A PERCENT OF THE TOTAL RESULTING 1985 MARKET
PESSIMISTIC	$ 76.4	6%
MOST LIKELY	193.8	14
OPTIMISTIC	428.0	26

- Approximately 50% of the Videotex revenues in the 1985 most likely market estimate will derive from funds paid by IPs to the Videotex operator.

- A somewhat smaller amount will be paid by IPs to vendors operating conventional systems for promotional purposes.

- The total revenues earned on Videotex systems for domestic applications will only be $55 million in the most likely scenario and $192 million with the optimistic market assumptions.

  - Almost 70% of the $55 million will be paid for by IPs as an advertising outlay.

- Domestic market development will accelerate in the second half of this decade after the necessary education has occurred and the infrastructure is in place.

3. REVENUE DISTRIBUTION BY VENDOR TYPE

- The 1985 European market for on-line database services will be almost equally distributed between integrated and supermarket vendors - a situation not very different from 1980.

  - This forecast considers vendors who use Prestel and/or Euronet-Diane to be integrated if they create the majority of the databases they offer.

- The definition of vendor types in the U.S. market analysis was different, reflecting differences in the evolution of that market. The two vendor types defined were:

  - RCS vendors which delivers the databases to the end user.

- Database firms which prepare the data. Database firms with RCS capability were classified as RCS vendors.

- This segmentation reflects a situation where significant sales are made by the database vendors (IPs) who then establish a link between the end user and an RCS vendor for delivery.

  - Quite often in the U.S., the database vendor is the one who invoices the end user and then pays a service charge to the RCS firm.

  - In some instances the end user receives two bills - one from the IP and one for access and computational costs from the RCS vendor. This also occurs in Europe, but only to a minor extent.

  - The existence in the U.S. of value added network (VAN) communications suppliers is one of the main reasons for this difference.

- In 1985, 83%, or a total of $1,160 million out of $1,400 million, will be retained by the integrated and supermarket vendors in Western Europe.

  - These vendors will pay IPs a total of $240 million for databases provided on these systems.

  - Approximately 80% of these payments will be made by the supermarket vendors. The remaining 20% paid by the integrated vendor will be for specialised or ancillary databases to augment its basic offering.

4. VENDOR REVENUE SOURCES IN WESTERN EUROPE

- Vendors receive revenues from either end users or IPs.

  - In 1985, IPs will pay vendors a total of $170 million.

- Of this total, $122 million will be paid primarily for the promotional benefit to the IP.

- The remainder will be paid by IPs such as governments or industrial associations providing a service to their constituents.

5. REVENUE DISTRIBUTION BY COMPANY

- Only five companies had 1980 European revenues from on-line database services which exceeded $5 million.

  - These are all European-based organisations - two of the five are located in Italy.

  - Three of the five were either created by or are heavily supported by government institutions.

  - These five are Datastream, Telekurs, IRS/ESA, Prestel and Cerved and, in total, account for some 45% of the 1980 European market.

- There are only a few companies with on-line database services 1980 revenues in the $2 to $5 million range.

- Hundreds of other companies are only now starting in this business and most had very low revenues in 1980.

E. RECOMMENDATIONS

- The proposals for the 'Annuaire Electronique' programme in France reflect a number of the basic motivations for development of an on-line database market.

- That economic and usable systems and equipment are necessary to stimulate a volume market.

- That new users will be encouraged by really low-cost systems, if necessary 'bundled' into the cost of the overall service.

- That the costs of production, maintenance, and distribution of traditionally published material are becoming prohibitive and forcing publishers into new technologies.

- Before any live operations have commenced in France the programme has had considerable effect. Significant orders have been placed by U.S. companies for Annuaire terminals and major marketing agreements established between French manufacturing and system companies and U.S. companies aimed at penetrating the biggest market of all - the United States.

- With the prospect of low-cost equipment and easy to use systems being developed and implemented on a worldwide basis the possibilities for building mass user services with the substantial profit potential becomes a real prospect within this decade.

  - The extent to which private enterprise will be able to invest freely in the provision of value added services and advanced systems is crucial to the creation of the necessary communications environment for information services.

- Also important to development of the market is the extent to which governments make available statistical and economic information and the way in which they themselves use it.

  - Government spending on on-line information services could add considerably to the short-term viability of many projects, particularly in the econometric, professional, and marketing sectors.

- RCS companies acting as supermarket vendors have to find the right balance between their existing capabilities and services and the newer database services they are mounting.

  - Relationships between them and their information providers have to be on an equitable basis respecting the value of the information itself and the need for the expertise of the providers in controlling the quality of the information and seeking out and serving the appropriate markets.

- The added value available to RCS companies in the form of computational and other media delivery services should encourage them to invest more substantially in the marketing and selling of on-line services.

- The greatest potential exists for information providers and publishers to create integrated services either wholly independently or in partnership with computer services companies through joint ventures.

  - The wealth of information currently distributed in printed form over which publishers have proprietary rights and to which added value functions can be added is immense.

  - In the business information, marketing, and most especially industry specific areas, publishers of directories and business journals have their hands on information which is readily convertible to an on-line format.

- Many of the stronger publishers have alrady realised the potential but many more are sitting on the fence waiting for a market to develop on the strength of other peoples' efforts and investments.

  - Delaying much longer could enable competition to establish a considerable lead not only in market penetration but in the learning of management and technical skills vital to success.

- The development of international markets is an important factor in long-term success. U.S. companies have been the natural leaders in this area but are finding it difficult to penetrate European markets because of political barriers and the need to establish relations with local information providers.

  - U.S. companies have to respect that although their skills, experience, and financial commitment are greatly needed to aid in the development of the market, structures and relationships between them and European partners are likely to be different from past examples.

  - Partnerships, joint ventures, and a preparedness to invest directly in national resources are necessary components to successful operations in European markets.

- European companies, and governments, should in turn realise the benefits of learning from the experience of U.S. companies and gaining the value of their management skills and seek out such partnerships - many already have.

  - The potential for entry into the U.S. market itself as a longer term result of such joint ventures could easily outweigh any short-term sharing of potential.

III INTERNATIONAL MARKET COMPARISONS

III INTERNATIONAL MARKET COMPARISONS

A. INTRODUCTION

- This chapter compares the current state of on-line database services markets on both sides of the Atlantic and evaluates and forecasts changes over the next five years.

- The trends, which are based on the detailed data in Volumes I and II, are compared overall by country and sector with the main differences and similarities highlighted.

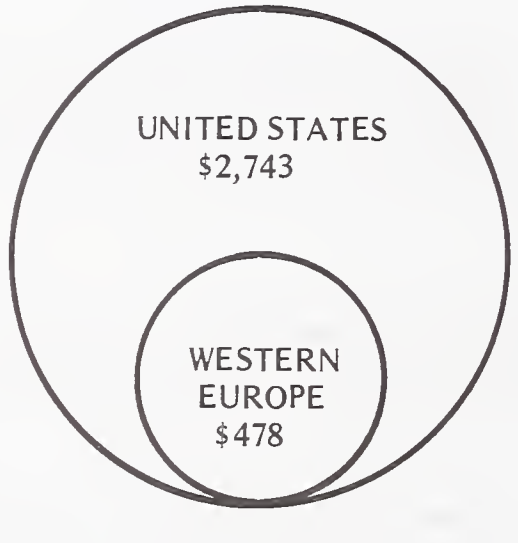
  - The major difference between the U.S. and Western Europe lies, of course, in the different stage of development of the two markets.

  - Where the U.S. market is nearing maturity, the European market with a few exceptions is only now beginning to develop.

- With similar total populations and GNPs, the 1980 market for total on-line database services, including related processing and the provision of data on other media such as paper, magnetic or microfiche, was $1,436 million in the U.S., nearly 12 times larger than the whole of Europe at $123 million, as shown in Exhibit III-1.

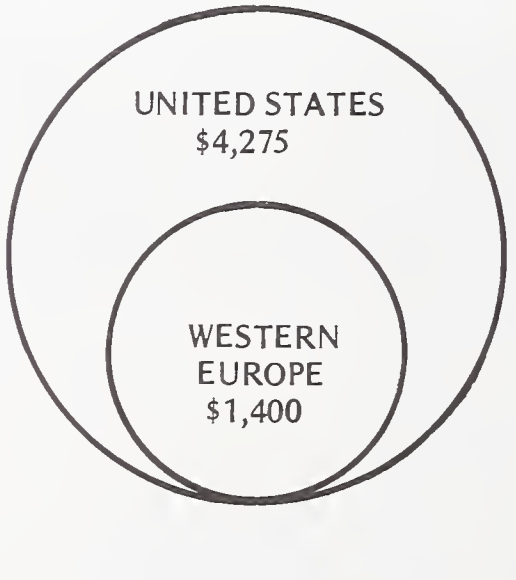
EXHIBIT III-1

ON-LINE DATABASE SERVICES OVERALL MARKET DEVELOPMENT
U.S. - WESTERN EUROPE, 1980-1985



AAGR 1983/1980

U.S. 24%
WESTERN EUROPE 58%



AAGR 1985/1983

U.S. 24%
WESTERN EUROPE 71%

- The greater maturity of the U.S. market is also evident when comparing growth rates. While the U.S. market will grow at a yearly rate of 24% from 1980 to 1985, the European average growth rate over the same period will be substantially higher at 63% per year.

- Thus, in 1983 the U.S. market will be only six times larger than the European market, and by 1985 the ratio between the two will have fallen to three.

- In 1985 the total U.S. market will be $4,300 million compared to $1,400 million in Europe.

- Despite certain fundamental social differences between the U.S. and Europe which give rise to significant differences in some sectors such as marketing and credit, the similarities between the U.S. in 1980 and Europe in 1985 are striking.

  - From Exhibit III-1 it can be seen that the European market in 1985 will be approximately the same as the U.S. market was in 1980.

  - Exhibit II-3 confirms other similarities. The two dominant sectors on both sides of the Atlantic are business information and bibliographic. In 1980 in the U.S. they represented 47% and 21% of the market respectively. The comparable figures for Europe in 1985 will be 48% and 22%.

- The initial and superficial conclusion is that Europe today is about five years behind the U.S. in the development and supply of on-line database services, but that the gap between the two will close as a result of the slower U.S. growth from a larger base.

- The main differences between the U.S. and Europe is apparent every time a comparison has to be made between the two continents.

- The U.S. is a large homogeneous market with one language, a single currency and, in general terms, one basic social structure throughout.

- Europe is not a large market. It is a set of small markets with different languages, political systems, and social customs; different law, currencies and economies; different stages of technological development; and all of them are different from the U.S.

- All these factors contribute to the nonhomogeneity of the 'European' market with each country at a different stage of development in its own on-line database market.

- Just as each country was at a different stage in 1980, each will develop in a different manner and at a different speed than its neighbour. It is, therefore, illusory to directly compare a 'European' market to its U.S. 'equivalent'.

- Some of the general differences between the two were pointed out earlier, but there are others which bear a direct influence on the markets analysed in this study.

- Economies of scale operate to the advantage of U.S. industry in several ways.

  - The levels of investment required to create and load a database in any European country or in the U.S. are approximately the same, but in America the potential client base is between four and ten, or more, times larger.

  - The number of large corporations is substantially greater in the U.S. than in individual European countries. U.S. management is more receptive to using outside information and is ready to pay for it.

  - The total computer services industry is much larger in the U.S. than in Europe, as is the RCS market, which constitutes the necessary infrastructure for the offering of public on-line database services.

- The fragmentation of the European market hinders its overall development and affects some countries more severely than others.

  - Except in some cases, such as scientific and technical bibliographic data, most information is either local or in the vernacular, and of limited transportability.

  - This results in duplication of information and of investment for a smaller customer base, making unit costs much higher.

  - Companies in Europe are, in general, less receptive to the idea of purchasing information. In many countries management and business practices do not yet take full advantage of the benefits of data processing.

  - Telecommunications tariffs are different in each country and very high compared to the U.S., while data networks are still in their infancy.

  - At the same time PTT monopolistic stances place barriers in the way of easy international or intercontinental links and networks.

  - Language is a natural barrier between countries, and in some database sectors such as legal, where the exact meaning of a word can be crucial and where the law of one country is different from that of another, transportability or exportability is extremely difficult.

B. COUNTRY AND SECTOR GROWTH COMPARISONS

- The overall extent and effect of these differences can be appreciated in Exhibit III-2 which shows the state of individual country markets in 1980 and their growth over the next five years.

EXHIBIT III-2

ON-LINE DATABASE SERVICES
MARKET DEVELOPMENTS BY COUNTRY
($ millions)

COUNTRY	1980	1983	1983/1980 AAGR (PERCENT)	1985	1985/1983 AAGR (PERCENT)
UNITED KINGDOM	$53.5	$158.2	44%	$396.8	58%
FRANCE	12.4	93.3	96	305.1	81
WEST GERMANY	6.5	41.1	85	149.3	90
ITALY	9.7	29.0	44	110.0	95
REST OF EUROPE	40.5	156.7	57	437.0	67
TOTAL EUROPE	$122.6	$478.3	58%	$1,398.2	71%
UNITED STATES	$1,436	$2,743	24%	$4,275	24%

- The U.K. market is, and will remain at least until 1985, the most important in Europe.

  - Even so, in 1980 it was only 3.7% of the U.S. market, rising to 9.3% by 1985.

  - Its average yearly growth rate between 1980 and 1985 will be double that of the U.S., 49% compared to 24%.

  - The full impact of Videotex applications and of new projects using traditional modes of delivery being currently developed will start being evident in the 1983-1984 period when the growth rate will increase from an average of 44% to 58%.

- Of the other three main countries, France has the largest market and is on the way to a real expansion, nearly doubling every year up to 1983 and then reducing its yearly growth rate to 82%.

- Germany, with the smallest market of the four countries, will grow at rates similar to the French. Italy, currently larger than West Germany, will be late in realising its potential and will grow at the relatively low rate of 44% yearly up to 1983. Thereafter, Italy will start doubling its market size every year, at least up to 1985.

- In the rest of Europe the important areas are:

  - Switzerland, predominantly in the business area at the moment.

  - Benelux, and particularly Holland, in the bibliographic sector and in the application of Videotex systems. Belgium with its strong computer services sector, its proximity to France, and its position as the seat of the European Commission is well placed to develop a strong on-line database market.

- Scandinavia, with Sweden in the major role. Denmark through its activities with the Euronet-Diane service will have an increasing part of the market.

- Although talking about 'the rest of Europe' is about as meaningful as talking about 'Europe' in comparison to the U.S., these markets must not be ignored as they represent one-third of the total European market. Their combined growth rates, 57% yearly up to 1983 and 67% per year after that, are aligned with the European average.

- Exhibit III-3 shows the distribution of the United States and European markets and growth rates among the five major information sectors.

  - The two most developed sectors in Europe, bibliographic and business information, start from a higher base and have the lowest growth rates, 58% and 54%. This is nearly half of the other sectors but still at or above twice the rate of the equivalent sectors in the U.S.

  - The 'other' information sector includes such databases as resources and news and will more than double each year; while industry specific, which includes a whole host of specialist closed-user-group applications including travel and sales promotion and, in many cases, is linked to Videotex technology, will have similar increases at 97% per annum average.

  - Marketing, although of much less importance in Europe than in the U.S., will still grow at 92% per annum.

  - Marketing, industry specific and bibliographic sectors are growing from a very small base, and this accounts for the high growth rates. In years subsequent to the forecast period, these growth rates will decline and reach values similar to those currently in the U.S.

EXHIBIT III-3

ON-LINE DATABASE MARKETS
COMPARATIVE SECTOR EVOLUTION
U.S. - WESTERN EUROPE, 1980-1985
($ million)

REGION	BUSINESS INFORMATION		MARKETING		INDUSTRY SPECIFIC		BIBLIO-GRAPHIC		OTHER	
1985/1980 AAGR	1980	1985	1980	1985	1980	1985	1980	1985	1980	1985
UNITED STATES	$681	$1,660	$178	$645	$100	$301	$298	$1,075	$179	$594
1985/1980 GROWTH RATE	20%		29%		25%		29%		27%	
WESTERN EUROPE	$ 77.1	$667.2	$ 5.0	$131.5	$ 7.6	$224.1	$ 31.5	$ 310.4	$ 1.4	$ 66.0
1985/1980 GROWTH RATE	54%		92%		97%		58%		116%	

- Exhibit III-4 shows for each country in 1980 and 1985 the proportion of the total market represented by each of the five information sectors.

- The individual country figures for 1980 reflect the immaturity of the West European market. Sectors have developed haphazardly and have been heavily influenced by a single company, or by government subsidises or promotions.

  - Germany is heavily orientated towards the bibliographic sector due to its government's exclusive emphasis on information and documentation.

  - Cerved in Italy and the Swiss company, Telekurs, dominate the business information sector while the other area of significance in Italy, bibliographic, is represented by IRS/ESA.

  - Even the more developed market in the U.K. shows its origins by having a very strong business information sector, while France mirrors the traditional beginnings of the information industry, the bibliographic sector created by and for scientific and technical establishments, universities, etc.

- The West European situation in 1985 is much more balanced, with most European countries showing some uniformity amongst themselves while still reflecting their original strengths or peculiarities. It is the difference with the U.S. that is now more marked.

  - For example, marketing, which includes opinion polls, consumer research and advertising viewer response information, represents a larger portion of the market in the U.S., as does the sector 'others' which includes resources and news.

  - On the other hand, business information is a higher percentage of the total market in Europe than in the U.S. despite the credit subsector which is so important in the U.S. and unimportant in Europe.

