

NAFTA Data Link



**1995
Final Report**

NAFTA Datalink



Final Report

1995

Joint Interim Study Committee on the NAFTA Datalink System:

Charlotte Frederick, Chair
Carol Colombo
Joe Kennedy
Mark Spencer
Senator Keith Bee (ex-officio)

Merle Baptiste
Jack Haenichen
Ken Reuben
Trey Whiting
Representative Pat Conner (ex-officio)

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Authority and Scope of Duties

Laws 1994, Chapter 193 (Appendix A) established the Joint Interim Study Committee on the NAFTA Data Link System. The Committee's primary purpose was to develop the parameters in the Request for Proposal (RFP) for a private consultant who would be charged with conducting a study of the feasibility of developing an on-line information service (Data Link) to link trade and investment related databases.

The primary reason for this project is to link the databases that could support trade through the CANAMEX Trade Corridor. The Corridor includes the provinces of British Columbia, and Alberta, and the states of Washington, Oregon, Montana, Idaho, Utah, Nevada, Arizona, Sonora, Sinaloa, Baja California, Jalisco, and Nayarit. It is believed that an electronic trade enhancement system, such as Data Link, could be used to increase trade flows within the CANAMEX region by enhancing the availability and access of trade related information.

The Joint Interim Study Committee on the NAFTA Data Link System's responsibilities included:

- developing a user interface that facilitates the ease of access and use of the NAFTA Data Link System throughout this state and the CANAMEX region;
- identifying and assess state, federal and international laws affecting the NAFTA Data Link System;
- creating and defining the network parameters that link trade related databases throughout this state and throughout the CANAMEX region;
- identifying the appropriate transmission infrastructure for the system linkage;
- assessing the existing databases and identifying the design and function issue relating to those databases;
- developing specifications for enduser equipment connection to the system;
- addressing issues related to the confidentiality and access control of particular portions of various system databases;
- creating an inventory of existing databases and identifying the design and function issue relating to those databases;
- interviewing large and small business users to ascertain issues relating to the nature of the system user interface;
-

- utilizing the information received to create and develop a request for proposals for the creation of the NAFTA Data Link System;
- determining the appropriate administrative agency of government to oversee the NAFTA Data Link System; and
- preparing and submitting a report on all aspects of the study to the governor, president of the senate and the speaker of the house of representatives.

The Joint Interim Study Committee on the NAFTA Data Link System is repealed from and after December 31, 1995.

Background

The Joint Interim Study Committee on the NAFTA Data Link conducted two full hearings (October 25, 1994 and December 6, 1994) and one subcommittee hearing. The committee hearings centered around the development of a Request For Proposal (RFP) for the hiring of a consultant to assist with the charges of the Committee. At the first hearing a subcommittee was established to develop a document to aid the State Procurement Office in the drafting of the consultant RFP.

In June of 1995, the contract for the NAFTA Data Link System Study was awarded to Pacific Northwest Economic Region, contract number A5-0088-001. (Attachment B)

On December 18, 1995, the Joint Interim Study Committee on the NAFTA Data Link System met to review Pacific Northwest Economic Region's final report, to participate in a demonstration of the working prototype of the system and to make recommendations regarding the system. (Attachments C and D)

Recommendations

The following recommendations resulted from the December 18, 1995 meeting of the Joint Interim Study Committee on the NAFTA Data Link System:

- the Legislature should make it a matter of State policy to participate and promote private sector efforts to enhance the dissemination of trade leads and trade related information through advanced information technology;
- the Legislature should require the Arizona Department of Commerce, the Arizona-Mexico Commission and the Governor's Office of Telecommunications Policy cooperate to the fullest extent of their authority to promote the creation of a private Data Link enterprise in the CANAMEX region and to establish the minimum requirements of the system;
- State Libraries should work with the Department of Commerce, the Arizona-Mexico Commission and the Governor's Office of Telecommunications Policy to create and maintain certain components of the Data Link System developed as part of the Data Link prototype; and
- the Legislature should encourage other CANAMEX states to participate in the creation of the Data Link System.

In an effort to address the recommendations of the Joint Interim Study Committee on the NAFTA Data Link System, two bills shall be introduced during the Forty-second Legislature, Second Regular Session (1996). (Attachment E)

HB 2150 appropriates \$80,000 to the Department of Commerce (DOC) in FY 1996-97. DOC shall contract with a private person or entity that shall establish, maintain and operate the NAFTA Data Link System.

HJR 2001 requires the state to actively participate and promoting private sector efforts to continue the NAFTA Data Link System. The resolution also requires that CANAMEX states, public libraries, the Arizona Department of Commerce, the Arizona-Mexico Commission and the Governor's Office of Telecommunications Policy cooperate and promote the establishment and maintenance of the NAFTA Data Link System by the private sector.

Appendix A

FILED
ARIZONA
SECRETARY OF STATE

State of Arizona
House of Representatives
Forty-first Legislature
Second Regular Session
1994

CHAPTER 193
HOUSE BILL 2190

AN ACT

ESTABLISHING A JOINT INTERIM COMMITTEE TO STUDY AND DEVELOP THE NAFTA DATA LINK SYSTEM; MAKING AN APPROPRIATION.

1 Be it enacted by the Legislature of the State of Arizona:

2 Section 1. Study committee; members; duties; report

3 A. A joint interim study committee on the NAFTA data link system is
4 established consisting of the following members:

5 1. One ex officio member who is a member of the senate and who is
6 appointed by the president of the senate.

7 2. One ex officio member who is a member of the house of
8 representatives and who is appointed by the speaker of the house of
9 representatives.

10 3. One member appointed by the governor, who represents the
11 Arizona-Mexico commission.

12 4. The director of the department of commerce or his designee.

13 5. Two private sector members who are appointed by the president of
14 the senate.

15 6. Two private sector members who are appointed by the speaker of
16 the house of representatives.

17 7. One private sector member who is appointed by the governor.

18 B. The private sector members of the joint interim study committee
19 on the NAFTA data link system shall have knowledge of or expertise in one
20 or more of the following areas:

21 1. Communications law and regulation.

22 2. Public communications networks, including electronic network
23 systems.

24 3. Communications infrastructure development.

25 4. Computer systems analysis and design.

26 C. The committee shall:

- 1 1. Develop a user interface that facilitates the ease of access and
- 2 use of the NAFTA data link system throughout this state and the CANAMEX
- 3 region.
- 4 2. Identify and assess state, federal and international laws
- 5 affecting the NAFTA data link system.
- 6 3. Create and define the network parameters that link trade related
- 7 databases throughout this state and throughout the CANAMEX region.
- 8 4. Identify the appropriate transmission infrastructure for the
- 9 system linkage.
- 10 5. Assess the existing and the ideal or preferred infrastructure
- 11 for the system.
- 12 6. Develop specifications for enduser equipment connection to the
- 13 system.
- 14 7. Address issues related to the confidentiality and access control
- 15 of particular portions of various system databases.
- 16 8. Create an inventory of existing databases and identify the
- 17 design and function issue relating to those databases.
- 18 9. Interview large and small business users to ascertain issues
- 19 relating to the nature of the system user interface.
- 20 10. Utilize the information received to create and develop a request
- 21 for proposals for the creation of the NAFTA data link system.
- 22 11. Determine the appropriate administrative agency of government to
- 23 oversee the NAFTA data link system.
- 24 12. Prepare and submit a report on all aspects of the study to the
- 25 governor, president of the senate and the speaker of the house of
- 26 representatives by December 31, 1994.
- 27 D. The study committee may use the services of staff from the
- 28 legislative and executive branches as needed and as made available by the
- 29 governor, the speaker of the house of representatives and the president of
- 30 the senate.
- 31 Sec. 2. Appropriation; purpose
- 32 The sum of \$100,000 is appropriated from the state general fund to
- 33 the office of the governor for the joint interim study committee on the
- 34 NAFTA data link system to obtain the professional services of a consultant
- 35 or consultants for the purposes provided for in this act.
- 36 Sec. 3. Repeal
- 37 Section 1 of this act is repealed from and after December 31, 1995.

APPROVED BY THE GOVERNOR APRIL 19, 1994

FILED IN THE OFFICE OF THE SECRETARY OF STATE APRIL 20, 1994

Appendix B

FIFE SYMINGTON
GOVERNOR



RUDY SERINO
DIRECTOR

ARIZONA DEPARTMENT OF ADMINISTRATION
STATE PROCUREMENT OFFICE

Capital Center Building, 15 South 15th Avenue, Suite 203, Phoenix, Arizona 85007
(602) 542-5511

June 1, 1995

Rob Gilmore, Project Coordinator
PACIFIC NORTHWEST ECONOMIC REGION (PNWER)
2001 6th Avenue, Suite 2600
Seattle, WA 98121

SUBJECT: AWARD OF CONTRACT A5-0088-001

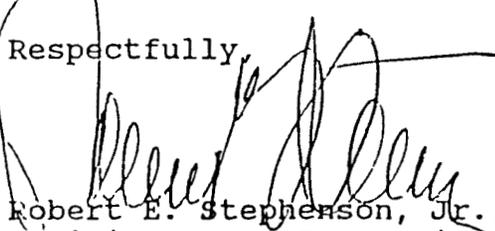
Dear Mr. Gilmore:

Your proposal to provide NAFTA Data Link System Study services for the Arizona-Mexico Commission has been accepted. A copy of your contract is enclosed.

The contract period shall be from June 1, 1995 through project completion.

Congratulations on your contract award. If you have any questions, please contact me at 542-5511.

Respectfully,


Robert E. Stephenson, Jr., C.P.P.G.
Administrator, Professional Services Unit

RES:vt

Enclosure



OFFER AND CONTRACT AWARD

STATE PROCUREMENT OFFICE
CAPITAL CENTER BUILDING
15 SOUTH 15TH AVENUE, SUITE 203
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

Submit the original of this form to the State.

OFFER

TO THE STATE OF ARIZONA:

The Undersigned hereby offers and agrees to furnish the material, service or construction in compliance with all terms, conditions, specifications and amendments in the Solicitation and any written exceptions in the offer. Signature also certifies understanding and compliance with paragraph one of the State of Arizona Standard Terms and Conditions (SPO Form 202).

Arizona Transaction (Sales) Privilege
Tax License No.: _____

For clarification of this offer, contact:

U.B.I. Number 601 459 754
Federal Employer Identification
No.: _____

Name: Rob Gilmore

Phone: 206/464-7143

FAX No.: 206/464-7735

PACIFIC NORTHWEST ECONOMIC REGION (PNWER)

Company Name

Signature of Person Authorized to Sign Offer

2001 6th Avenue, Suite 2600

Address

Rob Gilmore

Printed Name

Seattle, Washington, 98121

City

State

Zip

Project Coordinator

Title

ACCEPTANCE OF OFFER AND CONTRACT AWARD (FOR STATE OF ARIZONA USE ONLY)

Your offer is hereby accepted.

The Contractor is now bound to sell the materials, services or construction listed by the attached award notice based upon the solicitation, including all terms, conditions, specifications, amendments, etc, and the Contractor's offer as accepted by the State.

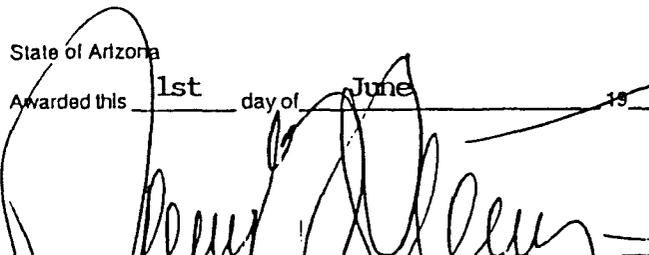
A5-0088-001

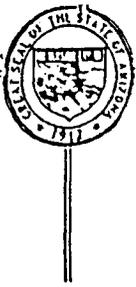
This contract shall henceforth be referred to as Contract No. _____

The Contractor is hereby cautioned not to commence any billable work or provide any material, service or construction under this contract until Contractor receives an executed purchase order or contract release document.

State of Arizona

Awarded this 1st day of June, 1995


ROBERT E. STEPHENSON, JR., C.P.R.O.
ADMINISTRATOR, PROFESSIONAL SERVICES UNIT



STATE OF ARIZONA NOTICE OF REQUEST FOR PROPOSAL

REQUEST FOR PROPOSAL NO.: A5-0088

PROPOSAL DUE DATE: MAY 17, 1995 3:00 P.M. MST

LOCATION: State Procurement Office, Executive Tower, Suite 101
1700 West Washington, Phoenix, AZ 85007

PRE-PROPOSAL CONFERENCE:

A Pre-Proposal Conference will be held at the Arizona State Procurement Office, 1700 W. Washington, Executive Tower, Suite 101, Conference Room A, Phoenix, Arizona, on May 3, 1995 at 9:00 A.M. All potential offerors are encouraged to attend this conference. Offerors should bring a copy of the RFP, as it may be utilized as part of the agenda.

In accordance with A.R.S. §41-2534, competitive sealed proposals for the materials or services specified will be received by the State Procurement Office at the above specified location until the time and date cited. Proposals received by the correct time and date will be opened and the name of each offeror will be publicly read.

Proposals must be in the actual possession of the State Procurement Office on or prior to the exact time and date indicated above. Late proposals will not be considered, except as provided in the Arizona Procurement Code.

Proposals must be submitted in a sealed envelope with the Request for Proposal number and the offeror's name and address clearly indicated on the envelope. All proposals must be completed in ink or typewritten and a complete Request for Proposal returned along with the offer by the time and date cited above. Additional instructions for preparing a proposal are provided on the reverse side of this notice.

Offerors are strongly encouraged to carefully read the entire Request for Proposal.

Designated Agency:	<u>ARIZONA-MEXICO COMMISSION</u>
Material and/or Service:	<u>NAFTA DATA LINK SYSTEM STUDY</u>
Contract Type:	<u>FIRM, FIXED PROJECT PRICE</u>
Contract Term:	<u>DATE OF AWARD THROUGH PROJECT COMPLETION</u>

Procurement Specialist
Phone (602) 542-5511
Date: April 14, 1995
SB:vt

ROBERT E. STEPHENSON, JR., C.P.P.O.
ADMINISTRATOR, PROFESSIONAL SERVICES UNIT

THIS PROPOSAL IS OFFERED BY: Name of Company: _____

- a. All proposals shall be on the forms provided in this Request for Proposal package. It is permissible to copy these forms if required. Telegraphic proposals or mailgrams will not be considered.
- b. The Offer and Contract Award document (SPO Form 203) must be submitted with an original ink signature by the person authorized to sign the offer.
- c. Erasures, interlineations or other modifications in the proposal shall be initialed in original ink by the authorized person signing the Vendor Offer.
- d. In case of error in the extension of prices in the proposal, the unit price will govern.
- e. Periods of time, stated as a number of days, shall be calendar days.
- f. It is the responsibility of all Offerors to examine the entire Request for Proposal package and seek clarification of any item or requirement that may not be clear and to check all responses for accuracy before submitting a proposal. Negligence in preparing an Offer confers no right of withdrawal after due time and date.

INQUIRIES: Any question related to a Request for Proposal must be directed to the Procurement Specialist whose name appears on the front. The offeror shall not contact or ask questions of the state agency for which the requirement is being procured. Questions should be submitted in writing when time permits. The Procurement Specialist may require any and all questions to be submitted in writing at the State's sole discretion. Any correspondence related to a Request for Proposals should refer to the appropriate Request for Proposals number, page, and paragraph number. However, the Offeror must not place the Request for Proposal number on the outside of an envelope containing questions since such an envelope may be identified as a sealed proposal and may not be opened until after the official Request for Proposals due date and time.

PROSPECTIVE OFFEROR'S CONFERENCE: A prospective offeror's conference may be held. If scheduled, the date and time of this conference will be indicated on the cover page of this document. The purpose of this conference will be to clarify the contents of this Request for Proposal in order to prevent any misunderstanding of the State's position. Any doubt as to the requirements of this Request for Proposal or any apparent omission or discrepancy should be presented to the State at this conference. The State will then determine the appropriate action necessary, if any, and issue a written amendment to the Request for Proposal. Oral statements or instructions will not constitute an amendment to this Request for Proposal.

LATE PROPOSAL: Late Proposals will not be considered, except as provided by the Arizona Procurement Code. An Offeror submitting a late proposal shall be so notified.

WITHDRAWAL OF PROPOSAL: At any time prior to the specified proposal due time and date an Offeror (or designated representative) may withdraw the Proposal. Telegraphic or mailgram withdrawals will not be considered.

AMENDMENT OF PROPOSAL: Receipt of a Solicitation Amendment (SPO Form 207) must be acknowledged by signing and returning the document to the State.

PAYMENT: The State will make every effort to process payment for the purchase of goods or services within thirty (30) calendar days after receipt of goods or services and a correct notice of amount due, unless a good faith dispute exists as to any obligation to pay all or a portion of the account. Any offer that requires payment in less than thirty (30) calendar days shall not be considered.

DISCOUNTS: Payment discount periods will be computed from the date of receipt of material/service or correct invoice, whichever is later, to the date State's warrant is mailed. Unless freight and other charges are itemized, any discount provided will be taken on full amount of invoice. Payment discounts of thirty (30) calendar days or more will be deducted from the bid price in determining the low bid. However, the State shall be entitled to take advantage of any payment discount offered by the Vendor provided payment is made within the discount period.

TAXES: The State of Arizona is exempt from Federal Excise Tax, including the Federal Transportation Tax. Exemption certificates will be furnished upon request. Sales Tax, if any, shall be indicated as a separate item.

VENDOR REGISTRATION: Prior to the award of a contract, the successful Offeror shall have a completed Vendor Registration Form (SPO Form 200) on file with the State Procurement Office.