EXHIBIT III-4

PROPORTIONAL SIGNIFICANCE OF EACH SECTOR
BY COUNTRY AND YEAR
(percent)

1980

SECTOR	UNITED KINGDOM	FRANCE	WEST GERMANY	ITALY	REST OF EUROPE	TOTAL EUROPE	UNITED STATES
BUSINESS INFORMATION	63%	39%	18%	80%	72%	63%	47%
BIBLIOGRAPHIC	19	49	77	19	21	26	21
INDUSTRY SPECIFIC	11	5	–	–	3	6	7
MARKETING	6	4	3	1	3	4	12
OTHER	1	2	2	–	1	1	13
TOTAL	100%	100%	100%	100%	100%	100%	100%

EXHIBIT III-4 (CONT.)

PROPORTIONAL SIGNIFICANCE OF EACH SECTOR
BY COUNTRY AND YEAR
(percent)

1985

SECTOR	UNITED KINGDOM	FRANCE	WEST GERMANY	ITALY	REST OF EUROPE	TOTAL EUROPE	UNITED STATES
BUSINESS INFORMATION	57%	38%	38%	38%	51%	48%	39%
BIBLIOGRAPHIC	18	28	30	23	19	22	25
INDUSTRY SPECIFIC	12	19	18	19	16	16	7
MARKETING	9	9	9	12	9	9	15
OTHER	4	5	5	7	4	5	14
TOTAL	100%	100%	100%	100%	100%	100%	100%

- The industry specific sector, incorporating the closed user group concept, is relatively more important in Europe showing that users in Europe are more interested or willing to pay for specific information rather than for a general service.

- The subsectors comprising the business information sector are compared by country for 1980 and 1985 in Exhibit III-5.

  - Europe, with the U.K. leading, will grow from 11% of the U.S. market in 1980 to 40% of its size by 1985.

  - In the process, the econometric subsector in Europe will have overtaken its counterpart in America, while financial and economic will be nearly three-quarters of the size of that in the U.S. reflecting the overall size and complexity of the European community.

  - Securities and commodities revenues driven by the U.K., France and Switzerland will reach one-third of the equivalent American sector.

  - The largest difference is in the credit subsector.

    . In the U.S. both in 1980 and 1985, the credit subsector accounts for well over 40% of the business information sector, as personal and company credit information is an integral part of conducting business.

    . In Europe, the credit subsector share is between 4% and 7% with the exception of France at 11% in 1985 and Italy at 19% in 1985, but still much less important than in the U.S.

- The bibliographic sector, analysed in Exhibit III-6, is generally the most developed and mature sector. Within it, technical, scientific and medical information are the best established, together with certain business abstracts and news cuttings services.

EXHIBIT III-5

BUSINESS INFORMATION SECTOR
COUNTRY COMPARISONS, 1980-1985
($ million)

COUNTRY	TOTAL BUSINESS INFORMATION		SECURITIES AND COMMODITIES		FINANCIAL AND ECONOMIC		ECONOMETRIC		CREDIT	
	1980	1985	1980	1985	1980	1985	1980	1985	1980	1985
UNITED KINGDOM	$ 33.5	$ 225.1	$ 3.2	$ 29.1	$ 25.6	$104.8	$ 4.2	$ 81.5	$ 0.5	$ 9.7
FRANCE	4.9	117.6	0.4	16.5	3.6	65.9	0.6	22.0	0.3	13.2
WEST GERMANY	1.2	56.7	-	6.6	0.5	28.4	0.6	17.7	0.1	4.0
ITALY	7.8	42.7	-	4.7	5.8	23.0	-	7.0	2.0	8.0
REST OF EUROPE	29.7	225.1	16.8	46.2	6.5	97.8	6.0	72.9	0.4	8.2
TOTAL EUROPE	$ 77.1	$ 667.2	$ 20.4	$103.1	$ 42.0	$319.9	$11.4	$201.1	$ 3.3	$ 43.1
UNITED STATES	$681	$1,660	$155	$300	$160	$450	$80	$200	$286	$710

EXHIBIT III-6

BIBLIOGRAPHIC SECTOR COUNTRY COMPARISONS,
1980-1985
($ million)

COUNTRY	TOTAL BIBLIOGRAPHIC		BUSINESS ABSTRACTS		TECHNICAL AND SCIENTIFIC		PROFESSIONAL	
	1980	1985	1980	1985	1980	1985	1980	1985
UNITED KINGDOM	$ 10.2	$ 71.0	$ 1.8	$ 16.3	$ 3.6	$ 23.7	$ 4.8	$ 31.0
FRANCE	6.1	85.9	0.6	18.3	3.1	27.4	2.4	40.2
WEST GERMANY	5.0	44.5	0.4	10.0	2.4	14.8	2.2	19.7
ITALY	1.8	25.9	0.2	5.7	0.8	10.1	0.8	10.1
REST OF EUROPE	8.4	83.1	1.2	24.3	3.4	$ 19.2	3.8	39.6
TOTAL EUROPE	$ 31.5	$ 310.4	$ 4.2	$ 74.6	$ 13.3	$ 95.2	$14.0	$140.6
UNITED STATES	$298	$1,075	$93	$362	$68	$223	$137	$490

- The European markets in this sector will have the second slowest growth after business information, but at 58% per year will pass from being 10% of the U.S. market in 1980 to nearly 30% in 1985.

- Both in the U.S. and in every country in Europe, the professional subsector with legal databases dominates, even though the highest growth rate will be for business abstracts at a 78% average in Europe and 31% in the U.S.

- Although in 1980 the U.K. had the largest European market in every subsector, by 1985 it will have been overtaken by France, whose market will still be only 8% of the American market.

- Exhibit III-7 compares the performance of each country between 1980 and 1985 for the marketing, industry specific and other database sectors.

  - The marketing sector, which is on average 4% of the total current European market as opposed to 12% for the U.S., will reach 9% of the European total in 1985, by which time it will have risen to 15% of the U.S. market.

  - The major exception in Europe will be Italy, reflecting the fact that TV transmission has been completely deregulated and private commercial stations have proliferated. This has given rise to a greater need for accurate viewer information regarding advertising responses.

- The industry specific sector, influenced by Videotex technology and by the sales promotion subsector in particular, in the U.K., France, Holland, Germany and Italy will increase from 7.5% of the American market to 75%, growing at 116% per year.

EXHIBIT III-7

MARKETING, INDUSTRY SPECIFIC, OTHER SECTORS
COUNTRY COMPARISONS, 1980-1985
($ million)

COUNTRY	MARKETING		INDUSTRY SPECIFIC		OTHER DATABASES	
	1980	1985	1980	1985	1980	1985
UNITED KINGDOM	$ 3.0	$ 35.9	$ 6.0	$ 49.3	$ 0.8	$ 15.5
FRANCE	0.5	28.4	0.6	57.8	0.3	15.4
WEST GERMANY	0.2	13.0	-	26.9	0.1	8.2
ITALY	0.1	13.8	-	21.2	-	7.4
REST OF EUROPE	1.2	40.4	1.0	68.9	0.2	19.5
TOTAL EUROPE	$ 5.0	$131.5	$ 7.6	$224.1	$ 1.4	$ 66.0
UNITED STATES	$178	$645	$100	$301	$179	$594

IV INFORMATION AS A VALUE ADDED SERVICE

IV INFORMATION AS A VALUE ADDED SERVICE

A. INTRODUCTION

- The section segments the total West European market for on-line database services in terms of:
  - Expenditures by service type.
  - Revenue distribution by vendor type.
- Expenditures for different service types are shown in Exhibit IV-1 and IV-2.
  - Access/enquiry revenues are now and will remain the largest segment.
  - However, both the computational/delivery and promotional segments will grow more rapidly reflecting the future importance of more sophisticated services.
- The distribution of revenues among vendor types, Exhibits IV-1 and IV-3, shows the slightly declining importance of the supermarket approach and the growing role of the information providers.
  - Integrated vendors grow to gain the largest market share.

EXHIBIT IV-1

FLOW OF EXPENDITURES AND REVENUE

($ million)

	EXPENDITURES			TOTAL MARKET	REVENUE RETAINED BY		REVENUE PAID TO	
	ACCESS/ ENQUIRY	COMPU-TATIONAL/ DELIVERY	PRO-MOTION		INTE-GRATED VENDORS	SUPER-MARKET VENDORS	INFOR-MATION PROVIDERS	
1980	$ 82.7	$ 36.2	$ 3.7	$123	$ 54.3	$ 58.0	$ 11.2	1980
1983	294.7	160.8	22.8	$478	200.5	212.2	65.6	1983
1985	797.4	479.2	122.7	$1,399	628.7	530.1	240.4	1985

EXHIBIT IV-2

DISTRIBUTION OF EXPENDITURES
BY SERVICE TYPE

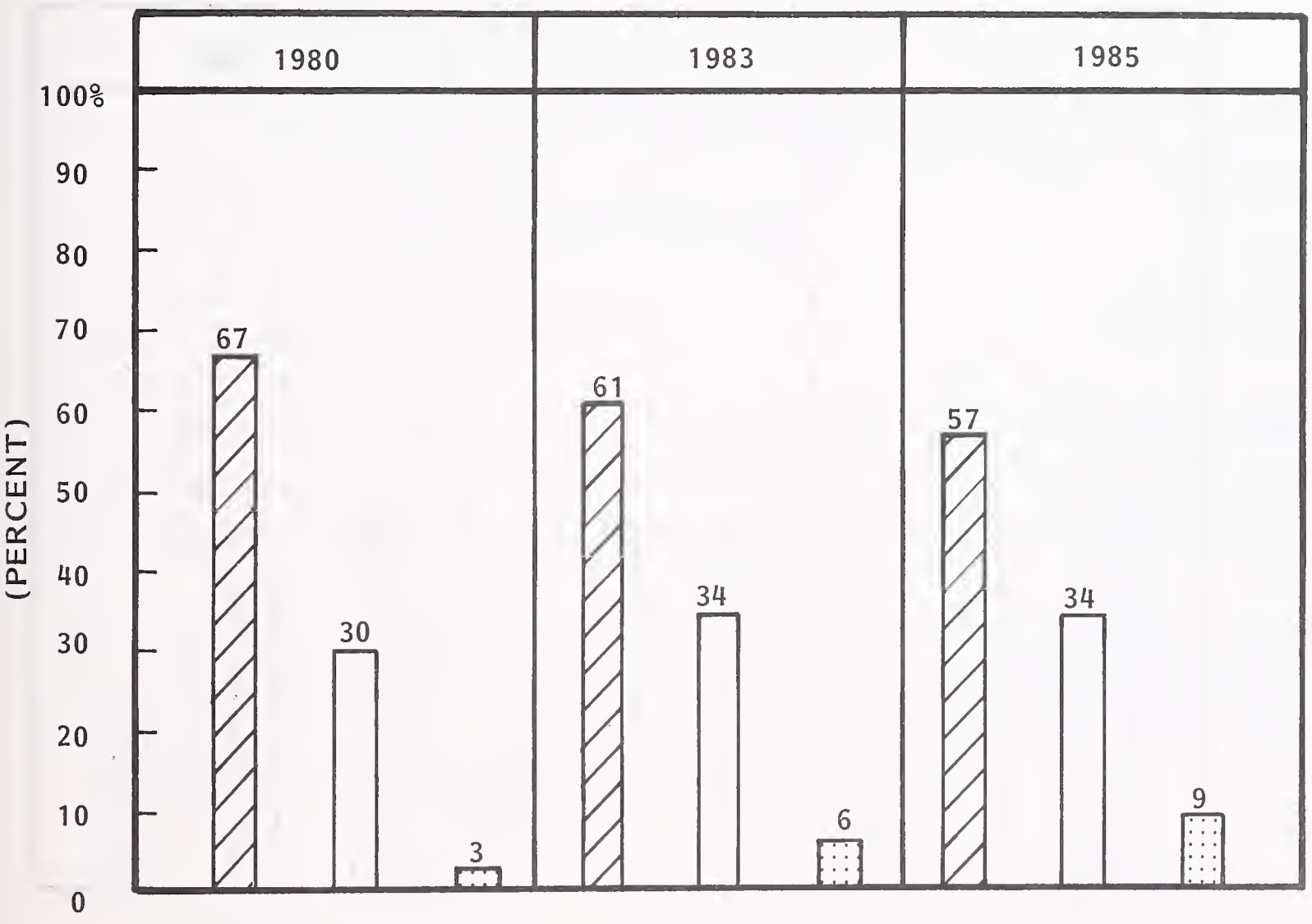
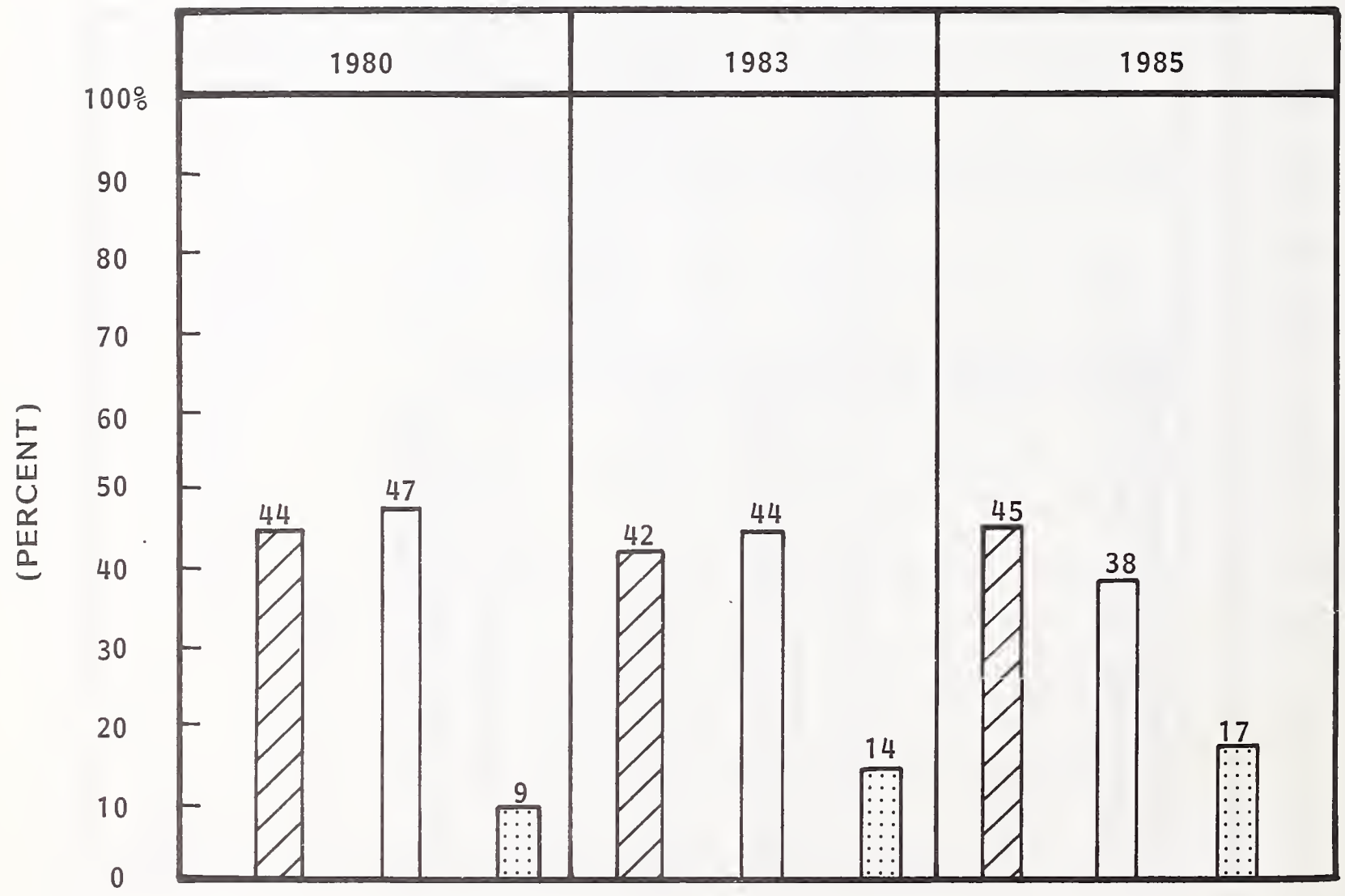


EXHIBIT IV-3

DISTRIBUTION OF REVENUE
BY VENDOR TYPE



- The on-line mode is now and will remain, at least through the forecast period, a more expensive technique for the delivery of information than the use of conventional media.

  - Firms who intend to succeed in the on-line database service business must develop and emphasize the value added aspects of the information provided.

- The inherent value of the information can be increased by providing it:

  - In a more convenient manner. This is done inherently in an on-line service by making the information timely and easier to access.

  - With related services which can include data manipulation, integration of private files, producing hard copy off-line, ordering of products/services, reservations, etc.

  - For promotional reasons.

- The relative importance of these factors depends upon the information sector; the factors are depicted in Exhibit IV-4 and are key determinants in the motivations behind the entry of various participants into the on-line business.