AWARD OF CONTRACT:

- a. Unless the Offeror states otherwise, or unless otherwise provided within the Request for Proposals, the State reserves the right to award by individual line item, by group of line items, or as a total, whichever is deemed most advantageous to the State.
- b. Notwithstanding any other provision of the Request for Proposals, the State expressly reserves the right to:
 - (1) Waive any immaterial defect or informality; or
 - (2) Reject any or all proposals, or portions thereof; or
 - (3) Reissue a Request for Proposals.
- c. A response to a Request for Proposals is an offer to contract with the State based upon the terms, conditions, scope of work and specifications contained in the State's Request for Proposals. Proposals do not become contracts unless and until they are accepted by an authorized procurement officer. A contract is formed when the procurement officer provides written notice of award(s) to the successful Offeror(s). The contract has its inception in the award document, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the procurement contract are contained in the Request for Proposals; unless modified by a Solicitation Amendment (SPO Form 207) or a Contract Amendment (SPO Form 217) signed by the authorized procurement officer.



OFFER AND CONTRACT AWARD

1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

Submit the original of this form to the State.

OFFER

TO THE STATE OF ARIZONA:

The Undersigned hereby offers and agrees to furnish the material, service or construction in compliance with all terms, conditions, specifications and amendments in the Solicitation and any written exceptions in the offer, Signature also certifies understanding and compliance with paragraph one of the State of Arizona Standard Terms and Conditions (SPO Form 202).

Arizona Transaction (Sales) Privilege
Tax License No.: _____

Federal Employer Identification
No.: _____

Company Name

Address

City State Zip

For clarification of this offer, contact:

Name: _____

Phone: _____

FAX No.: _____

Signature of Person Authorized to Sign Offer

Printed Name

Title

ACCEPTANCE OF OFFER AND CONTRACT AWARD (FOR STATE OF ARIZONA USE ONLY)

Your offer is hereby accepted.

The Contractor is now bound to sell the materials, services or construction listed by the attached award notice based upon the solicitation, including all terms, conditions, specifications, amendments, etc, and the Contractor's offer as accepted by the State.

This contract shall henceforth be referred to as Contract No. _____.
The Contractor is hereby cautioned not to commence any billable work or provide any material, service or construction under this contract until Contractor receives an executed purchase order or contract release document.

State of Arizona
Awarded this _____ day of _____ 19____

ROBERT E. STEPHENSON, JR., C.P.P.O.
ADMINISTRATOR, PROFESSIONAL SERVICES UNIT



REQUEST FOR PROPOSAL NO.: A5-0088

PART ONEINTRODUCTION AND BACKGROUND1. INTRODUCTION

- 1.1 This document constitutes a Request for Proposal (RFP), via competitive sealed proposals, from qualified individuals and organizations to provide the services as contained in the Scope of Work.
- 1.2 For ease of use only, this document is divided into five sections: Part One is the Introduction and Background, Part Two describes the Scope of Work, Part Three contains Special Terms and Conditions, Part Four describes Special Instructions to Offerors and Part Five contains the Pricing Schedule and Exhibits.

2. Background/Purpose

- 2.1 On April 19, 1994, Governor Symington approved House Bill 2190. House Bill 2190 established a joint interim committee to study and develop the NAFTA Data Link System. The committee, established by House Bill 2190, is comprised of nine individuals from both the public and private sectors.
- 2.2 Even before NAFTA was approved, the States and Provinces throughout North America have been attempting to identify how best to obtain the benefits of free trade. One of the opportunities for the western States and Provinces involves participation in the creation of an international north-south trade corridor, known as "Canamex". Canamex runs from Alberta, Canada to Guaymas and Ensenada, Mexico and points further south. The proposed Data Link System is intended to link existing and maintained trade and investment related databases throughout the Canamex Trade Corridor (which includes the provinces of British Columbia and Alberta, and the States of Washington, Oregon, Montana, Idaho, Utah, Nevada, Arizona, Sonora, Sinaloa, Baja California, Jalisco and Navarete). The intended users of the Data Link System are primarily members of the private sector business community throughout the Canamex trade corridor and worldwide.



SCOPE OF WORK

1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

PART TWO

SCOPE OF WORK

1. Requirements

1.1 The contractor shall perform a comprehensive analysis of the proposed NAFTA Datalink System and deliver the resulting study to the Arizona-Mexico Commission (hereinafter referred to as the State Agency). The study shall contain all of the information necessary to prepare a detailed "scope of work" for the actual design and implementation of the Datalink System. In this study, the contractor shall:

- 1.1.1 Develop a user interface that facilitates easy access and use of the NAFTA Datalink system throughout Arizona and the Canamex region.
- 1.1.2 Recommend training manuals and procedures for users of the Datalink System.
- 1.1.3 Identify and assess state, federal and international laws affecting the NAFTA Datalink system, particularly any legal impediments to the creation of the system.
- 1.1.4 Create and define the network parameters that link trade related databases throughout Arizona and the Canamex region.
- 1.1.5 Identify the appropriate transmission infrastructure for the system linkage.
- 1.1.6 Assess the existing and the design ideal or preferred infrastructure for the system.
- 1.1.7 Develop specifications for end user hardware and software connection to the system.
- 1.1.8 Address issues of confidentiality, security, reliability and control of access to databases.



SCOPE OF WORK

EXECUTIVE TOWER, SUITE 101
1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

1.1.9 Create an "as-is" inventory of existing databases. Identify the owners of these databases, their interest in participating in the Datalink System, and identify the design and function issues relating to those databases. The "as-is" inventory shall focus on the resources within the Province of Alberta, Canada, the State of Arizona and the country of Mexico. The contractor will be provided with a public sector point of contact who shall assist the contractor to gather the available information of the Province of Alberta.

1.1.9.1 The "as-is" inventory shall, at a minimum, include:

1.1.9.1.1 Existing infrastructure supporting the databases, including, the mode of transmission.

1.1.9.1.2 User interfaces and access tools/modes.

1.1.9.1.3 User platforms

1.1.9.2 The "as-is" inventory shall address each of the areas identified below:

1.1.9.2.1 Database intelligence (application layer), specifically: location, type, ownership, size, viability, data file structure and standard, existing legal and contractual issues and current work in progress. Access mechanisms including standards, modes of access and level of security shall also be identified.



SCOPE OF WORK

1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

1.1.9.2.2 Database platform, specifically: type of system, operating system, version/maturity issues, network hardware and software devices, existing legal and contractual issues and current work in progress. Access mechanisms including network identification, protocols and inoperability issues shall also be identified.

1.1.9.2.3 Physical infrastructure, specifically: physical and logical topology (i.e. Lan, Wan, peer-to-peer, client/server), connectivity and transmission medium and strategic thrusts.

1.1.10 Interview large and small business users to ascertain issues relating to user need and the nature of the system user interface.

1.1.11 Determine the appropriate administrative agency or agencies (if any) of government to oversee the NAFTA data link system, and identify the reasons why such agency or agencies should be tasked with such oversight.

2. Deliverables

2.1 At a minimum, the contractor shall submit written bi-monthly progress reports to the State Agency. The contractor shall comply with requests from the state Agency for more frequent written, progress reports.



SCOPE OF WORK

1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

- 2.2 The contractor shall submit, to the State Agency, within 90 days from contract award, 20 copies of the draft final report. The report shall be complete and concise, documenting the information and findings obtained during the contractor's study and the recommended next steps in the development of the NAFTA Datalink system. The draft report shall be reviewed and approved by the State Agency.
- 2.3 The contractor shall submit 20 copies of the final report within twenty days of approval by the State Agency. One unbound reproducible original of the final report shall be submitted.
- 2.4 The report shall include recommendations which address:
- 2.4.1 The financial options for the State including options for public, public/private, and private financing.
 - 2.4.2 Limits and constraints of the existing system, if any.
 - 2.4.3 "To-be" scenarios which include time, technology options and financial options.
 - 2.4.4 Identification of revenue generating opportunities and models.
- 2.5 The report shall also specify the Scope of Work for the actual design and implementation of the Datalink System, the intention being to insert this Scope of Work into the phase II of the RFP that may be issued for the creation of the Datalink System.

3. Meetings

- 3.1 The contractor shall meet with the State Agency and the committee, as necessary, but not to exceed one meeting per month to report on progress and present facts and findings.
- 3.2 The contractor shall be given at least 72 hour notice prior to required attendance at a meeting.



SCOPE OF WORK

EXECUTIVE POWER CENTER
1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

4. Project Management

- 4.1 The State Agency shall be the designated Project Director. Additionally, a technical advisor shall be designated by the State Agency to aid the contractor.
- 4.2 As the Project Director, the state Agency will provide general direction for the project.
- 4.3 The contractor shall designate a Project Manager. The project Manager shall provide, on a regular basis, supervision of all activities and personnel involved with the project.



SPECIAL TERMS AND CONDITIONS

EXECUTIVE TOWER, SUITE 100
1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

7. Availability of Funds for the Next Fiscal Year: Funds are not presently available for performance under this contract beyond the current fiscal year. The State's obligation for performance of this contract beyond this fiscal year is contingent upon the availability of funds from which payment for contract purposes can be made. No legal liability on the part of the State for any payment may arise for performance under this contract beyond the current fiscal year until funds are made available for performance of this contract.
8. Confidentiality of Records: The Contractor shall establish and maintain procedures and controls that are acceptable to the State for the purpose of assuring that no information contained in its records or obtained from the State or from others in carrying out its functions under the contract shall be used by or disclosed by it, its agents, officers, or employees, except as required to efficiently perform duties under the contract. Persons requesting such information shall be referred to the State. Contractor also agrees that any information pertaining to individual persons shall not be divulged other than to employees or officers of the Contractor as needed for the performance of duties under the contract, unless otherwise agreed to in writing by the State.
9. Key Personnel: It is essential that the Contractor provide an adequate staff of experienced personnel, capable of and devoted to the successful accomplishment of work to be performed under this contract. The Contractor must assign specific individuals to the key positions. Once assigned to work under the contract, key personnel shall not be removed or replaced without the prior written approval of the using Agency.
10. Cancellation: The State reserves the right to cancel the whole or any part of the contract due to failure of the Contractor to carry out any term, promise, or condition of the contract. The State will issue a written ten (10) day notice of default to the Contractor for acting or failing to act as in any of the following:

The Contractor provides personnel that do not meet the requirements of the contract.



SPECIAL TERMS AND CONDITIONS

1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007
(602) 542-5511

SOLICITATION NO.: A5-0088

WORKMEN'S COMPENSATION AND EMPLOYER'S
LIABILITY-STATUTORY (EACH ACCIDENT)

\$ 100,000

State of Arizona, its Departments, Agencies, Boards and Commissions must be added as additional insured as required by statute, contract or other request. It is agreed that any insurance available to the Contractor shall be primary of other sources that may be available.

It is further agreed that no policy shall expire, be cancelled or materially changed to affect the coverage available to the State without thirty (30) days written notice to the State. THE INSURANCE CERTIFICATE IS NOT VALID UNLESS COUNTERSIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE INSURANCE COMPANY.

Within fifteen (15) days following notification of award, certificates of insurance must be submitted to the State Procurement Office, clearly stating the applicable contract number, effective date(s) of coverage, and limits of liability required pursuant to the contract.

12. Termination: The State Procurement Office reserves the right to terminate the contract at any time, for the convenience of the State of Arizona, without penalty or recourse, by giving written notice to the contractor at least thirty (30) days prior to the effective date of such termination. In the event of termination pursuant to this paragraph, all documents, data, and reports prepared by the contractor under the contract shall, at the option of the State Procurement Office, become property of the State of Arizona. The contractor shall be entitled to receive just and equitable compensation for that work completed prior to the effective date of termination.



SPECIAL TERMS AND CONDITIONS

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16. The Contractor shall comply with the Americans With Disabilities Act of 1990 (Public Law 101-336) and the Arizona Disability Act of 1992 (A.R.S. 41-1492 et. seq.), which prohibits discrimination on the basis of physical or mental disabilities in delivering contract services or in the employment, or advancement in employment of qualified individuals.

People with disabilities may request special accommodations such as interpreters, alternative formats, or assistance with physical accessibility. Requests for special accommodations must be made within 72 hours prior notice.

If you require special accommodations, please contact the individual listed on the front page of this document.

17. Non-Exclusive Contract: The State shall have the right to go outside of the contract to obtain similar goods or services from another source when necessary to meet the requirements of using agencies. An Off-Contract Purchase Authorization (SPO Form 150) may be approved only by the State Procurement Administrator when it is determined that contracted items do not meet the requirements of the using agency. Any off-contract procurement shall be done in accordance with the Arizona Procurement Code.
18. Disputes: The contract is not subject to arbitration. The State and the contractor shall meet to discuss and attempt to resolve any dispute. However, should the dispute go unresolved to the satisfaction of both parties, the contractor shall have the right to pursue the Arizona Procurement Code/Administrative Appeal Process for Claims, prior to an appeal to the judicial system.



REQUEST FOR PROPOSAL NO.: A5-0088

PART FOUR

SPECIAL INSTRUCTIONS TO OFFERORS

1. OFFEROR'S CONTACTS:

1.1 All questions regarding this Request for Proposal, including technical specifications, proposal process, etc., must be directed to the Procurement Specialist as indicated on the first page of this document.

1.2 Offerors may not contact the employees of the using Agency concerning this procurement while the proposal and evaluation are in process.

2. EVALUATION CRITERIA: Evaluation criteria are listed in the relative order of importance. The award will be made to the responsible offeror whose proposal is determined to be the most advantageous to the State based on the following criteria:

- 2.1 Experience/Expertise/Reliability..... 45%
- 2.2 Method of Approach..... 35%
- 2.3 Cost..... 20%

3. PROPOSAL FORMAT: One (1) original and seven (7) copies of each proposal should be submitted on the forms and in the format specified in the RFP. The original copy of the proposal should be clearly labeled "ORIGINAL". The material should be in sequence and related to the RFP. The State will not provide any reimbursement for the cost of developing or presenting proposals in response to this RFP. Failure to include the requested information may have a negative impact on the evaluation of the offeror's proposal. The proposal should include at least the following information:

3.1 Cost: The offeror must provide a firm, fixed all inclusive price for all requirements set forth in this Request for Proposal. All firm, fixed prices must be shown on the Pricing Schedule of this RFP which must be completed, signed, and returned with the offeror's proposal.



SPECIAL INSTRUCTIONS TO OFFERORS

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3.2 Experience and Reliability of the Firm: The proposal should contain the following:

3.2.1 Experience and reliability of the offeror's organization is considered in the evaluation process. Therefore, the offeror is advised to submit any information which documents successful and reliable experience in past performances, especially those performances related to the requirements of this RFP.

3.2.2 Information on the offeror's related experience. This should include specific information on the type of services provided and on the dates of performance.

3.2.3 A list of references. References should be verifiable and should be able to comment on the offeror's related experience. The offeror should submit four (4) similar-type professional service references. This information should be shown on the form attached as Exhibit A to this proposal or in a similar manner.

3.2.4 The proposal may include any additional information that reflects on the offeror's ability to perform the required services.

3.3 Expertise and Reliability of Offeror's Key Personnel: The proposal should contain the following:

3.3.1 The offeror should provide an organizational chart showing the staffing and lines of authority for the key personnel to be used in the project. The relationship of the project leader to management and to support personnel should be clearly illustrated.

3.3.2 The offeror should provide a resume and data related to previous work assignments as may relate to this RFP for each of the key personnel to be assigned to the project. Exhibit B is furnished for the offeror's convenience in presenting such data.



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3.3.3 The offeror should reflect the relationship between specific key personnel for which resumes have been submitted and the specific tasks or assignments proposed in the method of approach to accomplish the Scope of Work.

3.4 Method of Approach:

3.4.1 The offeror should present a proposed method of satisfying the requirements of the Scope of Work as specified herein.

3.4.2 The offeror may utilize a written narrative or any other printed technique to demonstrate his ability to satisfy the Scope of Work. The narrative should describe a logical progression of tasks and efforts starting with the initial steps or tasks to be accomplished and continuing until all proposed tasks are fully described. The language of the narrative should be straightforward and limited to facts, solutions to problems, and plans of proposed action. The usage of technical language should be minimized and used only to describe a technical process. Exhibit C is attached for the offeror's convenience in presenting a narrative plan of action.

3.3.3 The description of the major milestones upon which the offeror and State Agency shall evaluate offeror's performance under this contract should include short descriptive titles in lieu of descriptive paragraphs. Exhibit D is attached for the offeror's convenience and should be either utilized for this purpose or the offeror should utilize a similar method to accomplish the same objective.

4. DISCUSSIONS: In accordance with A.R.S. §41-2534, after the initial receipt of proposals, discussions may be conducted with offerors who submit proposals determined to be reasonably susceptible of being selected for award.



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5. DEFINITION OF KEY WORDS USED IN THE RFP:

- 5.1 Shall, Must: Indicates a mandatory requirement. Failure to meet these mandatory requirements may result in the rejection of a proposal as non-responsive.
- 5.2 Should: Indicates something that is recommended but not mandatory. If the offeror fails to provide recommended information, the State may, at its sole option, ask the offeror to provide the information or evaluate the proposal without the information.
- 5.3 May: Indicates something that is not mandatory but permissible.

PART FIVE

PRICING SCHEDULE, EXHIBITS AND ATTACHMENTS

REQUEST FOR PROPOSAL NO.: A5-0088



PRICING SCHEDULE

STATE PROCUREMENT OFFICE

EXECUTIVE TOWER, SUITE 101

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(602) 542-5511

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1. The offeror must state a firm, fixed Total Guaranteed not to Exceed price for the total project.

\$ _____ Total Project

2. The offeror shall record below a firm, fixed price per hour for each individual proposed by the contractor to provide service as specified by the contract.