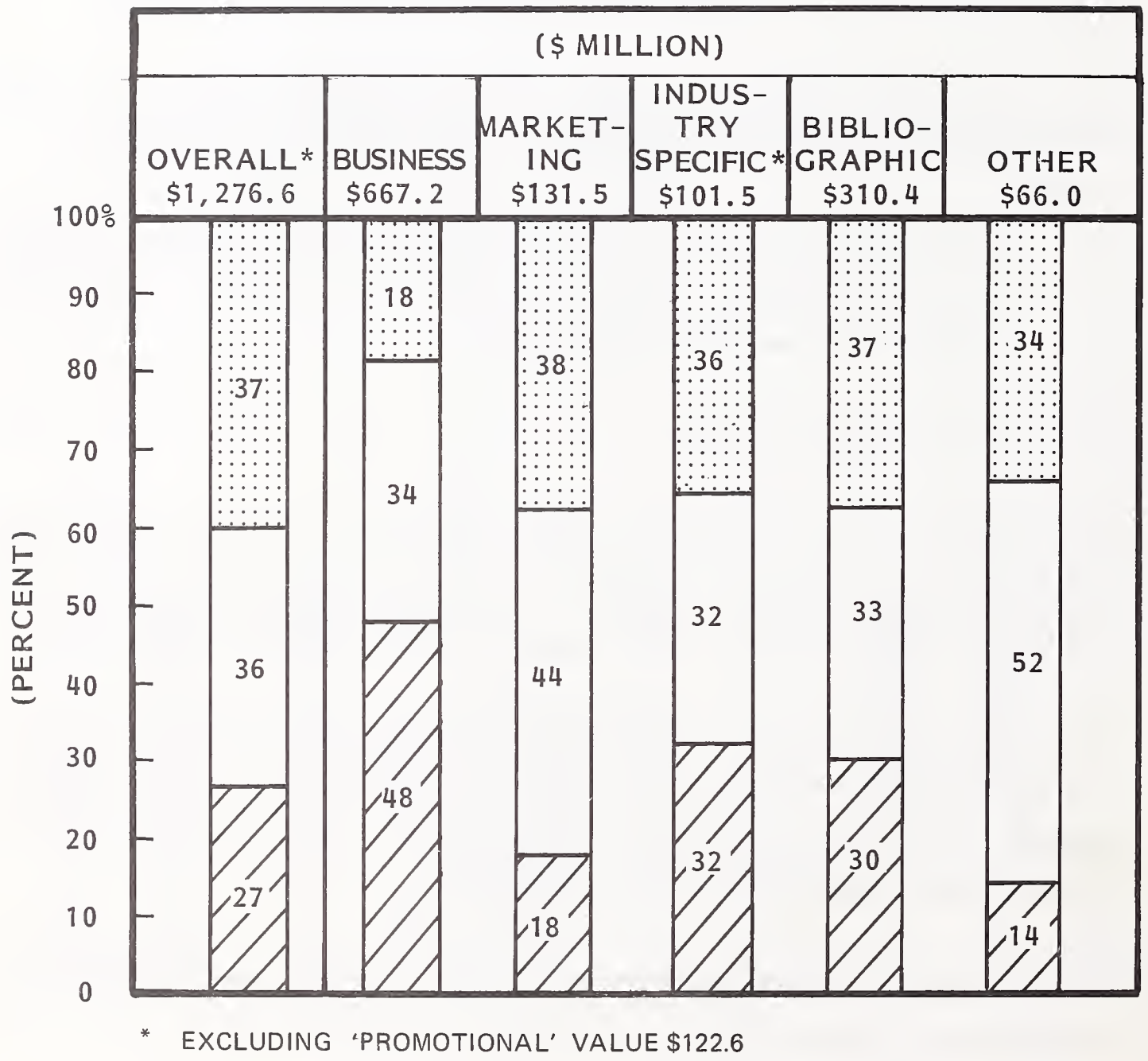
- For most pure information providers, for example, publishers creating professional information databases, the returns are questionable. The convenience values and, where applicable, related services values are taken by the supermarket vendor as a return on investment.

- Unless the information provider succeeds in selling more 'copies' of a publication, it gains nothing from converting to an on-line mode.

  - The contribution to the intrinsic value of information changes little from the conversion from printed to electronic form.

EXHIBIT IV-4

DISTRIBUTION OF VALUE ADDED FUNCTIONS
TOTAL WESTERN EUROPEAN MARKET, 1985



* EXCLUDING 'PROMOTIONAL' VALUE $122.6

RELATED SERVICES
CONVENIENCE
INFORMATION

- Three solutions are available:

  - An increased readership or circulation.

  - An increased share of the convenience value.

  - Integration of all functions under his control.

- Gaining increased circulation, given the speed of penetration of terminals will take a long time.

- An increased share of the convenience value is a realistic objective, and INPUT anticipates that this will happen from a comparison of the income shares over the forecast period.

- The integration process is already in evidence as a favoured solution in the U.S. McGraw-Hill, Dun & Bradstreet, Dow-Jones and, recently, the Chemical Abstracts Service are good examples.

B. RELATED SERVICES

- The most obvious 'added value' is the facility to further manipulate information retrieved from public databases.

  - The most obvious forms are statistical modelling and forecasting analyses using financial and economic data.

- In relation to the bibliographic information sector, added values would generally relate to the production of a hard-copy form of the text, printed either centrally or at the user's site.

- This form of 'on-demand' full-text publishing is of particular interest to publishing companies and could enable them to reduce stock levels on short runs or back issues.

- The proportion of the total user payments for these value-added-related services in 1985 is lower than the payments for the information in all sectors other than business information, as shown in Exhibit IV-4.

  - By 1985, 48% of all expenditures on business information are expected to be derived from related services.

- In the marketing sector, only 18% of the spending is expected to be on related services.

  - Market research companies will set a particularly high value on the convenience and information aspects of their services in order to recover the high cost of data gathering and interpretation.

  - Market research information is generally used by larger companies who are likely to perform computational services on their own, in-house systems.

- Industry specific information users are the most difficult to analyse in this respect in that the sector includes all the sales promotional types of databases.

  - Only those payments made by users for information services are analysed in Exhibit IV-4.

- Computational would include both classic data manipulation and sales ordering and reservation facilities.

  - Textual delivery would cover full-text print facilities of technical product specifications and general literature.

- In the bibliographic sector, 30% of the total spending will be for related services. Remembering that in all cases the sales of related consulting or conventionally printed and published material are excluded from the market total, this figure might appear high but:

  - It reflects the high cost of maintaining stocks of published works, particularly once the text or abstracts are committed to on-line storage.

  - Demand publishing will become an increasingly important element of this and other information sectors.

- In the 'other' category only a small proportion of total spending is on related services reflecting the high share of spending on 'convenience'.

- The proportion of spending for convenience is that assigned to the operational costs of maintaining a computer facility and access capabilities.

  - Supermarket vendors, particularly those operating private networks and undertaking sales responsibility, need a high proportion of total income to cover these operational costs and their initial capital investment.

  - In 1980 supermarket vendors held over 55% of the total on-line database services market, and only 9% of the total income was passed back to the non-integrated information providers.

- The proportion of total spending assigned to the convenience aspect of the service is relatively uniform in each information sector, at about one-third of the total market.

  - In the marketing sector the proportion is higher reflecting the pricing problem faced by supplying companies moving from printed and magnetic media distribution of bulk information to on-line selection of more limited, but applicable subsets of research data.

- In the 'other' sector supermarket vendors will maintain their high share of total spending.

C. INFORMATION VALUE

- INPUT forecasts that the share of the total West European market being passed back to the information provider will increase from 9% in 1980 to 17% in 1985.

- This reflects the increasing strength of the publishing industry in the market as a whole, and the need for it to participate in the control of the information quality and marketing.

- In overall terms, INPUT forecasts that the major share, nearly 40% of the total West European on-line database services market, as shown in Exhibit IV-4, will be for the 'information' element of the business.

  - Only in the business information sector is this proportion significantly different at 18%.

  - The sources of this type of information are governmental or statutory bodies who charge little for their information and often forbid its resale at any significant markup.

- Bearing in mind that a proportion of the related value services income, particularly that related to demand publishing, will also be passed back to the IP, the total share for information value will be in excess of 40% in all sectors but business information.

- It is only at this level of potential revenue that information providers will be encouraged to make the considerable investment necessary to capture information in machine readable form, convert it where necessary, maintain the quality and timeliness of the databases, and participate in their marketing.

D. OTHER ASSOCIATED REVENUES

- In evaluating the market, many other sources of income which have a direct pull-through relationship with on-line services have been excluded.

- Except for the most straightforward forms of demand publishing, all other forms of information media have been excluded.

  - The potential for audiovisual products and services in support of on-line information, particularly within the education environment, is considerable.

  - A superficial analysis of the number of directories and publications that have been spawned by the growth of interest in database and Videotex services is one proof that there is a positive relationship between on-line information services and printed products.

- The potential for associated specialist and business management consulting services is currently low but will increasingly become directly related to on-line information services.

- The whole field of sales promotion and product marketing will become increasingly dependent upon on-line facilities.

  - The British Leyland (BL) Videotex-based services will shortly offer dealers the facility to locate and reserve a particular car model by colour and overall specification anywhere within the production facility

or distribution network. It will also provide instantaneous statistics to BL marketing.

V THE ROLE OF VIDEOTEX

V THE ROLE OF VIDEOTEX

A. SYSTEM DESCRIPTION

- Videotex is the internationally agreed on name for an information retrieval and delivery system originally conceived and now being developed in the U.K.

- Almost all the major European PTTs are now planning, developing or implementing Videotex systems. Current country activities and system status are listed in Exhibit V-1.

- A number of key elements differentiate Videotex from existing information retrieval systems.

  - Terminals are 'conventional' black and white or colour television sets connected to the communications networks through a converter.

  - File structure is such that a complete page of information must be accessed and displayed. File search and page selection is done through a simple tree structure with a keyboard which is part of the television set converter.

  - The public switched telephone system is used. Most systems are now using the conventional circuit switched network but plan to convert to PDNs as these become operational.

EXHIBIT V-1

VIDEOTEX ACTIVITIES

COUNTRY	SYSTEM NAME	STATUS
UNITED KINGDOM	PRESTEL	IMPLEMENTING
FRANCE	TELETEL	EXPERIMENTAL
WEST GERMANY	BILDSCHIRMTEXT	EXPERIMENTAL
ITALY	VIDEOTEX	PLANNING
HOLLAND	VIDITEL	EXPERIMENTAL

- Smaller computers can be located in specific geographical areas and loaded with local information. This technique could significantly reduce overall communications costs, especially in domestic applications.

- The Videotex approach is being developed and used by both the public and private sectors in Europe.

  - Private systems are those owned and operated for the benefit of a single company and are not included in the markets covered by this study.

  - The revenues generated from private data placed on a public or closed user system are included. Prestel International is currently offering such a facility in Holland and Germany on a system based in the U.K.

  - Public systems, which are included in this study, are either owned and operated by the PTTs, are services placed on a PTT system by an independent vendor, or are offered to a closed user group. The London Stock Exchange's TOPIC System is an example of the latter.

- The advantages of Videotex are:

  - The cost is potentially low because of the simple terminal, restricted file structure, and small computers used.

  - High-quality colour graphics are relatively simple to implement.

  - Information providers can, with a minimum investment, place their data on the system.

  - An expected large base of terminals could create a ready market for new services.

- It is an ideal vehicle for domestic applications.

- The primary disadvantages of the Videotex approach are:

  - It is often considered to be synonymous with Prestel activities.

  - A lack of computational and, thus, interactive capabilities.

  - The file structure and search approach restricts the applications which can be effectively served.

  - Infrequent updating, at least in the Prestel system.

- Exhibit V-2 contains remarks made by respondents to INPUT during the survey of vendors and potential vendors about the importance of Videotex technology. The results of the interviews demonstrate:

  - Confusion in differentiating between Videotex technology and the Prestel system.

  - A very negative, but not unexpected, reaction to Videotex's importance from supermarket vendors who generally already have a communications system in place.

  - Only 5% of the vendors now on a Videotex system, and another 30% planning to put information on such a system in the future. The remaining 65% had no plans in this regard.

  - A stated need for the capability offered by the 'gateway' technique.

EXHIBIT V-2

RESPONDENTS' COMMENTS ON THE QUESTION 'TO WHAT EXTENT DO YOU BELIEVE THAT VIDEOTEX TECHNOLOGY WILL CONTRIBUTE TO THE DEVELOPMENT OF THE MARKET?'

- 'Not apt for the specialist who needs up-to-the-second updates'.
- 'Technology still at the beginning'.
- 'Very important as long as it is user friendly'.
- 'Three years away'.
- 'Of long-term importance'.
- 'Prestel is grossly overrated'.
- 'A significant development if gateway facilities are introduced'.
- 'Important for domestic and closed user group markets'.
- 'A folk computer system'.
- 'Limited in the financial area because of no computational ability'.

- The gateway technique was developed by West Germany for the Prestel system and was always inherent in the French Teletel system. This technique permits the interconnection of other databases and computers into a Videotex system thereby greatly broadening its appeal and introducing interactive and computational capabilities.

- Information providers are finding ways to overcome some of the system's shortcomings primarily by the use of special frames to achieve a higher degree of interaction.

  - Private Videotex systems have been modified to such an extent that they can be used for travel reservations. This is an application which requires a high degree of interaction and rapid updating of the files.

- When asked to consider Videotex in a broader context, with regard to its technological importance to the development of the on-line database market, the following results were achieved.

  - Thirty-seven percent thought it would be very important.

  - Twenty-five percent felt that it would help the development of the industry.

  - Nineteen percent viewed it as just another communications mode.

  - Nineteen percent were of the opinion that it was of insignificant importance.

- These reactions reflect a general uncertainty about Videotex standards, a distrust of government involvement, and a belief that Videotex is only applicable for the domestic market. These perceptions are changing and will become more positive as business type Videotex applications are proven.

B. CURRENT VIDEOTEX ACTIVITIES

- PTTs in the major European countries are developing Videotex systems with different names and, more importantly, with differing business philosophies.

  - Prestel in the U.K. is being managed by British Telecom as a complete information service, quite often in competition with the private sector.

  - Prestel International, a venture of British Telecom and Logica, is offering on-line database services on separate systems in the United States and Western Europe.

  - Prestel has recently announced the acquisition of the software developed for Bildschirmtext to allow other systems to interconnect with the Prestel service as gateway hosts.

  - Teletel in France is being managed as a communications service with active support and encouragement of the private sector to provide information service through the system.

  - Bildschirmtext in Germany, based on the Prestel system, manages an information service which has been enhanced to allow gateway facilities for and into information providers' own computer systems and databases.

  - Videotel, the Italian version also based on Prestel, has learned the British lesson and will initially direct its services exclusively towards closed user groups, guaranteeing an interested audience which will pay commercial rates for the service.

- Two key Videotex-related activities now being pursued by the PTTs are:

- An attempt to establish European-wide standards and to rationalise the differences between the Prestel and Teletel approaches. Agreement in principle has now been reached, but competition between the two services remains high.

- The gateway concept would allow separate Videotex systems to be interconnected and even more important would permit the traditional RCS information systems with their fully interactive and computational capabilities to be interconnected with Videotex systems.

- The promised advantages of Videotex systems are low cost and the ability to use the installed public switched telephone network to reach a wide variety of business and domestic users. Growth of this user population would be encouraged by having:

  - A single standard Videotex receiver (TV set) capable of accessing any similarly standardised database information service.

  - Local call telephone charges by any user in any location.

- Prestel, which is operated by the British Telecom Authority, was the first Videotex system introduced in Europe and, as a result, has accumulated the most operating experience.

  - The system is far behind its original plans in terms of subscriber terminals installed, and the managers have had to substantially alter their original direction from a domestic to a business end user orientation.

  - It is being managed as a monopolistic information service at present, although the new gateway facility will change this to some extent when available in March 1982 in the London region.

C. MARKET DEVELOPMENT

- Videotex activities will have a number of positive effects on the growth of the on-line database industry in Western Europe.

  - The publicity being generated by all the participants and interested parties, although confusing at times, is raising the awareness of potential users and vendors to the possibilities offered.

  - Significant revenues will accrue to organisations who operate Videotex systems or are hosts on these systems to both users and information providers.

  - Gateway facilities will allow access by all types of vendors to a potentially cheap network with a potentially large base of both business and domestic users.

- Volume II of this study contains a detailed discussion and forecast of the development of Videotex markets. Because of the many uncertainties introduced by governmental and political considerations, minimum, most likely, and optimistic forecasts were prepared based on the time of occurrence of certain critical milestones.

  - Exhibit V-3 contains a list of these events and the criteria supporting the three different forecasts.

  - The resulting forecasts for these three different scenarios are shown in Exhibit V-4.

  - The most likely forecast was segmented by major information sector, as shown in Exhibit V-5, and is included in the on-line database services market forecasts.