NAME OF INDIVIDUAL	JOB CLASSIFICATION	PRICE PER HOUR
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

AUTHORIZED SIGNATURE

DATE

OFFEROR'S EXPERIENCE

1. Contract Title: _____
2. Contract Period: From _____ To _____
3. Geographic Area Served: _____
4. Scope of Work:

5. Reference: Company: _____
 Individual/Title: _____
 City: _____ State: _____
 Telephone: _____

PERSONNEL STAFFING

STAFF MEMBER	BACKGROUND AND EXPERTISE OF PERSONNEL
1. _____ (NAME) _____ (TITLE)	
2. _____ (NAME) _____ (TITLE)	
3. _____ (NAME) _____ (TITLE)	
4. _____ (NAME) _____ (TITLE)	
5. _____ (NAME) _____ (TITLE)	

* Attach a resume for each individual, plus a "brief" of all similar projects each individual has had actual "hands-on" experience on.

NARRATIVE ON THE APPROACH TO THE SCOPE OF WORK

(Offerors should respond to the Scope of Work point by point by numerical reference, a pert chart may be included.)

SCHEDULE OF EVENTS

The Offeror should briefly describe each step of the schedule of events in his proposed plan of action to accomplish the Scope of Work in a sequential manner identifying the specific assignment of key personnel and the time required to complete each step. This form should be completed in addition to the offeror's narrative description of this proposed plan of action.

STEP NO.	SCHEDULE OF EVENTS	TIME REQUIRED	PERSON ASSIGNED



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THE FOLLOWING TERMS AND CONDITIONS ARE AN EXPLICIT PART OF THE SOLICITATION AND ANY RESULTANT CONTRACT.

1. CERTIFICATION:

BY SIGNATURE IN THE OFFER SECTION OF THE OFFER AND ACCEPTANCE PAGE (SPD FORM 203) BIDDER CERTIFIES:

- A. THE SUBMISSION OF THE OFFER DID NOT INVOLVE COLLUSION OR OTHER ANTI-COMPETITIVE PRACTICES.
- B. THE BIDDER SHALL NOT DISCRIMINATE AGAINST ANY EMPLOYEE, OR APPLICANT FOR EMPLOYMENT IN VIOLATION OF FEDERAL EXECUTIVE ORDER 11246, STATE EXECUTIVE ORDER 75.5 OR A.R.S. § 31-1461 ET. SEQ.
- C. THE BIDDER HAS NOT GIVEN, OFFERED TO GIVE, NOR INTENDS TO GIVE AT ANY TIME HEREAFTER ANY ECONOMIC OPPORTUNITY, FUTURE EMPLOYMENT, GIFT, LOAN, GRATUITY, SPECIAL DISCOUNT, TRIP, FAVOR, OR SERVICE TO A PUBLIC SERVANT IN CONNECTION WITH THE SUBMITTED OFFER. FAILURE TO PROVIDE A VALID SIGNATURE AFFIRMING THE STIPULATIONS REQUIRED BY THIS CLAUSE SHALL RESULT IN THE REJECTION OF THE OFFER. SIGNING THE OFFER WITH A FALSE STATEMENT SHALL VOID THE OFFER, ANY RESULTING CONTRACT AND MAY BE SUBJECT TO LEGAL REMEDIES PROVIDED BY LAW.
- D. THE BIDDER AGREES TO PROMOTE AND OFFER TO USING AGENCIES ONLY THOSE MATERIALS AND/OR SERVICES AS STATED IN AND ALLOWED FOR UNDER RESULTANT CONTRACT(S) AS STATE CONTRACT ITEMS.

2. GRATUITIES:

THE STATE MAY, BY WRITTEN NOTICE TO THE CONTRACTOR, CANCEL THIS CONTRACT IF IT IS FOUND BY THE STATE THAT GRATUITIES, IN THE FORM OF ENTERTAINMENT, GIFTS OR OTHERWISE, WERE OFFERED OR GIVEN BY THE CONTRACTOR OR ANY AGENT OR REPRESENTATIVE OF THE CONTRACTOR, TO ANY OFFICER OR EMPLOYEE OF THE STATE WITH A VIEW TOWARD SECURING A CONTRACT, SECURING FAVORABLE TREATMENT WITH RESPECT TO THE AWARDED, AMENDING, OR THE MAKING OF ANY DETERMINATIONS WITH RESPECT TO THE PERFORMING OF SUCH CONTRACT. IN THE EVENT THIS CONTRACT IS CANCELLED BY THE STATE PURSUANT TO THIS PROVISION, THE STATE SHALL BE ENTITLED, IN ADDITION TO ANY OTHER RIGHTS AND REMEDIES, TO RECOVER OR WITHHOLD FROM THE CONTRACTOR THE AMOUNT OF THE GRATUITY, PAYING THE EXPENSE OF NORMAL BUSINESS MEALS WHICH ARE GENERALLY MADE AVAILABLE TO ALL ELIGIBLE STATE GOVERNMENT CUSTOMERS SHALL NOT BE PROHIBITED BY THIS PARAGRAPH.

3. APPLICABLE LAW:

THIS CONTRACT SHALL BE GOVERNED BY, AND THE STATE AND CONTRACTOR SHALL HAVE ALL REMEDIES AFFORDED EACH BY THE UNIFORM COMMERCIAL CODE, AS ADOPTED IN THE STATE OF ARIZONA, EXCEPT AS OTHERWISE PROVIDED IN THIS CONTRACT OR IN STATUTES PERTAINING SPECIFICALLY TO THE STATE. THIS CONTRACT SHALL BE GOVERNED BY THE LAW OF THE STATE OF ARIZONA, AND SUITS PERTAINING TO THIS CONTRACT SHALL BE BROUGHT ONLY IN FEDERAL OR STATE COURTS IN THE STATE OF ARIZONA.

4. ARIZONA PROCUREMENT CODE:

THE ARIZONA PROCUREMENT CODE (A.R.S. TITLE 41, CHAPTER 23) AND THE ARIZONA PROCUREMENT CODE RULES AND REGULATIONS (A.C.R.R. TITLE 2, CHAPTER 7), ARE A PART OF THIS DOCUMENT AS IF FULLY SET FORTH HEREIN.

5. LEGAL REMEDIES:

ALL CLAIMS AND CONTROVERSIES SHALL BE SUBJECT TO THE ARIZONA PROCUREMENT CODE § 41-2611 ET. AL.

6. CONTRACT:

THE CONTRACT SHALL BE BASED UPON THE SOLICITATION ISSUED BY THE STATE AND THE OFFER SUBMITTED BY THE CONTRACTOR IN RESPONSE TO THE SOLICITATION. THE OFFER SHALL SUBSTANTIALLY CONFORM TO THE TERMS, CONDITIONS, SPECIFICATIONS AND OTHER REQUIREMENTS SET FORTH WITHIN THE TEXT OF THE SOLICITATION. THE STATE RESERVES THE RIGHT TO CLARIFY ANY CONTRACTUAL TERMS WITH THE CONCURRENCE OF THE CONTRACTOR. HOWEVER, ANY SUBSTANTIAL NON-CONFORMITY IN THE OFFER SHALL BE DEEMED NON-RESPONSIVE AND THE OFFER REJECTED. THE CONTRACT SHALL CONTAIN THE ENTIRE AGREEMENT BETWEEN THE STATE OF ARIZONA AND THE CONTRACTOR RELATING TO THIS REQUIREMENT AND SHALL PREVAIL OVER ANY AND ALL PREVIOUS AGREEMENTS, CONTRACTS, PROPOSALS, NEGOTIATIONS, PURCHASE ORDERS OR MASTER AGREEMENTS IN ANY FORM.

7. CONTRACT AMENDMENTS:

THIS CONTRACT SHALL BE MODIFIED ONLY BY A WRITTEN CONTRACT AMENDMENT (SPD FORM 217) SIGNED BY PERSON DULY AUTHORIZED TO ENTER INTO CONTRACTS ON BEHALF OF THE STATE AND THE CONTRACTOR.

8. PROVISIONS REQUIRED BY LAW:

EACH AND EVERY PROVISION OF LAW AND ANY CLAUSE REQUIRED BY LAW TO BE IN THE CONTRACT SHALL BE READ AND ENFORCED AS THOUGH IT WERE INCLUDED HEREIN, AND IF THROUGH MISTAKE OR OTHERWISE ANY SUCH PROVISION IS NOT INSERTED, OR IS NOT CORRECTLY INSERTED, THEN UPON THE APPLICATION OF EITHER PARTY THE CONTRACT SHALL FORTHWITH BE PHYSICALLY AMENDED TO MAKE SUCH INSERTION OR CORRECTION.

9. TERMINATION BY THE GOVERNOR:

THE STATE MAY CANCEL THIS CONTRACT WITHOUT PENALTY OR FURTHER OBLIGATION PURSUANT TO A.R.S. § 38-501 IF ANY PERSON SIGNIFICANTLY INVOLVED IN INITIATING, NEGOTIATING, SECURING, DRAFTING OR CREATING THE CONTRACT ON BEHALF OF THE STATE IS OR BECOMES, AT ANY TIME WHILE THE CONTRACT OR ANY EXTENSION OF THE CONTRACT IS IN EFFECT AN EMPLOYEE OF, OR A CONSULTANT TO ANY OTHER PARTY TO THIS CONTRACT WITH RESPECT TO THE SUBJECT MATTER OF THE CONTRACT. SUCH CANCELLATION SHALL BE EFFECTIVE WHEN WRITTEN NOTICE FROM THE GOVERNOR IS RECEIVED BY THE PARTIES TO THIS CONTRACT, UNLESS THE NOTICE SPECIFIES A LATER TIME.



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- 10. SEVERABILITY:
THE PROVISIONS OF THIS CONTRACT ARE SEVERABLE TO THE EXTENT THAT ANY PROVISION OR APPLICATION HELD TO BE INVALID SHALL NOT AFFECT ANY OTHER PROVISION OR APPLICATION OF THE CONTRACT WHICH MAY REMAIN IN EFFECT WITHOUT THE INVALID PROVISION OR APPLICATION.
- 11. RELATIONSHIP OF PARTIES:
IT IS CLEARLY UNDERSTOOD THAT EACH PARTY SHALL ACT IN ITS INDIVIDUAL CAPACITY AND NOT AS AN AGENT, EMPLOYEE, PARTNER, JOINT VENTURER, OR ASSOCIATE OF THE OTHER. AN EMPLOYEE OR AGENT OF ONE PARTY SHALL NOT BE DEEMED OR CONSTRUED TO BE THE EMPLOYEE OR AGENT OF THE OTHER PARTY FOR ANY PURPOSE WHATSOEVER. THE CONTRACTOR IS ADVISED THAT TAXES OR SOCIAL SECURITY PAYMENTS SHALL NOT BE WITHHELD FROM A STATE PAYMENT ISSUED HEREUNDER AND THAT CONTRACTOR SHOULD MAKE ARRANGEMENTS TO DIRECTLY PAY SUCH EXPENSES, IF ANY.
- 12. INTERPRETATION - PAROL EVIDENCE:
THIS CONTRACT IS INTENDED BY THE PARTIES AS A FINAL EXPRESSION OF THEIR AGREEMENT AND IS INTENDED ALSO AS A COMPLETE AND EXCLUSIVE STATEMENT OF THE TERMS OF THIS AGREEMENT. NO COURSE OF PRIOR DEALINGS BETWEEN THE PARTIES AND NO USAGE OF THE TRADE SHALL BE RELEVANT TO SUPPLEMENT OR EXPLAIN ANY TERM USED IN THIS CONTRACT. ACCEPTANCE OR ACQUIESCENCE IN A COURSE OF PERFORMANCE RENDERED UNDER THIS CONTRACT SHALL NOT BE RELEVANT TO DETERMINE THE MEANING OF THIS CONTRACT EVEN THOUGH THE ACCEPTING OR ACQUIESCING PARTY HAS KNOWLEDGE OF THE NATURE OF THE PERFORMANCE AND OPPORTUNITY TO OBJECT. WHENEVER A TERM DEFINED BY THE ARIZONA PROCUREMENT CODE IS USED IN THIS CONTRACT, THE DEFINITION CONTAINED IN THE CODE SHALL CONTROL.
- 13. ASSIGNMENT - DELEGATION:
NO RIGHT OR INTEREST IN THIS CONTRACT SHALL BE ASSIGNED BY THE CONTRACTOR WITHOUT PRIOR WRITTEN PERMISSION OF THE STATE. AND NO DELEGATION OF ANY DUTY OF CONTRACTOR SHALL BE MADE WITHOUT PRIOR WRITTEN PERMISSION OF THE STATE. THE STATE SHALL NOT UNREASONABLY WITHHOLD APPROVAL AND SHALL NOTIFY THE CONTRACTOR OF THE STATE'S POSITION WITHIN 15 DAYS OF RECEIPT OF WRITTEN NOTICE BY THE CONTRACTOR.
- 14. SUBCONTRACTS:
NO SUBCONTRACT SHALL BE ENTERED INTO BY THE CONTRACTOR WITH ANY OTHER PARTY TO FURNISH ANY OF THE MATERIAL, SERVICE OR CONSTRUCTION SPECIFIED HEREIN WITHOUT THE ADVANCE WRITTEN APPROVAL OF THE STATE. ALL SUBCONTRACTS SHALL COMPLY WITH FEDERAL AND STATE LAWS AND REGULATIONS WHICH ARE APPLICABLE TO THE SERVICES COVERED BY THE SUBCONTRACT AND SHALL INCLUDE ALL THE TERMS AND CONDITIONS SET FORTH HEREIN WHICH SHALL APPLY WITH EQUAL FORCE TO THE SUBCONTRACT, AS IF THE SUBCONTRACTOR WERE THE CONTRACTOR REFERRED TO HEREIN. THE CONTRACTOR IS RESPONSIBLE FOR CONTRACT PERFORMANCE WHETHER OR NOT SUBCONTRACTORS ARE USED. THE STATE SHALL NOT UNREASONABLY WITHHOLD APPROVAL AND SHALL NOTIFY THE CONTRACTOR OF THE STATE'S POSITION WITHIN 15 DAYS OF RECEIPT OF WRITTEN NOTICE BY THE CONTRACTOR.
- 15. RIGHTS AND REMEDIES:
NO PROVISION IN THIS DOCUMENT OR IN THE VENDOR'S OFFER SHALL BE CONSTRUED, EXPRESSLY OR BY IMPLICATION AS A WAIVER BY EITHER PARTY OF ANY EXISTING OR FUTURE RIGHT AND/OR REMEDY AVAILABLE BY LAW IN THE EVENT OF ANY CLAIM OF DEFAULT OR BREACH OF CONTRACT. THE FAILURE OF EITHER PARTY TO INSIST UPON THE STRICT PERFORMANCE OF ANY TERM OR CONDITION OF THE CONTRACT OR TO EXERCISE OR DELAY THE EXERCISE OF ANY RIGHT OR REMEDY PROVIDED IN THE CONTRACT, OR BY LAW, OR THE ACCEPTANCE OF MATERIALS OR SERVICES, OR THE PAYMENT FOR MATERIALS OR SERVICES, SHALL NOT RELEASE EITHER PARTY FROM ANY RESPONSIBILITIES OR OBLIGATIONS IMPOSED BY THIS CONTRACT OR BY LAW, AND SHALL NOT BE DEEMED A WAIVER OF ANY RIGHT OF EITHER PARTY TO INSIST UPON THE STRICT PERFORMANCE OF THE CONTRACT.
- 16. PROTESTS:
PROTESTS SHALL BE FILED, AND SHALL BE RESOLVED, IN ACCORDANCE WITH A.R.S. TITLE 41, CHAPTER 23, ARTICLE 9 AND A.C.R.R. R2-7-901 THROUGH R2-7-937. A PROTEST SHALL BE IN WRITING AND SHALL BE FILED WITH THE PURCHASING AGENCY (PROCUREMENT OFFICER) AND THE STATE PURCHASING ADMINISTRATOR. A PROTEST OF A SOLICITATION SHALL BE RECEIVED AT THE PURCHASING AGENCY BEFORE THE SOLICITATION OPENING DATE. A PROTEST OF A PROPOSED AWARD OR OF AN AWARD SHALL BE FILED WITHIN TEN DAYS AFTER THE PROTESTER KNOWS OR SHOULD HAVE KNOWN THE BASIS OF THE PROTEST. A PROTEST SHALL INCLUDE:
 - A. THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROTESTER;
 - B. THE SIGNATURE OF THE PROTESTER OR ITS REPRESENTATIVE;
 - C. IDENTIFICATION OF THE PURCHASING AGENCY AND THE SOLICITATION OR CONTRACT NUMBER;
 - D. A DETAILED STATEMENT OF THE LEGAL AND FACTUAL GROUNDS OF PROTEST INCLUDING COPIES OF RELEVANT DOCUMENTS; AND
 - E. THE FORM OF RELIEF REQUESTED.
- 17. WARRANTIES:
CONTRACTOR WARRANTS THAT ALL MATERIAL, SERVICE OR CONSTRUCTION DELIVERED UNDER THIS CONTRACT SHALL CONFORM TO THE SPECIFICATIONS OF THIS CONTRACT. MERE RECEIPT OF SHIPMENT OF THE MATERIAL, SERVICE, OR CONSTRUCTION SPECIFIED AND ANY INSPECTION INCIDENTAL THERETO BY THE STATE, SHALL NOT ALTER OR AFFECT THE OBLIGATIONS OF THE CONTRACTOR OR THE RIGHTS OF THE STATE UNDER THE FOREGOING WARRANTIES. ADDITIONAL WARRANTY REQUIREMENTS MAY BE SET FORTH IN THIS DOCUMENT.