EXHIBIT V-3

KEY MILESTONES - VIDEOTEX DEVELOPMENT

EVENT	TARGET	MINIMUM FORECAST	MOST LIKELY FORECAST	OPTIMISTIC FORECAST
• VELIZY - TELETEL EXPERIMENT – START – FINISH	1ST QUARTER 1981 END 1982	2ND QUARTER 1981 END 1983 OR CANCELLED	2ND QUARTER 1981 MID-1983	2ND QUARTER 1981 END 1982
• ANNUAIRE EXPERIMENT ILLE-ET-VILAINE – START	END 1981	CANCELLED	EARLY 1983	END 1ST QUARTER 1982
• PRESTEL 'GATEWAY'	MARCH 1982 (NO TARIFF YET)	UNFAVOURABLE PRICING CONDITIONS	ON-TIME EXPENSIVE	ON-TIME; FAVOURABLE PRICE AND CONDITIONS ANNOUNCED BY MID-1981
• INTERNATIONAL 'GATEWAYS'	1983	DECISIONS POSTPONED	1983	FIRM ANNOUNCEMENTS EARLY 1982
• NATIONAL FULL-SERVICE LAUNCHES – GERMANY – ITALY	 1983 1982	 LATE 1983 1983	 EARLY 1983 LATE 1982	LEGAL APPROVALS EARLY 1982 MID-1982
• DECODER COSTS. BY 1983.	FRENCH TARGET $60	$400	$250-300	$80-100
• U.S.-FCC STANDARD ACCEPTANCE	N/A	NO STANDARD ACCEPTED	LATE 1982 EARLY 1983	EARLY 1982

EXHIBIT V-4

MARKETS FOR ON-LINE DATABASE SERVICES IN
WESTERN EUROPE DELIVERED BY VIDEOTEX SYSTEMS

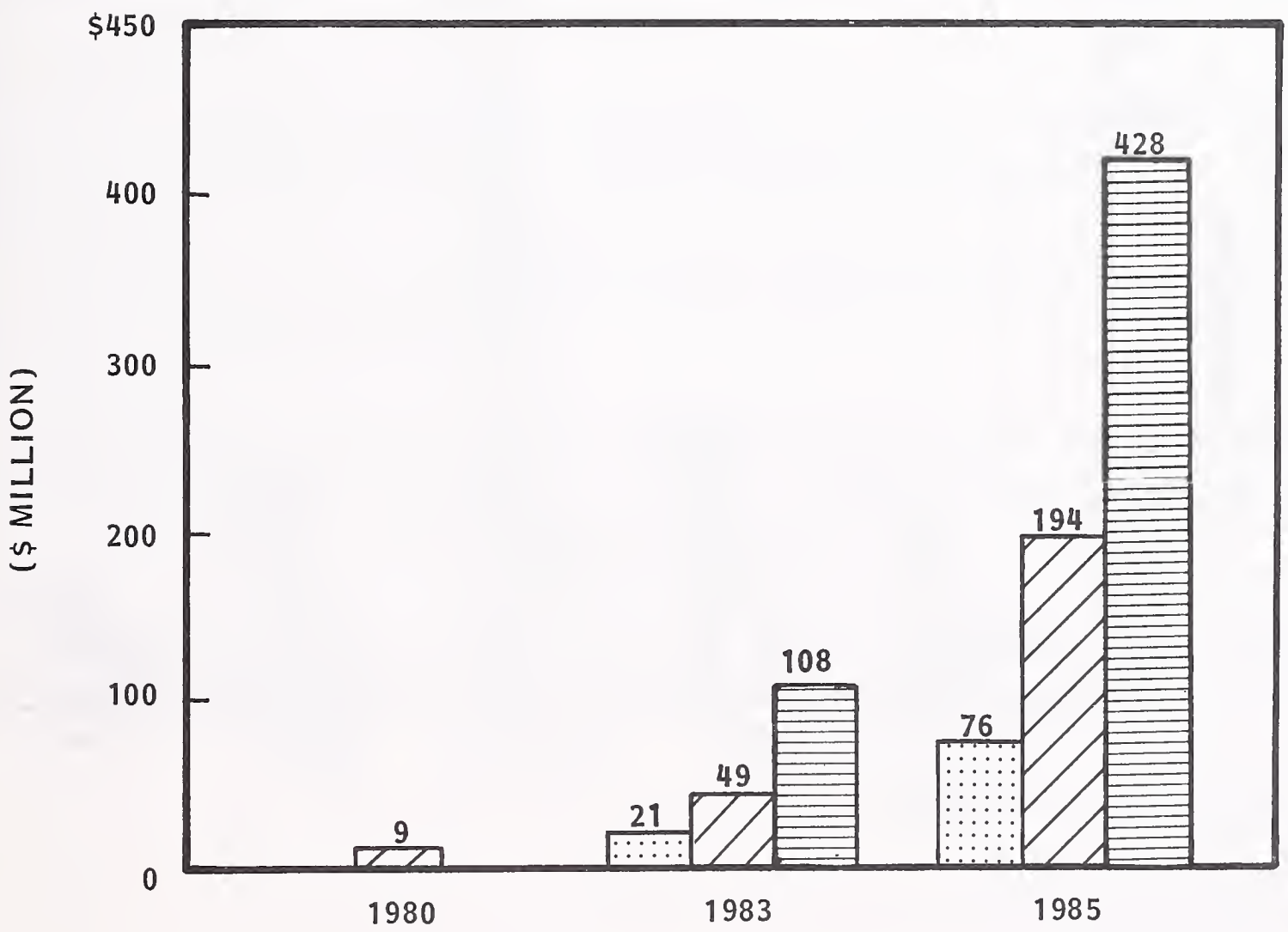
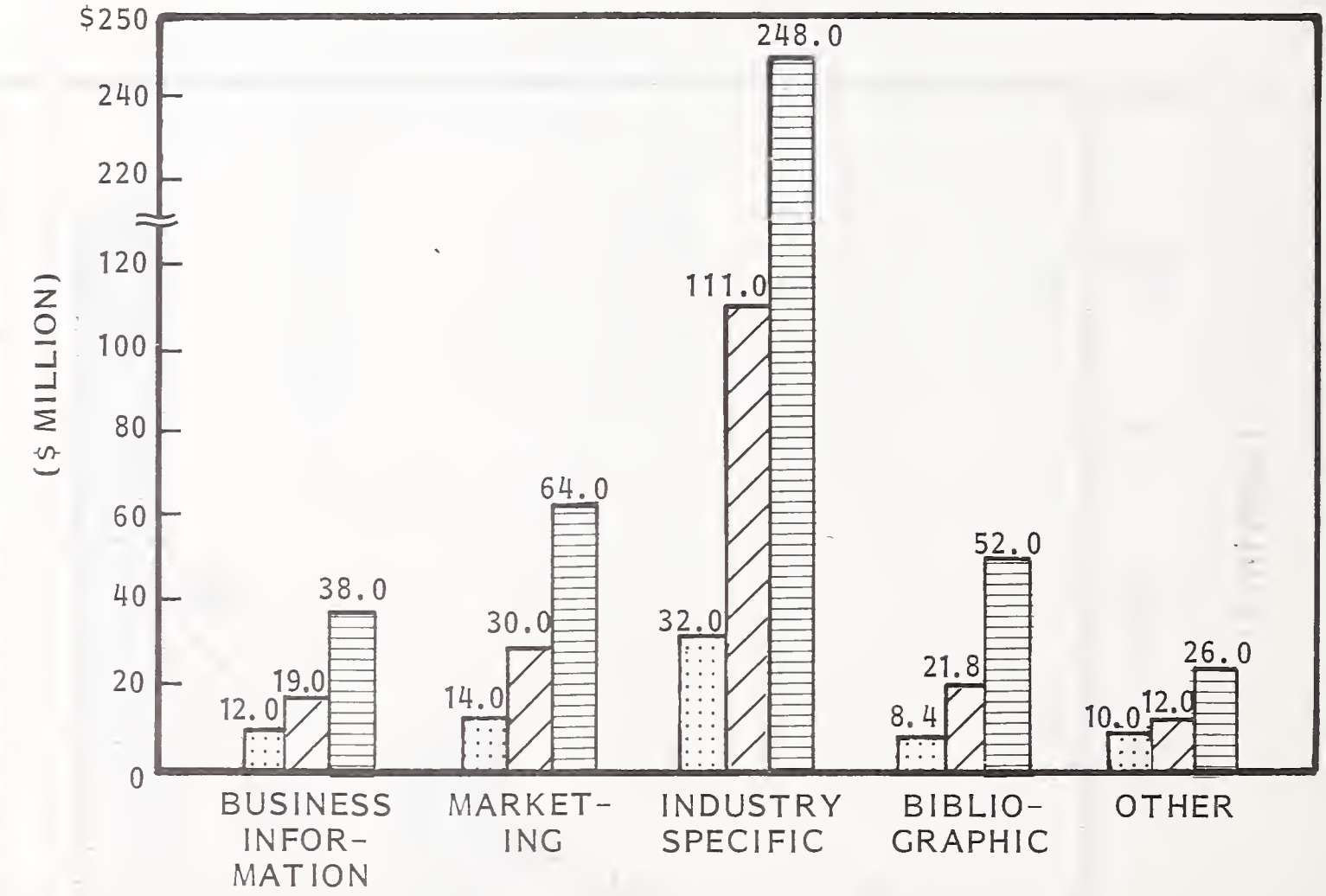


EXHIBIT V-5

MINIMUM, MOST LIKELY AND
OPTIMISTIC FORECASTS FOR THE
1985 VIDEOTEX MARKET BY INFORMATION SECTOR



MINIMUM
MOST LIKELY
OPTIMISTIC

- The distribution of expenditures for Videotex-based systems will be quite different from that resulting from other systems for:

  - The portion of expenditures by information users and information providers.

  - The portion of expenditures for domestic- and business-oriented services.

- Exhibit V-6 compares the expenditures made by users of the systems and IPs on conventional and Videotex systems.

  - Almost half the 1983 expenditures on Videotex systems will be from vendors acting as IPs but trying to sell products or services.

  - This ratio climbs to 60% of total Videotex revenue in the case of the optimistic scenario.

  - This compares to only 6% for conventional systems and demonstrates the expected popularity of Videotex systems in the delivery of paid promotional or advertising information.

- The very small contribution to the total market from domestic users is evident from Exhibit V-7.

  - Only 4% of the total market and only slightly more than 25% of Videotex expenditures will be for domestic applications. This includes payments by both the domestic user and the service/product vendor for promotional material.

  - In the optimistic Videotex scenario, domestic expenditures increase by a factor of almost four and reach nearly $200 million in 1985.

EXHIBIT V-6

DISTRIBUTION OF EXPENDITURES FOR
ON-LINE DATABASE SERVICES IN WESTERN EUROPE, 1985
($ million)

SOURCE OF EXPENDITURES	MOST LIKELY VIDEOTEX MARKET	CONVEN-TIONAL DELIVERY	TOTAL
USER PAYS	$ 99.2	$1,131.1	$1,230.3
IP PAYS	94.6	74.3	168.9
TOTAL	$193.8	$1,205.4	$1,399.2

EXHIBIT V-7

DISTRIBUTION OF DOMESTIC
VERSUS BUSINESS MARKETS
($ million)

SOURCE OF EXPENDITURES	MOST LIKELY VIDEOTEX MARKET	CONVEN-TIONAL DELIVERY	TOTAL
BUSINESS USER	$138.8	$1,205.4	$1,344.2
DOMESTIC USER	55.0	-	55.0
TOTAL	$193.8	$1,205.4	$1,399.2

- Most domestic applications are only now being conceived and structured and, as a result, will not generate significant expenditures until the second half of this decade.

- One of the key potential uses for Videotex or other systems as well would be in the direct ordering and/or payment for products or services. The vendors interviewed were asked whether and when they envisioned a viable on-line selection/ordering system for:

  - Travel/estate agencies.

  - Industrial products/services.

  - Domestic products/services.

- Most of the respondents thought viable systems could be in place by 1985 for all three of the above areas.

  - Several systems already exist in the travel and industrial area.

  - An ordering feature was specifically incorporated in the West German Bildschirmtext system.

  - The Italian and German respondents were more optimistic about domestic systems than either the French or English.

- The concept of on-line direct debitting for these purchases was alien to most of the vendors interviewed.

- INPUT forecast that the mode of delivery for domestic on-line database services will be exclusively based on Videotex standards and that conventional RCS modes will not be used.

- This does not exclude the fact that gateway links from conventional computational and value added services to Videotex systems will be used. Terminal devices will conform to Videotex standards and initial access will be by this mode.

VI EUROPEAN GOVERNMENTAL PROGRAMMES

VI EUROPEAN GOVERNMENTAL PROGRAMMES

A. INTRODUCTION

- Most European governments are involved to a greater or lesser degree in information technology or Informatique, be it through plans affecting technology or concerning the electronic distribution of information by traditional means or new technologies such as Videotex.

  - These plans and programmes have had varying degrees of success relative not only to the vigour with which they were implemented or to the investments made but also to the sectors selected and the interaction with vendors and users.

- On all accounts the French programme of 'Informatisation' is the best prepared, the most far reaching, pursued with the most vigour, and the best funded. It is closely linked to private enterprise and its primary aim is commercial success.

- The West German 'Information und Documentation' programme, although coherent in design, is narrow in scope and has not attracted wide enough support from information providers, vendors or users. It was intended to be primarily a national service with restricted private involvement. Its success has consequently been limited.

- In the U.K. it has only been within the last year that steps have been taken at the governmental level to develop a concerted policy on informatics with the creation of the post of Minister for Information Technology.

  - The scope of most of the U.K. government's activities is directed towards high-technology hardware, but some attention is being paid to databases.

  - The major contribution of the government to the dissemination of information is the PTT-promoted Prestel service. As with other services operated by public bodies, its commercial success has not been brilliant.

  - An indirect but strong impulse to the growth of the database market would be given by the implementation of the recently published Beesley Report recommending the freeing of the U.K. market to private value-added networks and other private telecommunications services.

- The only centralised activity in Italy is the PTT Videotex experiment which is to be launched shortly. Although some organisations from within the administration are setting up database operations, these are not the result of a specific national plan.

B. THE FRENCH 'INFORMATISATION' PROGRAMME

- In direct line with its long-standing policy of creating a strong independent computer industry centrally guided and supported, the French government, sensing the vital importance of an independent, locally sited information industry, in 1976 commissioned the Nora-Minc Report on the future of informatics and the role the government should play in promoting this aim.

- As a direct consequence of this report, the government evolved a plan for the progressive spread of informatic and telecommunications applications throughout the totality of economic and human activities over a 20-year period. An initial budget of 2,500 million francs was allocated for the first five years.

- The execution of this plan has been entrusted to a complex array of existing or newly created organisations which complement and supplement each other in the promotion and support of all sectors of the computer and telecommunications industries. They involve the manufacturers, the computer services sector, the PTT, the users, and the administration itself. Their interrelationships can be seen in Exhibit VI-1, and an explanation of their functions is given in Appendix B.

• Support to the database industry is provided through several of the agencies appearing in the chart. Most aid comes from the Mission Interministerielle de l'Information Scientifique et Technique (MIDIST) and through the joint activities of the Direction des Industries Electroniques et de l'Informatique (DIELI) and the Mission a l'Informatique.

- Both organisations sponsor, albeit in different ways, the creation of new databases. This sponsorship is given to information providers or at most to joint ventures between these and serveurs, or hosts.

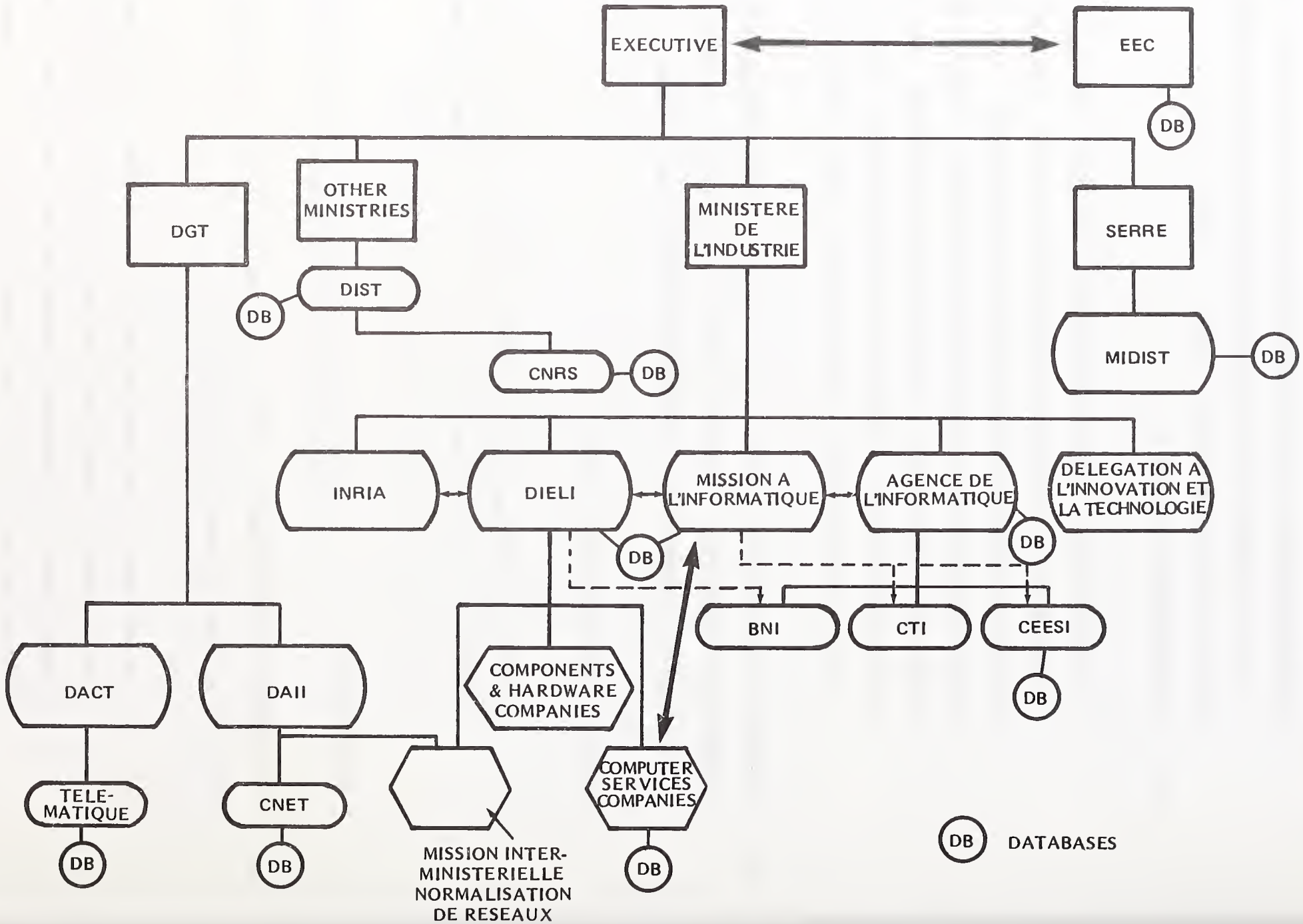
I. THE MIDIST

• The MIDIST was created in 1979 to improve the level of information available to users of scientific and technical data.

- It promotes, funds and supports all methods of dissemination of scientific and technical information including publications, audiovisual presentations, conferences, education and, of direct interest to this analysis, factual and, in a few cases, bibliographic databases.

EXHIBIT VI-1

THE FRENCH ADMINISTRATION - ORGANISATIONS RESPONSIBLE FOR THE COMPUTER SERVICES SECTOR



- The current objective of the MIDIST is to provide support for the creation of 50 scientific and technical data banks by 1985.

- Support for the creation of databases is in the form of a grant and involves a two-step approach, first a pilot project and second a half-sized project.