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18. INDEMNIFICATION:

CONTRACTOR SHALL INDEMNIFY, DEFEND, AND SAVE HARMLESS THE STATE, FROM ANY AND ALL CLAIMS, DEMANDS, SUITS, ACTIONS, PROCEEDINGS, LOSS, COST, AND DAMAGES OF EVERY KIND AND DESCRIPTION, INCLUDING ANY REASONABLE ATTORNEYS' FEES AND/OR LITIGATION EXPENSES, WHICH MAY BE BROUGHT OR MADE AGAINST OR INCURRED BY THE STATE ON ACCOUNT OF LOSS OF OR DAMAGE TO ANY PROPERTY OR FOR INJURIES TO OR DEATH OF ANY PERSON, CAUSED BY, ARISING OUT OF, OR CONTRIBUTED TO, IN PART, BY REASONS OF ANY ACT, OMISSION, PROFESSIONAL ERROR, FAULT, MISTAKE, OR NEGLIGENCE OF THE CONTRACTOR, ITS EMPLOYEES, AGENTS, REPRESENTATIVES, OR SUBCONTRACTORS, THEIR EMPLOYEES, AGENTS, OR REPRESENTATIVES IN CONNECTION WITH OR INCIDENTAL TO THE PERFORMANCE OF THIS AGREEMENT, OR ARISING OUT OF WORKER'S COMPENSATION CLAIMS, UNEMPLOYMENT COMPENSATION CLAIMS, OR UNEMPLOYMENT DISABILITY COMPENSATION CLAIMS OF EMPLOYEES OF THE CONTRACTOR AND/OR ITS SUBCONTRACTORS OR CLAIMS UNDER SIMILAR SUCH LAWS OR OBLIGATIONS. THE CONTRACTOR'S OBLIGATION UNDER THIS SECTION SHALL NOT EXTEND TO ANY LIABILITY CAUSED BY THE SOLE NEGLIGENCE OF THE STATE, OR ITS EMPLOYEES.

19. OVERCHARGES BY ANTITRUST VIOLATIONS:

THE STATE MAINTAINS THAT, IN ACTUAL PRACTICE, OVERCHARGES RESULTING FROM ANTITRUST VIOLATIONS ARE BORNE BY THE PURCHASER. THEREFORE, TO THE EXTENT PERMITTED BY LAW, THE CONTRACTOR HEREBY ASSIGNS TO THE STATE ANY AND ALL CLAIMS FOR SUCH OVERCHARGES AS TO THE GOODS OR SERVICES USED TO FULFILL THE CONTRACT.

20. FORCE MAJEURE:

A. EXCEPT FOR PAYMENT OF SUMS DUE, NEITHER PARTY SHALL BE LIABLE TO THE OTHER NOR DEEMED IN DEFAULT UNDER THIS CONTRACT IF AND TO THE EXTENT THAT SUCH PARTY'S PERFORMANCE OF THIS CONTRACT IS PREVENTED BY REASON OF FORCE MAJEURE. THE TERM "FORCE MAJEURE" MEANS AN OCCURRENCE THAT IS BEYOND THE CONTROL OF THE PARTY AFFECTED AND OCCURS WITHOUT ITS FAULT OR NEGLIGENCE. WITHOUT LIMITING THE FOREGOING, FORCE MAJEURE INCLUDES ACTS OF GOD; ACTS OF THE PUBLIC ENEMY; WAR; RIOTS; STRIKES; MOBILIZATION; LABOR DISPUTES; CIVIL DISORDERS; FIRE; FLOOD; LOCKOUTS; INJUNCTIONS-INTERVENTION-ACTS, OR FAILURES OR REFUSAL TO ACT BY GOVERNMENT AUTHORITY; AND OTHER SIMILAR OCCURRENCES BEYOND THE CONTROL OF THE PARTY DECLARING FORCE MAJEURE WHICH SUCH PARTY IS UNABLE TO PREVENT BY EXERCISING REASONABLE DILIGENCE. THE FORCE MAJEURE SHALL BE DEEMED TO COMMENCE WHEN THE PARTY DECLARING FORCE MAJEURE NOTIFIES THE OTHER PARTY OF THE EXISTENCE OF THE FORCE MAJEURE AND SHALL BE DEEMED TO CONTINUE AS LONG AS THE RESULTS OR EFFECTS OF THE FORCE MAJEURE PREVENT THE PARTY FROM RESUMING PERFORMANCE IN ACCORDANCE WITH THIS AGREEMENT.

FORCE MAJEURE SHALL NOT INCLUDE THE FOLLOWING OCCURRENCES:

1. LATE DELIVERY OF EQUIPMENT OR MATERIALS CAUSED BY CONGESTION AT A MANUFACTURER'S PLANT OR ELSEWHERE, OR AN OVERSOLD CONDITION OF THE MARKET.
2. LATE PERFORMANCE BY A SUBCONTRACTOR UNLESS THE DELAY ARISES OUT OF A FORCE MAJEURE OCCURRENCE IN ACCORDANCE WITH THIS FORCE MAJEURE TERM AND CONDITION. ANY DELAY OR FAILURE IN PERFORMANCE BY EITHER PARTY HERETO SHALL NOT CONSTITUTE DEFAULT HEREUNDER OR GIVE RISE TO ANY CLAIM FOR DAMAGES OR LOSS OF ANTICIPATED PROFITS IF, AND TO THE EXTENT THAT SUCH DELAY OR FAILURE IS CAUSED BY FORCE MAJEURE.

B. IF EITHER PARTY IS DELAYED AT ANY TIME IN THE PROGRESS OF THE WORK BY FORCE MAJEURE, THE DELAYED PARTY SHALL NOTIFY THE OTHER PARTY IN WRITING OF SUCH DELAY, AS SOON AS IS PRACTICAL, OF THE COMMENCEMENT THEREOF AND SHALL SPECIFY THE CAUSES OF SUCH DELAY IN SUCH NOTICE. SUCH NOTICE SHALL BE HAND DELIVERED OR MAILED CERTIFIED-RETURN RECEIPT AND SHALL MAKE A SPECIFIC REFERENCE TO THIS ARTICLE, THEREBY INVOKING ITS PROVISIONS. THE DELAYED PARTY SHALL CAUSE SUCH DELAY TO CEASE AS SOON AS PRACTICABLE AND SHALL NOTIFY THE OTHER PARTY IN WRITING WHEN IT HAS DONE SO. THE TIME OF COMPLETION SHALL BE EXTENDED BY CONTRACT MODIFICATION FOR A PERIOD OF TIME EQUAL TO THE TIME THAT RESULTS OR EFFECTS OF SUCH DELAY PREVENT THE DELAYED PARTY FROM PERFORMING IN ACCORDANCE WITH THIS CONTRACT.

21. RIGHT TO ASSURANCE:

WHENEVER ONE PARTY TO THIS CONTRACT IN GOOD FAITH HAS REASON TO QUESTION THE OTHER PARTY'S INTENT TO PERFORM, HE MAY DEMAND THAT THE OTHER PARTY GIVE A WRITTEN ASSURANCE OF THIS INTENT TO PERFORM. IN THE EVENT THAT A DEMAND IS MADE AND NO WRITTEN ASSURANCE IS GIVEN WITHIN FIVE (5) DAYS, THE DEMANDING PARTY MAY TREAT THIS FAILURE AS AN ANTICIPATORY REPUDIATION OF THE CONTRACT.

22. RECORDS:

PURSUANT TO PROVISIONS OF TITLE 35, CHAPTER 1, ARTICLE 6 ARIZONA REVISED STATUTES § 35-214 AND § 35-215 EACH CONTRACTOR SHALL RETAIN, AND SHALL CONTRACTUALLY REQUIRE EACH SUBCONTRACTOR TO RETAIN, ALL BOOKS, ACCOUNTS, REPORTS, FILES AND OTHER RECORDS RELATING TO THE ACQUISITION AND PERFORMANCE OF THE CONTRACT FOR A PERIOD OF FIVE (5) YEARS AFTER THE COMPLETION OF THE CONTRACT. ALL SUCH DOCUMENTS SHALL BE SUBJECT TO INSPECTION AND AUDIT AT REASONABLE TIMES. UPON REQUEST, A LEGIBLE COPY OF ANY OR ALL SUCH DOCUMENTS SHALL BE PRODUCED AT THE OFFICES OF THE AUDITOR GENERAL, THE ATTORNEY GENERAL, THE STATE PURCHASING OFFICE OR ANY AGENCY DOING BUSINESS UNDER THIS CONTRACT.

23. ADVERTISING:

CONTRACTOR SHALL NOT ADVERTISE OR PUBLISH INFORMATION CONCERNING THIS CONTRACT, WITHOUT PRIOR WRITTEN CONSENT OF THE STATE. THE STATE SHALL NOT UNREASONABLY WITHHOLD PERMISSION.