  - Once the second step has been successfully completed, finance has to be found elsewhere, generally in the private sector.

  - In certain cases support can take the form of a joint venture between the IP creator and the MIDIST. In this case, the MIDIST guarantees any losses, while the finance provided in the form of a loan is recoverable from sales.

- Once yearly, a call for proposals for the creation of factual databases is made and some 20 are selected on the basis of their strategic importance. Preference may be given to databases with international relevance.

  - In the case of the MIDIST, short-term profitability is not a consideration.

- Although the original brief to the MIDIST was the support of purely scientific and technical databases, there is a shift now towards more commercially orientated databases.

- In 1979, the first year in which the call was made, 75 replies were received and 20 were selected for MIDIST support. In 1980, the number of replies rose to 130, and 19 proposals were chosen.

- The total 1979 budget for database activities of the MIDIST was 35 million francs growing to some 50 million in 1980.

  - The subsidy for the pilot project can vary around 120,000 to 150,000 francs.

- The subsidy for the second step, a half-sized project can amount to 200,000 to 500,000 francs.

2. DIELI AND MISSION A L'INFORMATIQUE

- The main mode of support given by the DIELI is that of a 'growth contract'.
  - A selected company will get a loan from the DIELI for a specific project. The loan amounts to 50% of the total project budget, and the company has to contibute the other 50% towards its implementation.
  - The company will commit itself to increase its turnover in that particular activity by a predetermined percentage over a certain time as a result of this project.
  - If this goal is achieved the loan becomes a subsidy, and the DIELI will not require reimbursement. If the project does not succeed commercially, the loan has to be repaid by the company.
- In contrast to the MIDIST, the DIELI aims to support the creation of nonscientific databases.
- Projects selected for support in the form of a 'growth contract' have to meet strict criteria for eligibility.
- A fully documented proposal describing the product, its pertinence and its proposed mode of distribution has to be presented to the DIELI accompanied by a market analysis proving its feasibility and financial success within a three- to four-year period.
- With an overall intention of developing private operators of databases of recognised usefulness, projects are selected in the following order of priorities:

- Databases which can attract a substantial number of international customers in a short time.

- Databases which contribute to the improvement in the competitive ability of companies.

- Databases serving a profession or trade.

- Certain databases which might not pass the 'profitability within a certain time' criterion but whose information might be indispensible to industry or technology may nevertheless qualify for a direct subsidy.

- So far the DIELI has selected seven projects, four in 1979 and three in 1980. Five other projects are still under scrutiny.

- The subjects are varied and include databases on the following topics:

  - Industrial companies profile.

  - Legal and notarial.

  - Accounting.

  - Real estate.

  - Investors portfolios and sources of finance.

  - Recorded material for home entertainment (to be distributed on Videotex).

  - Construction and building information.

- DIELI assistance varies from 300,000 francs for a year to two to three million francs spread over three years. Part of these sums may be assigned to marketing the product.

3. CENTRE SERVEUR NATIONAL, VALBONNE

- As part of the overall governmental plan of promoting the creation of a strong French information industry, the decision was taken to institute a large national host centre for scientific and technical databases.

- Operational since June 1979, it is managed by Telesystemes, a computer services company owned by France Cables et Radio (88%) which in turn is fully owned by the government and is under the guardianship of the PTT.

4. THE 'DIRECTION GENERALE DE TELECOMMUNICATIONS' (DGT) ANNUAIRE ELECTRONIQUE PROGRAMME

- The French telecommunications authority is contributing heavily to the development of on-line databases through its electronic telephone directory programme and its sponsorship of Videotex and other closed-user-group on-line information systems like the S.T.T. Servitel travel information and reservation system.

5. THE 'INSTITUT NATIONAL DE LA STATISTIQUE ET DES ETUDES ECONOMIQUES' (INSEE)

- Another piece of the governmental jigsaw puzzle is the call for tenders by the INSEE jointly with the DIELI for the creation of a database on macro-economic data.

- This case is exceptional. Governmental statistical offices in most other European countries have so far shown a great inertia in making their information available on-line and regularly updated. Current methods are slow, cumbersome and generally late.

- The great success of the French programme has been its early decision to bring in the private sector and treat the development of databases to a large extent on a commercial basis.

C. U.K. INFORMATION TECHNOLOGY PROGRAMME

- In truth, there is no programme yet in the U.K. A great deal of activity, publicity and effort are being expended but so far there is no concerted action.

- The message being given, quite rightly, is that a programme is needed and needed very soon if the U.K. is not to lose out to other nations in areas where it currently has established a basic capability.

- The Minister is on record as saying the programme has to be in place within the current year (1981). Furthermore, it has to be built on the confidence and commitment of private enterprise.

- The basic problem is that unlike France and even Germany where the role of government is so closely interwoven within the whole structure of the state, the 'conflict' politics of the U.K. government, industry and unions have yet to be resolved.

- With three to four years remaining for the current administration, changes in the political climate will not be significant. Three years in the information technology business is a long time.

  - The avowed politics of the conservative administration are non-interventionistic, encouraging private sector enterprise and reduction of government costs.

  - Having succeeded in creating an environment where industry has been able to restructure itself, slim down and revive its profit objectives, the

government now has to encourage investment in those areas which it believes are most advantageous to the country as a whole.

. Information technology is the prime selected area.

- To what extent it succeeds depends upon the degree of trust and liaison established with private enterprise.

  - The research programme, completed by the end of February 1981, gave little encouragement as trust was at a very low ebb.

  - Recent pronouncements, as late as April 1981, by the Confederation of British Industries have been generally pessimistic.

- However, the overall economic climate is changing very fast, probably later than the government hoped but considerably more positively.

- It is still hard to be too optimistic because it has been difficult to identify those key companies which, given that they are now prepared to respond to the call for investment in the on-line database services business, are in a strong position to do so.

  - In the telecommunications area, companies like Racal, Plessey and STC have considerable strength, supplemented by British Aerospace in the satellite business.

  - However, the picture is less bright in the systems integration area. This group must provide the systems and terminal devices to work with the communications facilities.

  - In the 'services' sector, the information providers and RCS companies, the choice is limited again.

- The U.K. administration regularly compares itself to France, West Germany, the U.S. and Japan, and finds it difficult to produce favourable comparisons.

  - Comparisons between Logica (the preferred partner of British Telecom) and CAP-Sogeti; BOC - Computer Services or Centrefile to GSI or SG-2; ICL and CII-HB or Thomson-CSF; even GEC to CGE (CIT-Alcatel) are not favourable to the U.K.

- The U.K. government programme, in its pre-announced form, mirrors the French programme with:

  - Identification and support for the strong companies in the industry.

  - Combinations of subsidy, procurement and R&D funding for approved products and services.

  - Provision of education and promotional services to support national vendors.

  - Joint investments, or even demonopolisation, in the public sector areas.

- Looking towards international markets in Europe, the U.S. and Japan, even if the technology contribution is considerable, is no substitute for stimulation of a strong national business base.

- In summary, all the signs are that the government is moving in the right direction, but it is doubtful whether action will result within the required timeframe.

- In the on-line database area the liberalisation of the Prestel environment is crucial, and the increased involvement of the publishing industry is another major factor.

D. WEST GERMANY - 'INFORMATION UND DOKUMENTATION' (I&D) PROGRAMME

- The West German information plan conceived in 1974 was as ambitious in its aims as the French programme.

  - Its purpose was to make publicly available throughout the Federal Republic reference information to published material on all aspects of human activities, although biased towards science, technology and industry.

  - The medium envisaged was a set of 20 hosts, one for each sector, and each with its own data processing capability.

- The basic philosophy was to run these specialty information centres as so many electronic public reference libraries with the emphasis being on public service and the right to information. Funding was to come mainly from official sources.

  - In practical terms this implied the supply of information mostly as noncommercial tariffs. In some cases information was to be free while in others, funds would be provided by the industry using the information service.

- The main characteristics of the system regarding the development of an on-line information industry were:

  - It was controlled and operated by public authorities.

  - Private involvement was discouraged except for the funding by industry of some of the centres.

  - Information was meant to be purely bibliographic.

- Its appeal was mainly to documentalists, librarians and researchers at learned establishments, characteristically the sectors with the most restricted spending power.

- In practice, the delay between the reference enquiry and the supply of the corresponding text, although possibly acceptable to the researcher, was not acceptable to the businessman in his decision-making process.

- The pricing policy was an effective deterrent to the private creation and distribution of on-line databases leaving the field open to U.S. vendors operating on marginal costs.

- The I&D programme was only partially successful with five centres operational:

  - Health, medicine and biology.

  - Chemistry.

  - Energy, physics and mathematics (including space and avionics).

  - Building and urbanism.

  - Technology.

- Three centres are still classified as tests or are now being created:

  - Law.

  - Metallurgy.

  - Arts and humanities.

- Not all these centres have their own DP installation as originally planned but share those already in existence. They are all Euronet-Diane hosts.

- Besides the above points, the on-line database industry is further hindered by factors such as strong regionalisation through the federal system, strict data privacy regulations, new copyright laws, and a hard monopolistic line from the PTT authorities which is officially scheduled to become stricter in the future.

  - There are some doubts regarding this last point as a result of recent legislative activity.

- Sensing the need for a different approach, the government is increasingly trying to involve the private sector in its plans for the future and its main target has been the publishers.

  - The publishers, cautious by nature, are proving somewhat reluctant partners and are not willing to hurry into an activity which requires high investments and where the track record regarding returns has so far been very poor at the European level.

  - A weak RCS sector is another barrier that will have to be overcome if the industry is to prosper.

- There is also government involvement in the Videotex area.

  - The PTT-sponsored Bildschirmtext experiment has been in existence for nearly one year in Berlin and Duesseldorf.

  - The German approach is much more that of a communications carrier than that of exclusive supermarket host, like the U.K.

  - The development of gateway facilities for host IP's computers has stolen a march on Prestel whose system they originally implemented.

E. ROLE OF THE EUROPEAN COMMUNITIES COMMISSION

- The European Communities Commission has been a significant factor in the development of an inter-European on-line database industry.

- It has contributed:

  - By providing a low-cost communication medium.

  - By publicity and education.

  - Through financial support.

  - Through contracts.

  - By political activity.

1. EURONET-DIANE

- The major contribution impacting the international European scene has been the creation and setting up of Euronet, the inter-European packet switching network which became fully operational in March 1980.

- The main object of this network is to provide the infrastructure necessary for an information network linking a series of hosts in various community countries offering databases internationally. This information network carries the name Diane.

- The most valuable aspect of Euronet besides its mere existence lies in its tariff policy which is intended to make the transmission of information from one country to another as attractive as possible.

- Charges for the use of Euronet are distance independent and are based on call duration. Thus, an enquiry by a Danish user of an Italian host should, for a call of equal duration, cost the same as an enquiry from Belgium to Holland.

- Euronet follows a strictly European policy. It accepts only EEC hosts or, at most, hosts from other European countries. Switzerland, in particular, has recently been allowed to join.

- American on-line database vendors are not permitted on Euronet. They have to form partnerships with European hosts, and some have gone even further and have been acquired by European conglomerates.

- The existence of the Euronet-Diane service and the investment by the commission in publicising its existence and the consequent educational process have aided not only this service but also national on-line database vendors.

- The life of Euronet is limited to 1985 by which time it is expected that all participating countries will have their own national data networks installed and interconnected.

- Diane will certainly continue its existence on this new set of linked national networks.

- While the tariffs of some of these national package switched networks are or will be lower than Euronet tariffs (e.g., Datet P.), the policy of distance independent pricing will possibly be maintained by most of the PTTs.

2. FINANCIAL SUPPORT

- Using a system similar to that employed by the MIDIST and the DIELI in France, the European Commission has called for the submission of proposals for the development of databases or information systems of European interest.

- Of 266 replies, 26 were selected and each will receive during the first year 25% of the investment needed for the development of the systems.

- The total investment required is estimated at some $10 million, of which the commission will provide $2.3 million.

3. CONTRACTS

- The commission has recently entrusted the French computer services company, CISI, and Reguecentralen of Denmark to mount and market the CRONOS-Eurostat database.

- This is the major economic and econometric statistical database of the community, and its availability on Euronet will contribute greatly to a fast increase in traffic.

4. POLITICAL ACTIVITY

- The commission not only provides the framework for the existence of an international network and information system, but it is also excellently placed to coordinate the activities of governments and national PTT organisations in respect to legislation, regulations, standards and systems governing the on-line data and information transmission sector.

- As will be seen in the following section, it is the plea of all vendors of databases for the European community to take a harmonising role.

F. VENDOR VIEWS

- The attitudes of governments regarding the on-line database sector are well documented, and the major guidelines and intentions have been made abundantly clear.

- The response of the industry, its wishes and requirements are less publicised.

- INPUT solicited vendors' opinions of their views of current government involvement and the kind of support it should give the industry in the medium term.

- The replies to a question on the quality of governmental involvement are shown below:

Government Involvement	Percent Agreeing
Overinvolved and unwelcome	10%
Constructive	20
Insufficient	30
Inadequate	40

- Seventy percent of respondents stated that the government is less than sufficiently involved in the market.

  - It will come as no surprise that most of these replies come from respondents in Italy and the U.K.

  - Of the 10% of respondents complaining of unwelcome overinvolvement, most are from France where government is felt to be too 'regal' in its approach and often takes measures that are more politically based than commercial.

- Several respondents from the U.K. also felt that the government is over-involved, and that it should leave business to businessmen.

- Most of the German vendors considered that the government was constructively involved within the scope it had set itself, but that this scope was far too narrow.

- Many French respondents also considered official involvement to be constructive, while in Switzerland it was felt that the government is acting in a 'response mode'.

- Exhibit VI-2 shows the European response to the question of the importance of different types of assistance to be given by the state for the development of on-line database services.

  - The total for the four countries analysed, France, the U.K., Germany, Italy, shows that the majority of respondents considered procurement by the government in the form of direct purchases of service on development contracts to be the most desirable form of support.

  - It is also interesting to note that publicity, which follows procurement closely on the weighted average scale, had the most responses if the great and medium importance responses are taken together, with 71% of the respondents as opposed to 67% for procurement.

- The demarcation line between education and publicity is difficult to draw and several respondents tended to consider them jointly.

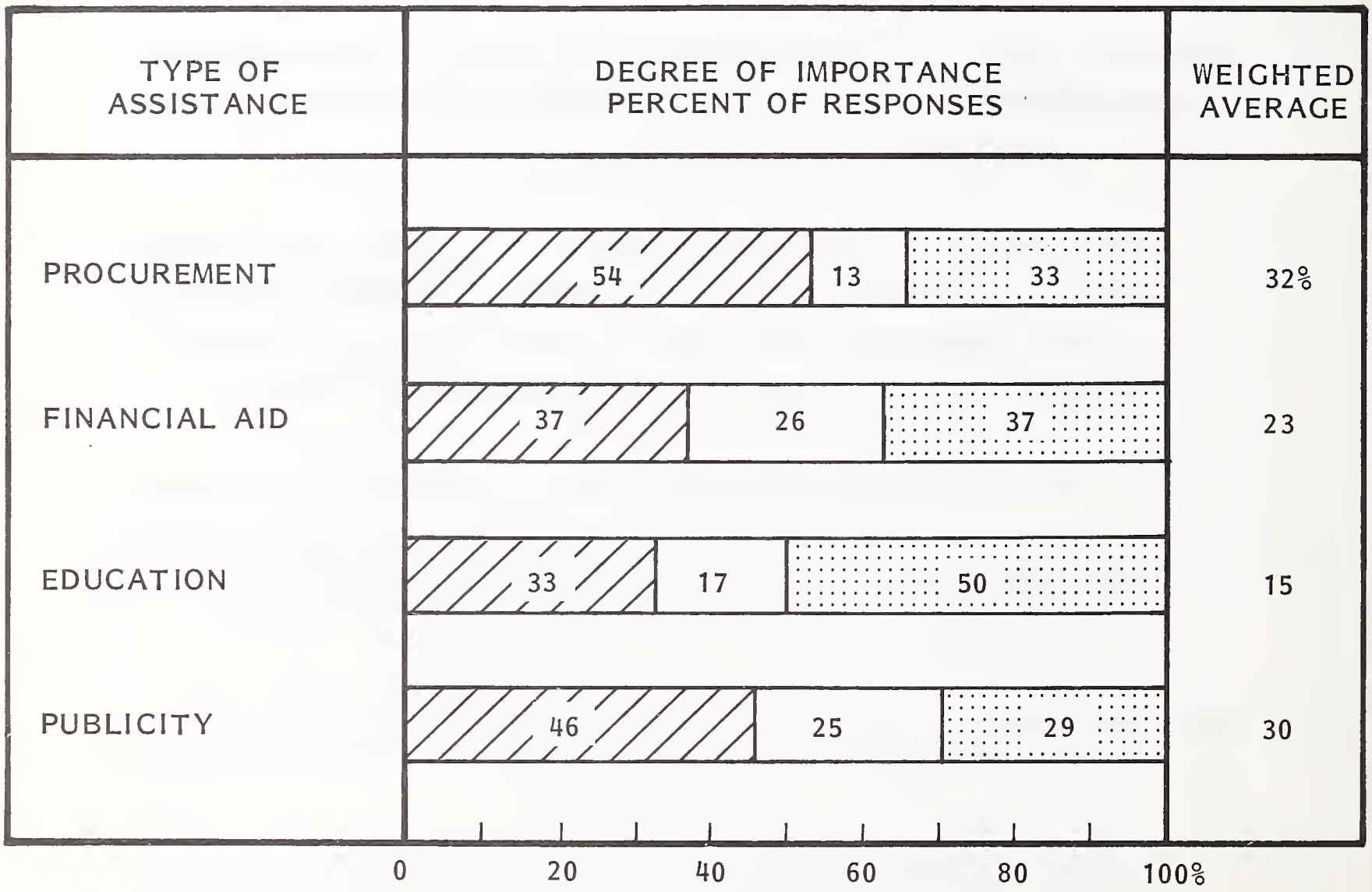
  - If this were done it would constitute the largest part of all responses, indicating that database vendors consider it the job of the administration to enlighten potential users and educate them to go to the vendor to purchase these services.

  - In other words, vendors want the government to do their sales and promotion for them.

- What is indicative is the response of vendors in individual countries.

EXHIBIT VI-2

DESIRED FORM OF GOVERNMENTAL ASSISTANCE
FOR MAJOR WEST EUROPEAN COUNTRIES,
1981



	WEIGHTING FACTOR
GREAT IMPORTANCE	x3
MEDIUM IMPORTANCE	x1
UNIMPORTANT	x(-1)

- In France where governmental aid and procurement are high, vendors seem to prefer publicity and education.

- In the U.K. the reverse is happening. With a reasonable level of publicity and education, vendors rated procurement and financial aid much higher.

- In Germany, where the authorities themselves are running the Information and Dokumentation programme, vendors want more education and, in particular, more publicity.

- In the Italian case, where publications are full of articles regarding 'informatica' and databases, the majority of respondents favoured procurement and financial aid.

- Some of the comments regarding government intervention or involvement are quoted in Exhibit VI-3; on the whole they are not very favourable to government activities and the respondents are quite clear in their requirements.

- Respondents were also questioned on the importance of the European Economic Commission in the development of the on-line database sector.

  - Nearly unanimously the replies indicate a positive role for the commission not only in the past but also for future development.

  - In reply to a query on how the commission should promote or help the industry, the main body of opinion wished to see a coordinating function harmonising differing laws and regulations.

  - The commission was also seen as giving aid through procurement and finance as well as through education. Exhibit VI-4 contains comments made by respondents to the questionnaire.

EXHIBIT VI-3

RESPONDENTS' COMMENTS ON GOVERNMENT INVOLVEMENT IN THE ON-LINE DATABASE SECTOR

- 'The Government should be the biggest buyer of information'. (U.K.)
- 'Private initiative should be fostered'. (D)
- 'Economic or environmental involvement required, not political'. (F)
- 'The Government should ease PTT monopoly'. (CH)
- 'Financial incentive is the driver'. (U.K.)
- 'The Government should create new structures and infrastructure to allow private activities'. (I)
- 'The Government is incompetent. It should not be involved'. (U.K.)
- 'Government should give direct aid for the creation of databases'. (D)
- 'We are proud of the Government's achievements. The risks taken are very great'. (F)
- 'Some business cases should never start without aid'. (U.K.)
- 'There should be free competition'. (F)
- 'Government should give research grants'. (D)
- 'They are not being the catalysts'. (U.K.)
- 'Look at U.S. Government procurement policies'. (U.K.)

EXHIBIT VI-4

RESPONDENTS' COMMENTS ON EUROPEAN ECONOMIC COMMISSION INVOLVEMENT IN THE ON-LINE DATABASE SECTOR

- 'Should harmonise laws on privacy, standards and trans-border data flow'.
- 'It should have coordinating functions'.
- 'Euronet helps hosts'.
- 'Should help eliminate PTT regulation barriers'.
- 'Should assist through procurement, through contracts'.
- 'Should provide sector financing'.
- 'Help is not in the right direction. It should be aimed more at users than at the industry'.
- 'Should aid through education'.

- From these responses one can observe a general frustration regarding an unclear governmental position on various aspects of the industry.

- It seems that it is not so much the laws on privacy, transborder data flow, copyright, or PTT monopolies that disturb the vendors as a lack of clarification by governments who have not yet made up their minds how they want to shape the sector.

VII EVOLVING MARKET LEADERSHIP

VII EVOLVING MARKET LEADERSHIP

A. ROLE OF THE CREATOR

- The publishing industry has faced many problems and innovations in its long history. Television and then the computer, as a production tool, in the last two or three decades have severely impacted and changed the industry.

  - However, the current decade promises to be the most testing and threatening on the one hand and the most exciting with the greatest opportunities on the other.

- Publishers have been at the centre of the information business for centuries and with the dramatic expansion of the base of knowledge, and the ever-increasing world demand for information, particularly in the developing world, their future should be brighter than ever.

  - The fact is that most publishers, in Europe at least, are struggling with declining markets in real terms, rising production costs, and a basic distrust of new technology.

- INPUT used the name 'Creator' for the function, comparable in publishing terminology to that of 'Editor', which will control the gathering and disseminating of information through the variety of media becoming available as a result of technological developments.

- The natural evolution should be that publishing Editors would move confidently into this Creator role, controlling the application of new technology. The fact is that publishers have been slow to react, and competition for the Creator role is becoming keen.

  - Exhibit VII-1 identifies the many types of organisations whose skills and resources fit the information market and the Creator role.

  - These companies also serve to identify the number of different technological development paths which are impacting the traditional publishing environment.

- The real strength of the Creator role is that it is in a position to control not only the selection and quality of the information itself, but the selection and application of the best medium for dissemination.

- In virtually no case will a single medium be sufficient. The combination of printed, computerised and video recorded options will be required for the overall market.

  - Every one of the technology options is now available and proven and over the next five years will come together under the guidance of those companies which recognise and successfully fulfill the Creator function.

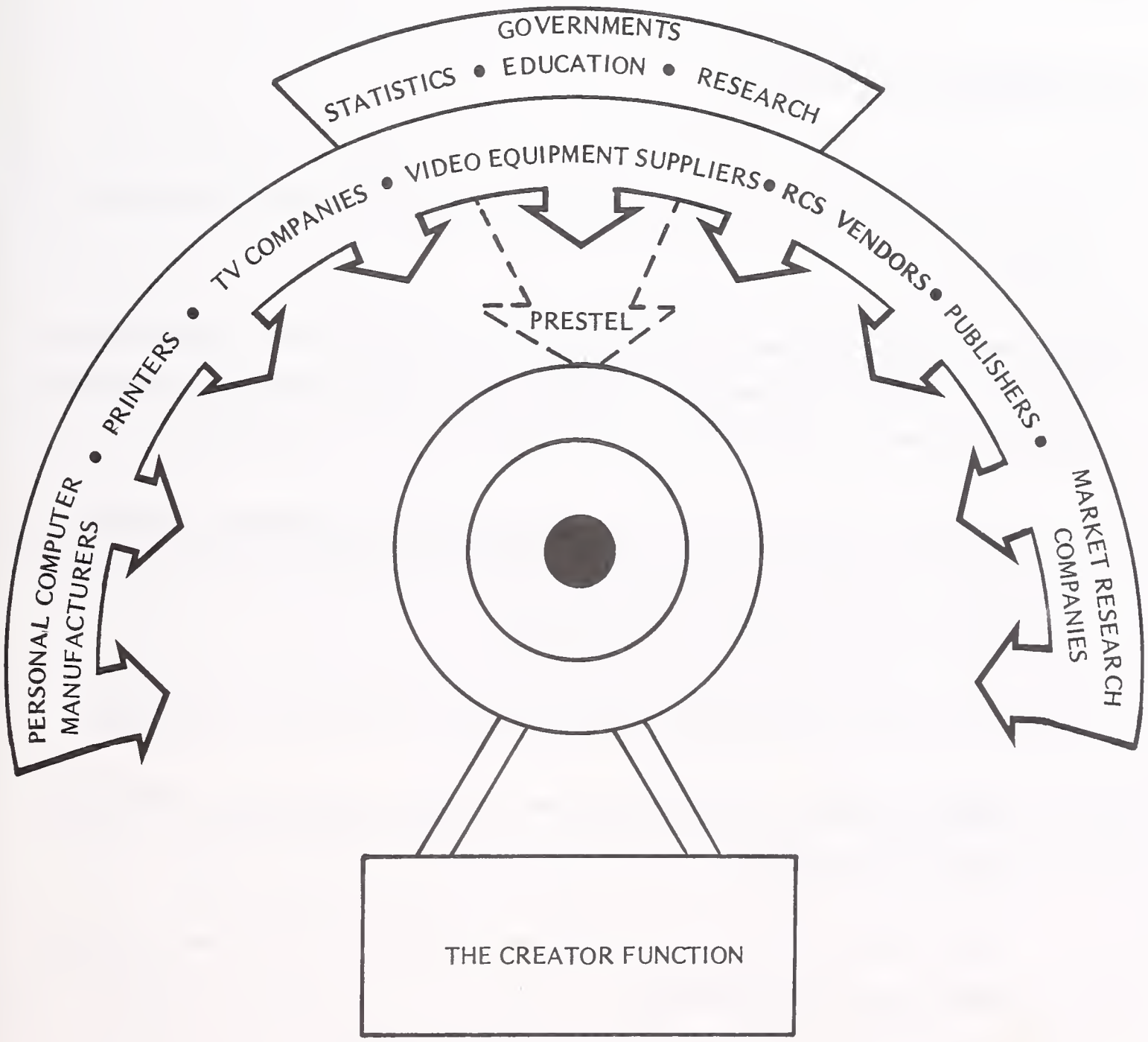
- Nowhere is the opportunity, or the need, greater than in the education field. Although business and commerce will be the major source of income in the short term, it is the education field which will offer the long-term rewards.

- Despite various European governmental programmes for stimulating the use of computing technology within the educational system, the overall economics are not yet favourable, but they will be.

  - As effective communications facilities, including local and 'in-house' networking, and videodisk technology become generally available, so

EXHIBIT VII-1

COMPETITION FOR THE CREATOR ROLE
IN THE MARKET FOR
ON-LINE DATABASE SERVICES



will the environment for all types of information service, including educational, become more attractive.

- The amalgamation of printing, video recording, graphic creation, display and reproduction, computer aided (programmed) learning and database technology, all employing microcomputer facilities, will become a reality for the educational environment.

B. U.S. MARKET EVOLUTION

- Even a superficial view of the U.S. market provides sufficient pointers to its evolution.

- First, the publishers addressed the need for computing expertise and facilities. McGraw-Hill, Dun & Bradstreet, the New York Times, Dow-Jones, Reader's Digest and others acquired control of RCS network service operations.

- Simultaneously, they began reacting to the potentials for Videotex services by launching a multitude of test market services utilising all three competing approaches from France, the U.K. and Canada.

- Perhaps most significantly, they began to buy into U.S. cable TV companies.

  - Knight-Ridder, Time and Dow-Jones all have considerable holdings in cable TV companies.

  - Dow-Jones has gone one step further and acquired a share with Western Union in a satellite company.

- While the major RCS 'supermarket' companies - ADP, Tymshare, CSC, CDC and United Computing - continue to develop their capabilities, particularly in the financial planning and funds transfer areas, the news publishers are systematically integrating their facilities.

  - Both types of companies have one objective in common - to keep AT&T out of the information business if at all possible. AT&T is now taking full advantage of the deregulation mood current within the U.S. to build upon its existing dominance in the distribution area.

- The sheer volume of activity in the U.S. market is a reflection of the enormous potential returns foreseen, particularly in the domestic user market, which are attracting investment and development activities.

- U.S.-based companies, unlike their counterparts in Europe, are not waiting for standards to be implemented or regulations to be clarified, but are pursuing opportunities with aggressive investment and research projects.

C. U.S. PARTICIPANTS IN EUROPE

- Entry into the European on-line database markets, for RCS companies particularly, has proved difficult for U.S. companies.

  - If anything, conditions now are worse than ever as European national administrations, appreciating the potential impact of new information technologies, attempt to foster local investment and activity.

- INPUT's forecasts for the growth of the European on-line database market show a market growing faster than the U.S.'s with the potential to overtake it within the decade.

- It is essential that these two major market sectors interact in trade and development terms.

- Artificial and real, barriers existing in individual European markets against free activity by U.S. companies can only be damaging in the medium term.

- The innovation and experience offered by U.S. companies must benefit the development of the European market.

- The potential of the U.S. market for exported products and services must be a prime objective for European companies.

- However, the rules of the game are changing, and for U.S. companies to succeed in Europe in the information business, some basic concepts have to be accepted:

  - Access to both information and distribution services is being restricted to companies who show a real preparedness to invest in and respect national interests.

  - The total marketing function requires a more intimate knowledge of local requirements and conditions than can be developed from U.S. experience alone.

- Some areas, particularly those involving national economic statistics and some industry specialist services will, perforce, be reserved for European companies.

- However, large sectors remain open and, given the right forms of cooperation with European enterprises, can provide considerable returns for U.S. companies.

- Joint ventures and consortium structures comprised of companies with complementary skills will become more prevalent and successful.

- The preparedness of U.S. companies to invest directly in local facilities and employment will be welcomed and will attract some of the support and incentives being offered by various national administrations.

- U.S. companies like GEISCO, ADP, CDC, I.P. Sharp and Comshare, with established RCS and networking facilities, will benefit from the liberalisation of PTT policies and, with the right partnerships in publishing or information providing areas, will help considerably in stimulating the market as a whole.

- Major specialist vendors like Lockheed, Mead Data, SDC and DRI will have to find acceptable means of investing in local resources.

D. EUROPEAN COMPANIES

- It is difficult to identify existing companies in Europe who show the same level of financial and management commitment to the on-line database market as the major U.S. companies.

- Despite the efforts of government in most European countries, and the pioneering efforts of organisations like Euronet and the early supermarket vendors like ESA-IRS, Telesystemes and CISI and to a different degree BLAISE, Datastream, Telekurs, SPIDEL and the German FIZ operations, commitments remain half-hearted in the main.

- Prestel in the U.K. can certainly not be faulted in these terms; its effort and enthusiasm have been exemplary.

- Apart from Datastar, the other newer RCS entrant, companies retain a degree of cynicism and lack of expectations which is reflected in the level of investment.

- Among the publishing fraternity, the same criticism can be discerned but with a few more exceptions such as Elsever and VNN in Holland, Derwents, Pergamon, Butterworths, Thomsons in the U.K., Hachette, Usines Nouvelles, DAFSA, and Agence France Presse in France.

- Within the course of the research programme for this study INPUT detected a change of attitude, particularly in the U.K.

  - Responses to questions on company attitudes to on-line services are listed in Exhibit VII-2. These show a universal acceptance of the radical nature of the change faced by participant companies although some confusion as to the importance.

  - Recent moves by the U.K. government and by Prestel have perhaps given companies slightly more confidence in facing these changes, and thereby more enthusiasm for the potential benefits.

- In France, although the level of commitment is generally the highest in Europe, it seems few companies would be investing even to the extent they are without the subsidies provided by the government.

- A main driving force for the growth of the European on-line database services market must be from U.S. companies, either directly or in partnership with European firms.

EXHIBIT VII-2

RESPONDENTS' COMMENTS ON THE QUESTION,
'HOW IMPORTANT IS THE ON-LINE DATABASE BUSINESS?'

- 'Top Management see it as a PR exercise, but it is actually a radical change to our business'. - Publisher
- 'Not very important, we are not a Timesharing Company'. - RCS Company.
- 'It is just another aspect of change - we treat it like any other business opportunity'. - RCS
- 'On-line access leads to more demand for printed information: our main-line business is therefore changing'. - I/P
- 'A completely new way of exploiting our information base'. - News publisher.
- 'It is vital - the role of the service bureau is changing so dramatically we need different sources of business'. - RCS Company.
- 'It is the catalyst to force us to change our way of delivering our services'. - RCS Company

E. TREND AND DIRECTION

- The role of the Creator, while evidently understood in strategic and practical terms by a number of U.S. companies, is not yet fully appreciated in Europe.

- There is still considerable confusion about the potential and technical relevance of Videotex.

- Partnerships between publishers, computer services companies, and the manufacturing sector are developing and once the respective roles and financial involvements are consolidated, progress will accelerate.

- In INPUT's opinion and in the opinion of most respondents to the questionnaire, publishers hold the key to the development of this industry, as shown in Exhibits VIII-3 and VII-4.

  - They have access to most of the information and established business and domestic markets.

  - RCS companies have the technical skills, established resources and, in many cases, financial strength to act as leaders where specific value-added services are possible.

  - The role of the TV companies remains an enigma, but broadcast Videotex services, although excluded from the market valuation in this study, will have an important part to play in developing the market for on-line services as a whole.

  - With the major role played by the state-owned TV companies in education, the impact of TV companies could be great.

EXHIBIT VII-3

RESPONDENTS' COMMENTS ON THE ROLE OF INDUSTRY PARTICIPANTS

- 'Semi-public companies have a major, often insurmountable advantage'. - Italian I/P
- 'Like it or not, governments and PTTs are heavily involved - publishers should be the driving force'. - French I/P.
- 'RCS companies have no regard for the quality of information'. - UK integrated vendor.
- 'When the glamour has gone it will be the quality of information that will count'. - U.K. I/P
- 'If the government were to release the information they have, in the right way, they could create an industry overnight'. - U.K. RCS vendor.
- 'Publishers ought to be the major force - they can buy in technology easily'. - U.K. RCS vendor.

EXHIBIT VII-4

RATING OF PARTICIPANTS' IMPORTANCE

GERMANY	1 - GOVERNMENT 2 - PTT 3/4 - PUBLISHERS/SPECIALISTS 5 - RCS 6 - TV
FRANCE	1/2 - RCS/PUBLISHERS 3 - PTT 4 - SPECIALISTS 5 - GOVERNMENT 6 - TV
ITALY	1 - PTT 2 - PUBLISHERS 3 - RCS 4 - TV 5/6 - GOVERNMENT/SPECIALIST
U.K.	1 - PUBLISHERS 2 - SPECIALIST 3 - RCS 4 - GOVERNMENT 5 - PTT 6 - TV

VIII INVESTMENT AND MARKETING CONSIDERATIONS

VIII INVESTMENT AND MARKETING CONSIDERATIONS

A. OVERVIEW

- A 1980 market of $123 million for on-line database services some seven years after the start of activities is, in computer industry terms, not very impressive.

  - The top three European computer services companies each have revenues exceeding this total.

  - Comparisons made with the development of the remote computing service market in Europe, contained in Volume II of this study, show that the RCS market grew faster in its early days than on-line database services markets.

- The return on the development and marketing expenditures of many government agencies, Euronet, Prestel and other national Videotex services, plus those for commercial on-line services, must be a great disappointment to many people.

  - Comparison to the U.S. on-line database market, at $1.2 billion in 1979, is further proof of the lack of success evident in Europe.

- If it were not for the success of vendors in the U.S., one could ask if there is indeed a market for on-line information services at all?

- Given that there is a potential European market then:

  - What has been done wrong so far?

  - Are the right things being done now to respond to the market's needs?

- The fact is that, despite all the selling efforts at government administration levels, very little selling has taken place in the field by companies with the commercial strength to educate and create a user population.

- One comment passed as an aside during the interview programme by a market development manager of an RCS company, stands out.

  - 'We have all forgotten how to sell!'

- Although an over-simplification of the problem, the failing was supported by comments noted during an interview with Euronet-Diane executives. They were critical of the salesmanship of many of their host suppliers when faced with prospect enquiries.

- The criticism can be softened by remembering that most companies who have participated in the on-line market are either:

  - Not commercially oriented entities.

  - U.S.-based companies relying on marketing agreements with European organisations.

- Companies like IRS/ESA, Blaise, and even to an extent, Telesystemes have suffered from a lack of marketing funding.

- Others, like Datastream and Telekurs, have targetted extremely tight user communities and achieved very high levels of penetration. As yet, they have not developed offerings applicable to wider markets.

- One factor resulting from today's small European market is the relative lack of investment by private sector companies, especially in developing market and sales programs.

  - Hundreds of database projects were identified but, as a rule, the investment commitment was small, particularly in terms of product line selling effort.

  - Exceptions are the legal and professional on-line database services where the impact of on-line services is already having a dramatic effect proportionate to the high initial investment.

- Other key factors which have kept development funds below critical levels include:

  - Considerable confusion on the part of many prospective participants as to the real infrastructure of the market.

  - Cynicism, much of it engendered by the early failings of the U.K. Prestel service.

- In the U.K. research programme, Videotex and Prestel were frequently assumed to be synonymous. This is a credit to the marketing effort of Prestel in one sense, but also a major contribution to the confusion.

- Communications facilities are at the heart of the infrastructure necessary to foster an on-line market. With PTT monopolies and government intervention at the information service level and continuing through the actual management of database services, it is no wonder private enterprise remains confused and reluctant.

- The most frequently given reply to the question on what government's role should be in the on-line business was:

  . 'Get the communications facilities and costs right!'

- INPUT's forecasts for the growth of the market pre-suppose that there will be a dramatic improvement in this respect, and that clarifications and commitments will be forthcoming from the PTTs as to their offerings in Europe over the next two to three years.

- No other action or investment can possibly have the same importance on the market's development.

- Even in France where government policy is most clearly specified and where the DGT is providing the most constructive environment for enterprise, investment by the private sector has only started seriously within the last six to nine months.

- Assuming that the doubts are lifted in the U.K. and Germany particularly, investment should expand significantly over the next twelve months.

B. OPERATIONAL INVESTMENT

- Today's equivalent hardware investment in the on-line database market in Europe, where many information services run on the same mainframes as RCS services, would be some 16 dedicated large mainframes and a few smaller systems.

- Today's investment requirements for computers, a communications network and terminal equipment, are substantial and a major deterrent to potential on-line database services vendors.

- The improved price/performance characteristics of the latest super-minis have eased this investment requirement.

- Approximately one-half of the $1,400 million market in 1985 will be directed towards the 'operational' aspects of the on-line information services business.

- Given the current levels of equipment installed by leading RCS vendors in Europe, there appears to be little room for new entrants as major supermarket vendors. There are however, many opportunities for integrated approaches.

- Information providers and publishers without the incentive to enter the market as integrated suppliers should seek joint ventures or other agreements with the existing supermarket companies on the lines of existing arrangements.

  - Thomson Publications - BOC.

  - Financial Times - SIA/CISI.

  - Butterworths and Hachette - Mead Data.

  - Derwents - SDC.

- However, software and hardware technology is advancing rapidly and the communications infrastructure, including PDNs and public Videotex facilities, are improving. The financial requirements for entry into the market are in real terms far less demanding now than they were for RCS companies approaching the market ten years ago.

  - With some information already captured in machine readable form, the step to offering on-line facilities is becoming simpler for many publishers.

- Gateway services to public Videotex facilities and national public data networks will make the provision of host computing facilities a relatively minor investment, particularly for Videotex systems.

- The number of private Videotex systems being developed, notably TOPIC, the British Leyland system, Olympic Travel Agency, and Logica's Prestel International services, are proof of what can be achieved.

- Finsbury Data Services have also shown that 'supermini' systems with generally available software utilities can provide competitive services for well targetted end user markets.

- In many cases the configurations of already installed RCS systems are not ideal for operating on-line information services.

  - Response time requirements for on-line database services are very high. Balancing search and response needs of multiple terminal users against related, or other co-resident, computational facilities is a problem to be overcome.

- Modifications to the basic Prestel design have been successfully implemented on DEC and Modcomp hardware creating interfaces to order processing and computation applications.

C. SELLING ENVIRONMENT

1. INTRODUCTION

- Three of the major issues are:

  - The need to participate in international markets.

- End user receptivity.

- Pricing.

- The question of pricing with its many related factors, such as copyright contracting procedures and average user spending, is covered in the next section.

- The other two issues are, in part, related to the overall question of who does the selling.

- One of the prime reasons for RCS companies to enter the on-line information market has been the belief that they have the existing client base and sales capacity.

  - In fact, this rationale has not been borne out.

  - RCS companies generally sell on a one to one basis; i.e., directly to their end users. The economics of on-line database marketing are that, except in financial and economic areas where related computational facilities are important, this selling approach is not cost effective.

- The major bibliographic vendors, including those of professional information, have developed a particular environment of their own.

  - This 'reputational' selling approach is further enhanced by frequent conferences and seminars and the creation of information broking functions like the U.K. on-line centre, EUSIDIC.

- Building and holding on to circulation within specific market segments is the traditional business of publishers of trade, industry and professional journals, periodicals and reference books.

- The firms have mailing and subscription lists, promotional techniques and reputations which could all be easily adapted to the sale of on-line information.

- In general terms, the publishing industry is far better equipped to fulfill the selling function than is the RCS industry.

- RCS vendors are equipped to manage operational facilities and develop, through joint marketing programs, the necessary total service capability and image.

- Publishers with the strength to implement new technology solutions within their traditional production environment should find the additional step of developing on-line facilities and adding them to their own sales portfolio relatively easy.

2. MULTINATIONAL MARKETS

- Most respondents to the interview program believed that multinational markets were essential to the profitable operation of on-line services.

  - However, few were in fact selling outside their national boundaries except in cases where existing multinational RCS organisations previously existed.

- Multinational sales have been developed through the 'professional reputation' channels by the main bibliographic vendors in the U.S. and Europe and by some participants in the business information sector.

- Structured multinational selling organisations, even those based upon sales agencies or marketing agreements, are difficult to find.

- There are obvious real barriers to multinational selling within Europe and these include:

- Language and cultural differences.

- Privacy regulations.

- Transborder data flow regulations.

- Communications facilities.

- These barriers substantially increase the cost of providing on-line information services on an multinational basis.

- The approaches used by European-based vendors are to:

  - Concentrate on building a strong home market base before attempting to sell multinationally.

  - Choose between Europe and North America as the logical second market area. The infrastructure for on-line services exists in North America, but competition is high.

  - Address the developing world markets where information is needed but the infrastructure is weak to non-existent.

  - Reach out to the Far Eastern and Australian markets.

- The answer has to be, in the short term, to concentrate on home markets.

  - The skills, techniques and products necessary for success in either on-line businesses or related forms of electronic publishing still have to be learned and developed.

- Acquisitions or joint ventures with companies in North America or Japan, to form part of this learning and development process, could be beneficial.

- The rapidity with which concepts and technological innovation are translated into decision-making and investment in Japan, particularly in this field, is a lesson in itself.

- Quotations from an European partner of a major Japanese participant are illustrative:

  - 'They appear less concerned at this stage with developing new markets than achieving full mastery of all the new techniques made possible by microchip technology'.

  - 'Where his European counterpart is lucky if he has a 64K bit personal computer or even a programmable calculator, the Japanese manager has a two megabyte computer at his disposal to solve any problem'.

- The list of developments by this particular Japanese company embraces the use of Captain, the Japanese Videotex system, facsimile transmission linked to phototypesetting, graphic manipulation facilities, voice synthesis and text translation.

- Exporting information services to developed countries like Japan and North America, where techniques are generally so far in advance of Europe, must be a difficult exercise.

- The current activities of French and British organisations in North America revolving around broadcast and interactive Videotex facilities and products are producing results, particularly for the French.

  - Joint ventures by French companies with U.S. firms like Honeywell and Tymshare will create product outlets.

  - Meanwhile, the French have not relaxed their marketing and selling efforts within their home markets.

3. PRICING CONSIDERATIONS

a. Introduction

- Nobody in the market appears happy with current prices. The user thinks they are too high, the supplier thinks they are too low and the provider believes his income share or royalty percentage is totally inadequate.

- Pricing standards were basically set in the United States by the market leaders. This is highly reminiscent of the start of the timesharing business in Europe in the late 1960s when the then market leader, GEISCO, set the standard for all to follow.

  - In the case of timesharing services, it took about five years for the pricing norms in the U.S. and Europe to diverge and properly reflect the costs.

  - As a general rule, prices today in Europe for computer-based services are about twice the U.S. equivalent.

- There are many reasons for this:

  - European costs and inflation factors.

  - Nonhomogeneous markets in Europe adding marketing and support costs.

  - Scale of activities by European competitive operations.

- If timesharing services are taken to be a valid comparison, European prices for on-line information services should be double U.S. prices.

- There are, however, some economic elements at work today which create a different environment from the start of the 1970s when timesharing services were developing.

  - U.S. inflation rates are comparable to or, in some instances, worse than Europe's.

  - The introduction of Euronet, Videotex, and the increasing availability of PDNs are changing one of the fundamental costs which caused the timesharing price differential to develop.

- The marginal costing argument used by U.S.-hosted RCS operators proved incorrect in the timesharing environment. The actual computer operational costs represented only some 10% to 15% of total costs, and the increased profit potential of fully loading the system can easily offset the increased distribution and support costs.

b. Bibliographic - Technical and Scientific Services

- From the supplier's viewpoint, currently accepted European prices at $60 to $70 per hour connect time and $100 to $200 per hour including average royalties, should be considerably higher if profitability is ever to be expected.

  - It is somewhat surprising, therefore, to see Datastar planning its price strategy on the basis of undercutting its main U.S.-based competitors.

  - The argument would appear to be that user resistance to current pricing levels is prohibiting growth.

- It is certainly evident that the market in technical and scientific bibliographic services has attained a degree of saturation and is now typified by severe competition for the same, relatively few, high-spending customers.

- The classic 80/20 rule applies to this particular sector. Some 20% of the users of bibliographic services account for 80% of total spending.

- One very large user spends as much as $140,000 a year, while the majority of contracts average under $500 per year.

- Of most concern for suppliers is the fact that average spending per contract is going down or, at best, remaining constant.

c. Legal Service

- The major sections of the legal information subsector have different characteristics and markets:

  - Statutary law.

  - Legal precedent and jurisprudence.

  - Fiscal and corporate law.

  - Patents.

- Clients for these services range from governmental bodies and legislators through notarial law practices and general law firms to corporate legal departments.

  - The spending patterns tend to follow that sequence with only the large law firms and corporations currently entertaining the idea of utilising on-line services.

- The average costs per hour currently being charged are generally in excess of the average bibliographic charges.

- This results from the inherent need for full text retrieval in order to provide full and complete understanding of the particular reference sought.

- Not including terminal equipment, which in the case of the NEXIS-based services in Europe entails a commitment of $200 per month, average on-line charges range from a minimum $100 to $150 per hour.

- Annual subscription charges of $2,000 to $4,000 per annum are also commonly levied.

- In general, substantial legal firms are expected to use some 150 hours per year, in some cases spread over multiple terminal installations.

- Ministerial or governmental users of legislative information services in France are using as much as 120 hours per month.

- The patents area is made up of many more users spending much less money.

  - Some 70% of SDC's total European revenues are from the sale of Derwent Publications' patent information to about 1,000 clients.

- In addition to these, many other users request searches directly from the London Patents Office, or more usually the technical reference department of the British Library which handles on-line searches on behalf of the Patents Office.

  - The average spending level is low, at about $50 per search and some $1,200 per year per user.

- These legal information sectors, typifying closely targetted markets, are evidence of the success and rapid penetration possible when on-line services are tailored to specific user needs.

- They are also typical of the scale of investment required to achieve a viable and user-friendly service.

  - Quite apart from the massive investment undertaken by Mead Data in developing and enhancing its operational facilities, European providers of these services will have spent sums in the order of $10 million in creating the databases themselves.

d. Business and Economic Services

- There is generally less price sensitivity in the business community than in the technical and scientific sector.

  - Many more non-on-line information services already exist which have conditioned the user to the idea of paying for information.

  - A connect time charge of $60 to $70 per hour remains the standard. However, the information price, and more crucially the related services fees, are far more flexible.

- Eventually, as with other forms of computer services, many of the on-line information services will take on an industry specific nature.

  - Most of today's business-oriented services are directed at either the investment community or major corporations with heavy research commitments.

  - Statistical and computational services with high levels of industry specialisation and consulting support will become essential added-value functions of any business service.

  - With this service, individual client spending of $10,000 to $20,000 per year can be expected. The information portion of this, however, is only approximately 10% of the total spending.

e. Industry Specific Services

- There is little evidence of pricing standards in this sector.

- This sector contains most of the sales promotional information element of the market, and is not paid for by the end user.

- However, this definition has to be elaborated upon in that users do pay for directories and, in some cases, for sales catalogues.

  - The convenience factor is, therefore, worth money to users wishing to make their own selections from available products and services and their suppliers.

  - Even in these cases, however, the full proportionate price is not paid by the user, as at least 80% of the cost of compilation and distribution is borne by the advertisers.

- The major pricing considerations, therefore, relate to the user's preparedness to pay for convenience.

- Consumers will not pay for sales information directly, as long as Yellow Pages directories, local directories, and other forms of promotional information are freely available.

D. SALES PROMOTIONAL INFORMATION

- There are already signs within the European market that industrial, trade and business directories are being put on-line.

- The French Annuaire Electronique experiment, scheduled to start next year, is the 'flag ship' of many plans of similar implementations, particularly in Yellow Pages-type of services to domestic users.

- At present, activities are limited in Europe to:

  - Travel guides and catalogues.

  - Industrial product catalogues.

  - Kompass directories in France.

  - Other company financial directories (e.g., Extel).

  - Limited local Videotex directory experiments.

- Discounting company financial directories, the purpose of which are investment guidance or credit rating, the remainder all have some sales promotional purpose.

- A by-product of many of these directories is their use as marketing tools or mailing lists, and many are purchased in print form for those purposes. However, their primary objective is as a reference source for purchases; i.e., as a sales promotional tool.

- Videotex offers a capability to advertisers; this is competitive to other forms of advertising.

  - Directories are the first and most obvious competitive form to be tackled in on-line mode. First, business and industrial directories, then following the Annuaire programme, consumer-oriented Yellow Pages and mail order services.

- The current problem is creating a large circulation or, in on-line terms, a Videotex receiver population.

- One answer, typified by the Annuaire programme and being followed in many other information sectors, is the 'give away' approach. Receivers, or at least decoders, are being provided by the organisation with most to gain from a particular activity.

  - However, giveaways do not guarantee usage of the service and, therefore, represent a considerable financial risk as long as decoders remain at their current price levels of some $400, and complete sets at around $1,700.

- The recent acceptance by the French PTT that its electronic directory (Annuaire) service cannot be forced on a user population, although largely a political decision, is also a concern over the lack of user acceptance likely to be encountered.

  - This decision could also have a negative effect on the production volumes targetted by the French PTT and the resultant cost development of receivers and decoders.

- The forecasts for sales promotional on-line information services of $122 million in 1985 are pessimistic. These reflect the major educational problems that exist in business and domestic environments before users learn to value on-line product or service selection.

  - Companies who view the directories and catalogues market as a potentially rewarding on-line service have to evaluate this educational problem before considering offering on-line services.

- The advertising industry is far less developed in Europe than in the U.S.

- In the U.S., 2.1% of the GNP is spent on advertising compared to the highest in Europe, the U.K., with 1.34%; Italy is as low as 0.32%.

- Directory forms of advertising attract only 2.8% of total expenditures in the U.K. as compared with an estimated 11% in the U.S., $108 million compared to over $4 billion.

- Europeans, therefore, require three levels of education before on-line directory use becomes a realistic business:

  - Use of directories in the first place.

  - Use of the telephone to make selections.

  - Use of keyboards and screens for information retrieval.

- The availability of Videotex facilities, particularly the advent of gateway services, means that the mechanics of offering on-line sales promotional services are coming into place, and the investement demands are being kept relatively low.

- The options available include:

  - Attempt to stimulate the market by giveaway tactics and create a volume user population although not necessarily an educated one.

  - Address the education problem in a phased approach leading to on-line delivery.

  - Wait for the education process to be completed by someone else, most likely government, PTTs or major competitors and probably U.S.-based competitors who will have moved more quickly in their own national market, applying Videotex and other techniques.

- Many firms are looking towards the government to fulfill the education requirement. This seems a particularly negative reaction in that education is very much a part of commercial selling, and waiting for government to fulfill the sales function is wrong.

- While manufacturers of systems and the PTTs are off selling their products and concepts in the U.S., which is obviously a more lucrative and receptive market, the European market is likely to be left uneducated and unsold.

- INPUT believes that, given the right sales effort and marketing investment, the market in Europe can be educated in a relatively short time.

- INPUT can only recommend that actual and potential suppliers of information services spend more time and money in creative marketing and sales programmes within their national borders as a start.

APPENDIX A: DEFINITIONS

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- ANNUAIRE ELECTRONIQUE - ELECTRONIC TELEPHONE DIRECTORY - This is the experiment carried out by the French Government through the D.G.T. whose immediate object is to replace the printed telephone directory of a specific department in the north of France, Ille-et-Vilaine, by an on-line enquiry service.

- CLOSED USER GROUP - CUG - A set of users of a specific database or databases not available to the general user. Inclusion in the user group may be by subscription (syndicated CUG), or by exclusive nomination by the host (private CUG).

- COMPUTER SERVICES - Services provided by vendors which perform data processing using vendor computers, or assist users to perform such functions on their own computers.

- CREATOR - This term is used to cover the function of defining and administering a database, specificially the bridge between data source and serveur.

- DATABASE/DATA BANK - In France there is a distinction between the two. A data bank is the repository of all data or text for a particular field, and a database hold the codes, extracts and points to the data bank to aid in complex search processes.

- DIRECTLY RELATED PROCESSING SERVICES - Revenues attributable to the hosts for services performed resulting from enquiries to an on-line database. These could include printing out, the supplying of parts of the database on microfilm or magnetic media, manipulating the data with software provided by the host or the user, or manipulating private databases in direct relation to a public on-line database.

- FULL TEXT DATABASES - Databases containing the full document referred to in the corresponding reference database. These and numeric databases are identified in France as data banks.

- GATEWAY FACILITIES - When used in connection with Videotex these facilities imply the possibility of entering the information providers' computers from within the national Videotex system.

- HOST/SERVEUR - This describes the company or organisation actually operating and maintaining the database. It specifically relates to the operational function; i.e., the computer centre as opposed to the marketing and producer functions.

- INFORMATION PROVIDER - The source of the data included in a database.

- INFORMATION TECHNOLOGY - This term encompasses the whole environment of information processing from the necessary hardware to the electronic supply of information to the end user.

- INFORMATION UND DOKUMENTATION - The name of the West German programme for the development of on-line database systems and centres providing reference information on-line.

- NETWORK SERVICES COMPANIES - Companies operating national or international data networks normally including the provision of remote computing services.

- NUMERIC DATABASES - These databases contain numeric information such as statistics. These are the most apt for related processing services.

- ON-LINE DATABASE - OLDB - A structured collection of reference, numeric or textual information mounted on a computer and accessible on-line from a user's terminal.

- ON-LINE ENQUIRY - The interrogation, on-line, of the database by a user from his terminal.

- PRIVATE DATABASE - A database proprietary to a particular enterprise or organisation for internal use.

- PUBLIC DATABASE - A database supplied on the open market and available to any user.

- REFERENCE/ABSTRACT DATABASES - These databases contain abstracts of specific published documents and/or references to them.

- REMOTE COMPUTING SERVICES (RCS) - The provision of data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer. The three sub-modes of RCS are:

  . INTERACTIVE (timesharing) characterised by interaction of the user with the system primarily for problem-solving timesharing, but also for data entry and transaction processing. The user is on-line to the program/files.

  . REMOTE BATCH, where the user hands over control of a job to the vendor's computer, which schedules job execution according to priorities and resource requirements.

. . DATABASE, characterised by the retrieval of information from a vendor-maintained database, which may be owned by the vendor or a third party.

- TELEMATIQUE - A French neologism defining the total field of computer networking including data communications, data processing, networking, on-line databases and Videotex services. The term is equivalent to 'Information Technology'.

- VIDEOTEX - The general name given to the concept of distribution of information contained in databases over the telephone system using television as the display medium. Information is presented in page format and operation is interactive.

  - The various national Videotex systems go under different names in each country:

    . Prestel in the U.K.

    . Teletel in France.

    . Bildschirmtext in West Germany*.

    . Videotel in Italy*.

    . Viditel in Holland*.

*These systems are based on Prestel.

APPENDIX B: THE FRENCH ADMINISTRATION AND COMPUTER SERVICES SECTOR

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A. INTRODUCTION

- The three prime movers of support for the French computer services industry are:

  - The Administration in its policymaking role through the MIDIST and in the issue of certain specific directives aimed at controlling the flow of work towards the services companies.

  - The Ministry of Industry through several existing or newly created bodies.

  - The DGT, Direction Generale de Telecommunications through its own organisations and projects.

- Some other activities of support of a minor or very specific nature are also carried out by other governmental entities such as the CNRS or AUDIST dealing with scientific research and the universitites respectively.

B. THE ADMINISTRATION

1. SUPPORT FROM THE ADMINISTRATION MAY TAKE MANY FORMS

- It can be direct and given in the shape of subsidies or loans, or indirect and achieved by the promotion of large, technologically advanced projects requiring the computer services companies to act as suppliers or contractors.

- It might be a governmental directive to the administration encouraging the utilisation of computer services companies, or it might be reflected in a policy of discouraging foreign competitors from buying into the sector.

2. MISSION INTERMINISTERIELLE DE L'INFORMATION SCIENTIFIQUE ET TECHNIQUE (MIDIST)

- This body, expressly created in 1979, is responsible to the Prime Minister's office through the Secretariat d'Etat a la Recherche, and has as its function the improvement of the level of information available to users of scientific and technical data.

- The current objective of the MIDIST is to provide support for the creation of 50 scientific and technical data banks by 1985.

C. THE MINISTRY OF INDUSTRY

- The French Ministere de l'Industrie acts through the intermediary of three major organisations in the support of the computer services sector.

- The three agencies are:

- Agence de l'Informatique (ADI) which is responsible for the promotion of informatics outside the administration.

- Direction des Industries Electroniques et de l'Informatique (DIELI) which is responsible for the informatics and electronics industry.

- Mission a l'Informatique which is responsible for informatics within the administration.

I. AGENCE DE L'INFORMATIQUE (ADI)

- This body was created in September 1979 as an instrument to implement the policy of promoting computing applications in nongovernmental enterprises.

- Three further bodies are attached to the ADI:

  - The Centre d'Etudes et d'Experimentations des Systemes d'Information (CEESI) is based in Marseille and is an interministerial organisation set up for the testing and evaluation of new information systems prior to their implementation within administrative or public services bodies.

  - Centre Technique Informatique (CTI) in conjunction with the CEESI advises the administration on the selection of appropriate computer equipment.

  - Bureau d'Orientation de la Normalisation Informatique (BNI)

- The activities of the ADI are user- and applications-oriented and within this context it will act in conjunction with trade associations, professional bodies, regional organisations, and local chambers of commerce in an advisory and promotive capacity.

2. DIELI AND MISSION A L'INFORMATIQUE

- The Direction des Industries Electroniques et de l'Informatique, DIELI, and the Mission d l'Informatique work in tandem and are joint policymakers.

- The DIELI has overall responsibility for the activities of the electronic and computing industry ranging from components and hardware to software products.

- It operates directly with manufacturers and computer services companies, SSCIs.

- The Mission a l'Informatique, whose director is also the chairman of the CEESI, acts within the administration as a watchdog. Every administration department, of which there are 30 or 40, has an informatics controlling commission, the COMIS, and the Mission a l'Informatique has a representative on each COMIS whose task it is to ensure that all computer related decisions taken by the government are carried out within the administration.

3. INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET AUTOMATIQUE (INRIA)

- Created in December 1979, the Institute is entrusted with conducting basic and applied research in line with national and international industrial policies.

- It has as its tasks the development of experimental equipment and the transfer and distribution of information and knowledge. One of its current studies lies in the field of electronic office equipment.

4. MISSION INTERMINISTERIELLE DE NORMALISATION DE RESEAUX

- This body, responsible to the Minister of Industry through the DIELI and to the Ministry of Telecommunications through the Direction des Affaires Industrielles et Internationales (DAII), has as its task the analysis of a means

for the normalisation of distributed data processing architectures and networks.

- The mission, acting in close contact with the DGT and users will analyse from technical, industrial and economic points of view the possibilities of providing a French solution to the problem of interconnection of distributed systems.

5. OTHER MINISTRIES

- Other ministries through their own organisations are also involved in the promotion of data banks and databases on an individual basis for specific projects.

- Thus, DIST (Direction de l'Information Scientific et Technique) is responsible for the coordination of data banks within the universities.

- The INSEE (the National Institute for Economic Statistics) is also considering the creation of a database and data bank pertinent to its activities.

- The CNRS (Centre National de Recherche Scientifique) is also involved with scientific databases and banks and acts closely with the MIDIST.

D. DIRECTION GENERALE DES TELECOMMUNICATIONS (DGT)

1. DIRECTION DES AFFAIRES COMMERCIALES ET TELEMATIQUES (DACT)

- This department is responsible for the marketing and planning for all PTT services. Transpac (through France Cables et Radio), Telematique (Videotex), and Intelmatique (international sales) are all grouped here.

- Intelmatique is a separate legal entity responsible for the promotion and sales of French PTT and communications industry products and services internationally.

- Telematique is marketed within France.

2. (DAII)

- The department is responsible for relations with suppliers, industry, users and other PTTs.

3. PTT

- The main interaction in this context between the PTT and the computer services sector is the contracting for software systems for the Annuaire Electronique (on-line telephone directory) project.

APPENDIX C: QUESTIONNAIRE

X - ODB ON-LINE DATA BASE SERVICES - QUESTIONNAIRE

SECTION 1: BASIC COMPANY DATA

1. COMPANY NAME ..... RESPONSIBLE EXECUTIVE .....

2. ADDRESS ..... 3. BRANCHES/SUBSIDIARIES .....

.....

.....

4. OWNERSHIP .... % 5. JOINT VENTURES/AGREEMENTS .....

.... % .....

.... % .....

5. MAIN BUSINESS ACTIVITY .....

6. ROLE IN ON-LINE DB MARKET .....
(eg. Provider, creator, host etc.)

7. DEFINITION OF END-USER MARKETS SERVED: .....
(Use own descriptions) .....

8. COMPUTER SYSTEMS USED a) owned/operated .....

.....

b) Hosts used .....

.....

9. SOFTWARE UTILITIES USED TO CREATE, ...
MAINTAIN OR ACCESS DATA BASES .....

.....

10. REVENUES

		1979	1980	1981	PLANNED GROWTH 80/81
TOTAL FOR COMPANY					
OF WHICH:	ROYALITIES	.....%	.....%	.....%	
(enter % of total)	ON-LINE SUBSCRIPTIONS	.....%	.....%	.....%	
	ON-LINE ENQUIRIES	.....%	.....%	.....%	
	RELATED DATA PROCESSING	.....%	.....%	.....%	
	MAGNETIC MEDIA	.....%	.....%	.....%	
	PRINTED MATTER	.....%	.....%	.....%	
	OTHER	.....%	.....%	.....%	
		100 %	100 %		

X - ODB ON - LINE DATA BASE SERVICES - QUESTIONNAIRE

SECTION 2:

INDIVIDUAL DATA BASES

1. DATA BASE NAME .....

2. DESCRIPTION OF CONTENTS .....

3. TYPE: NUMERIC
TEXT. ABSTRACT
FULL TEXT

4. SOURCE .....

5. COUNTRY OF ORIGIN .....

6. SIZE (Mb) .....

6a FUTURE GROWTH p.a. .....

7. FREQUENCY OF UPDATE .....

8. RELATED SERVICES - PRIVATE DB COMPUTATION MICROFILM
GRAPHICS PRINTED I/O MAG.MEDIA

9. METHOD OF CHARGING-USER (please attach price list if available)

SUBSCRIPTION ONLY
SUBSCRIPTION + TIME TIME
SUBSCRIPTION + ACCESS ACCESS
OTHER .....

:e
)TE A.10. PAYMENT BY PROVIDER - ALL PART .....%

BASIS - LONG TERM FIXED PRICE CONTRACT (FM)
- COST PLUS
- VOLUME BASIS
- OTHER .....

11. SHARE OF VOLUME: BASIS - ROYALITY OTHER .....

SPLIT - PROVIDER .....%
HOST .....%
OTHER .....%

12. USAGE	1980	1983
INCOME	.....	.....
USERS	.....	
AVE.USER ACTIVE TIME:		
per SESSION	.....	.....
per MONTH	.....	.....
AVE NUMBER OF ENQUIRIES PER WEEK	.....	.....
13. AVERAGE USER SPEND (p.a.)	.....	.....
13a FOREIGN MARKETS %	.....	.....
14. DATE FIRST CREATED	.....	.....

15. PROFITABILITY - IS DATA BASE PROFITABLE NOW? YES/NO.

- IF YES 5%

5 - 15%

15%

- IF NO ANTICIPATED TIME TO BREAK-EVEN .....

16. APPROX INITIAL INVESTMENT FOR CREATION - TOTAL .....

SHARED BY PROVIDER .....%

HOST .....%

17. KNOWN COMPETITIVE DATA BASES .....

.....

.....

NOTE A.

If cost of maintenance and operation of data base are covered by the data base provider please answer this question.

SECTION III - ISSUE ANALYSIS

1. How significant do you believe development of on-line services is to your business?

   Crucial | Important | Natural extention | Just another Service

   Comments:

2. Do you see provision of on-line information services as:

   - A support to your main-line business ☐
   - A radical change to your way of doing business ☐
   - Incidental to your main business ☐

   Comments:

3. Which means of communication do you use to enable access to information

	NOW	FUTURE
- Private network	☐	☐
- PSS, TRANSPAC	☐	☐
- VAN (e.g. TYMNET)	☐	☐
- EURONET	☐	☐
- VIDEOTEX	☐	☐
- OTHER	☐	☐

4. Do you allow or encourage users to create private data bases using extracts from yours

   - on your host System
   - on an in-house System

   Comments:

5. To what extent do you believe Videotex technology will contribute to the development of the market:

V. important ☐ A help ☐ Just another mode ☐ Less than other ☐

Comments:

6. What do you believe will be the impact of other technologies or developments in Europe:

	H	M	L
- Packet Switched Services (Public)	☐	☐	☐
- Private VAN Services	☐	☐	☐
- Local (Ethernet) type Services	☐	☐	☐
- SBS	☐	☐	☐
- Other	☐	☐	☐

Comments:

7. How important do you believe Euronet is to the development of the market

	V	M	L
Now, currently	☐	☐	☐
In future	☐	☐	☐

Comments:

8. What is your opinion of the possibilities of Videodisk technology affecting the market in future?

It will open new markets ☐

It will replace some on-line services ☐

It will not be a viable alternative ☐

Comments:

9. Do you see any significant barriers to the development of the market in Europe? eg:

	Significant	Problem	Not
- language (translation)	☐	☐	☐
- trans-border data flow regs.	☐	☐	☐
- Data privacy laws	☐	☐	☐
- communications standards	☐	☐	☐
- costs	☐	☐	☐
- user acceptance	☐	☐	☐
- union activity	☐	☐	☐
- other.....	☐	☐	☐

Comments:

10. Copyright - do you see inadequacies in protection by Copyright laws as a problem in making information available through on-line services?

- Serious problem with no obvious solution ☐
- a problem to be overcome by contracts ☐
- mainly a pricing problem ☐
- not significant ☐

Comments:

11. Of all the current participants in the development of on-line information services how do you rate their significance in future?

	Very	Some	Little
Government or its agencies	☐	☐	☐
PTT's	☐	☐	☐
Publishing companies	☐	☐	☐
TV Companies	☐	☐	☐
Network Services Companies	☐	☐	☐
Specialist on-line companies	☐	☐	☐
Others.....	☐	☐	☐

Comments:

IN

12.

a) Do you believe that the current national administration's attitude to the development of information technology/telematique is best described as...

- overinvolved and unwelcome ☐
- constructively involved ☐
- insufficiently involved ☐
- totally inadequate ☐

b) If underinvolved in what way should they participate

	Certainly	To some extent	Not important
- through procurement	☐	☐	☐
- financial aid to the industry	☐	☐	☐
- aid through education	☐	☐	☐
- publicity	☐	☐	☐
- Other.....	☐	☐	☐

Comments:

13. Do you believe that information technology can be significantly aided by EEC active involvement: YES NO

Comment:

14. With the evident growth of data base activity in Europe do you see the marketing of these services to be oriented over the next 3 years:

	Heavily	Partly	Not
- primarily nationally	☐	☐	☐
- Europe wide	☐	☐	☐
- Nationally + U.S.	☐	☐	☐
- Western nations	☐	☐	☐
- Other markets.....	☐	☐	☐
.....	☐	☐	☐
.....	☐	☐	☐

Comments:

15. Given your own activities in the on-line business concentrating on the following end-user markets.....
.....

what do you believe is the current size of the national market for your services?

and: how fast do you believe it will grow

	<2X	2X	3X	4X	More
- by 1983	☐	☐	☐	☐	☐
- by 1985	☐	☐	☐	☐	☐

16. What do you believe is the total information market size in these areas:

17. Do you see a viable future for on-line product or service selection/ordering

	Now	'83	'85	Later
travel, estate agency	☐	☐	☐	☐
industrial products/service	☐	☐	☐	☐
consumer products /services	☐	☐	☐	☐
other specialist areas	☐	☐	☐	☐

Comments:

18. Do you believe automatic account debiting will become widely accepted?

- within 3 years ☐
- within 5 years ☐
- within 10 years ☐
- never ☐

Comments:

19. Do you believe that current pricing standards for on-line information are generally -

- Too high ☐
- too low ☐
- about right ☐

20. Who do you recognise as current major competitors or participants in providing information services to your target market sectors.

21. Any other comments - e.g. future, plans etc.