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24. **RIGHT TO INSPECT PLANT:**
THE STATE MAY, AT REASONABLE TIMES, AND AT THE STATE'S EXPENSE, INSPECT THE PLANT OR PLACE OF BUSINESS OF A CONTRACTOR OR SUBCONTRACTOR WHICH IS RELATED TO THE PERFORMANCE OF ANY CONTRACT AS AWARDED OR TO BE AWARDED, IN ACCORDANCE WITH A.R.S. § 41-2547.
25. **INSPECTION:**
ALL MATERIAL, SERVICE OR CONSTRUCTION ARE SUBJECT TO FINAL INSPECTION AND ACCEPTANCE BY THE STATE. MATERIAL, SERVICE OR CONSTRUCTION FAILING TO CONFORM TO THE SPECIFICATIONS OF THIS CONTRACT SHALL BE HELD AT CONTRACTOR'S RISK AND MAY BE RETURNED TO THE CONTRACTOR. IF SO RETURNED, ALL COSTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. COMPLIANCE SHALL CONFORM TO THE CANCELLATION CLAUSE SET FORTH IN THIS DOCUMENT.
26. **EXCLUSIVE POSSESSION**
ALL SERVICES, INFORMATION, COMPUTER PROGRAM ELEMENTS, REPORTS AND OTHER DELIVERABLES WHICH MAY BE CREATED UNDER THIS CONTRACT ARE THE SOLE PROPERTY OF THE STATE OF ARIZONA AND SHALL NOT BE USED OR RELEASED BY THE CONTRACTOR OR ANY OTHER PERSON EXCEPT WITH PRIOR WRITTEN PERMISSION OF THE STATE.
27. **TITLE AND RISK OF LOSS:**
THE TITLE AND RISK OF LOSS OF MATERIAL OR SERVICE SHALL NOT PASS TO THE STATE UNTIL THE STATE ACTUALLY RECEIVES THE MATERIAL OR SERVICE AT THE POINT OF DELIVERY, UNLESS OTHERWISE PROVIDED WITHIN THIS CONTRACT.
28. **NO REPLACEMENT OF DEFECTIVE TENDER:**
EVERY TENDER OF MATERIALS MUST FULLY COMPLY WITH ALL PROVISIONS OF THIS CONTRACT. IF A TENDER IS MADE WHICH DOES NOT FULLY CONFORM, THIS SHALL CONSTITUTE A BREACH AND CONTRACTOR SHALL NOT HAVE THE RIGHT TO SUBSTITUTE A CONFORMING TENDER. COMPLIANCE SHALL CONFORM TO THE CANCELLATION CLAUSE SET FORTH WITHIN THIS DOCUMENT.
29. **DEFAULT IN ONE INSTALLMENT TO CONSTITUTE TOTAL BREACH:**
CONTRACTOR SHALL DELIVER CONFORMING MATERIALS IN EACH INSTALLMENT OR LOT OF THIS CONTRACT AND MAY NOT SUBSTITUTE NONCONFORMING MATERIALS. DELIVERY OF NONCONFORMING MATERIALS OR A DEFAULT OF ANY NATURE, AT THE OPTION OF THE STATE, SHALL CONSTITUTE A BREACH OF THE CONTRACT AS A WHOLE. COMPLIANCE SHALL CONFORM TO THE CANCELLATION CLAUSE SET FORTH WITHIN THIS DOCUMENT.
30. **SHIPMENT UNDER RESERVATION PROHIBITED:**
CONTRACTOR IS NOT AUTHORIZED TO SHIP MATERIALS UNDER RESERVATION AND NO TENDER OF A BILL OF LADING SHALL OPERATE AS A TENDER OF THE MATERIALS. COMPLIANCE SHALL CONFORM TO THE CANCELLATION CLAUSE SET FORTH WITHIN THIS DOCUMENT.
31. **LIENS:**
ALL GOODS, SERVICES AND OTHER DELIVERABLES SUPPLIED TO THE STATE UNDER THIS CONTRACT SHALL BE FREE OF ALL LIENS OTHER THAN THE SECURITY INTEREST HELD BY THE CONTRACTOR UNTIL PAYMENT IN FULL IS MADE BY THE STATE. UPON REQUEST OF THE STATE, THE CONTRACTOR SHALL PROVIDE A FORMAL RELEASE OF ALL LIENS.
32. **PAYMENT:**
A SEPARATE INVOICE SHALL BE ISSUED FOR EACH SHIPMENT OF MATERIAL OR SERVICE PERFORMED, AND NO PAYMENT SHALL BE ISSUED PRIOR TO RECEIPT OF MATERIAL, SERVICE OR CONSTRUCTION AND CORRECT INVOICE. PAYMENT SHALL BE SUBJECT TO THE PROVISIONS OF TITLE 35 OF THE ARIZONA REVISED STATUTES.
33. **LICENSES:**
CONTRACTOR SHALL MAINTAIN IN CURRENT STATUS ALL FEDERAL, STATE, AND LOCAL LICENSES AND PERMITS REQUIRED FOR THE OPERATION OF THE BUSINESS CONDUCTED BY THE CONTRACTOR AS APPLICABLE TO THIS CONTRACT.
34. **PREPARATION OF SPECIFICATIONS BY PERSONS OTHER THAN STATE PERSONNEL:**
ALL SPECIFICATIONS SHALL SEEK TO PROMOTE OVERALL ECONOMY FOR THE PURPOSES INTENDED AND ENCOURAGE COMPETITION AND NOT BE UNDULY RESTRICTIVE IN SATISFYING THE STATE'S NEEDS IN ACCORDANCE WITH A.R.S. CHAPTER 23, ARTICLE 4. NO PERSON PREPARING SPECIFICATIONS SHALL RECEIVE ANY DIRECT OR INDIRECT BENEFIT FROM THE UTILIZATION OF SPECIFICATIONS, OTHER THAN FEES PAID FOR THE PREPARATION OF SPECIFICATIONS (A.C.R.R. R2-7-411).
35. **COST OF BID PREPARATION:**
THE STATE SHALL NOT REIMBURSE THE COST OF DEVELOPING, PRESENTING OR PROVIDING ANY RESPONSE TO THIS SOLICITATION. OFFERS SUBMITTED FOR CONSIDERATION SHOULD BE PREPARED SIMPLY AND ECONOMICALLY, PROVIDING ADEQUATE INFORMATION IN A STRAIGHTFORWARD AND CONCISE MANNER.
36. **PUBLIC RECORD:**
ALL BIDS SUBMITTED IN RESPONSE TO THIS INVITATION SHALL BECOME THE PROPERTY OF THE STATE AND SHALL BECOME A MATTER OF PUBLIC RECORD AVAILABLE FOR REVIEW, SUBSEQUENT TO THE AWARD NOTIFICATION, AS PROVIDED FOR BY THE ARIZONA PROCUREMENT CODE.



Appendix C

ARIZONA STATE LEGISLATURE

Interim Meeting Notice

Open to the Public

**JOINT INTERIM STUDY COMMITTEE ON
THE NAFTA DATA LINK SYSTEM**

DATE: Monday, December 18, 1995

TIME: 1:00 p.m.

PLACE: Senate Hearing Room 2

AGENDA

1. Call to order
2. Review of the charge of the committee
3. Review of the awarding of the NAFTA data link contract
4. Report from the data link consultant
5. Public testimony and discussion of the report
6. Recommendations
7. Other business
8. Adjourn

Charlotte Frederick, Chairman

MEMBERS:

Senator Bee (ex-officio)
Merle Baptiste
Carol Colombo
Jack Haenichen
Joe Kennedy

Representative Conner (ex-officio)
Ken Reuben
Mark Spencer
Trey Whiting
Charlotte Frederick, Chairman

cl

12/12/95

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ARIZONA STATE LEGISLATURE
JOINT INTERIM STUDY COMMITTEE ON
THE NAFTA DATA LINK SYSTEM

Minutes of Meeting
Monday, December 18, 1995 - 1:00 p.m.
Senate Hearing Room 2

Members Present

Carol Colombo
Jack Haenichen
Joe Kennedy
Ken Reuben
Charlotte Frederick, Chairman

Staff

Teri Grier, House
Debbie Johnston, Senate

Members Absent

Senator Bee (ex-officio)
Representative Conner (ex-officio)
Merle Baptiste
Mark Spencer
Trey Whiting

The meeting was called to order at 1:20 p.m. by Chairman Frederick and attendance was noted. See attached sheet for other attendees.

REVIEW OF THE CHARGE OF THE COMMITTEE

Teri Grier, House Research Analyst, explained the Joint Interim Study Committee on the NAFTA data link system was established in Laws 1994, Chapter 193. The ten member committee was appointed by the President of the Senate, the Speaker of the House of Representatives and the Governor. Ms. Grier reviewed the duties of the Committee which is contained in a document entitled "Joint Interim Study Committee on the NAFTA Data Link System" (filed with original minutes).

REVIEW OF THE AWARDING OF THE NAFTA DATA LINK CONTRACT

Paul Berumen, Legislative Liaison for the Arizona Mexico Commission, explained a subcommittee had been established for writing the request for and the scope of the data link system. Bids were taken and a contract awarded to Pickard & Murphy Inc.

REPORT FROM THE DATA LINK CONSULTANT

Bill Pickard, President, Pickard & Murphy Inc., gave a brief overhead presentation to the Committee and distributed copies of the presentation to the members (filed with original

Paul Berumen stated support for the report and in favor of moving forward to promote the NAFTA DataLink.

RECOMMENDATIONS

Carol Colombo proposed the following recommendations:

- 1) Recommend that the Legislature make it a matter of State policy to participate and promote private sector efforts to enhance the dissemination of trade leads and trade related information through advanced information technology.
- 2) Specifically mandate that the Arizona Department of Commerce, the Arizona-Mexico Commission and the Governor's Office of Telecommunications Policy cooperate to the fullest extent of their authority to promote the creation of a private DataLink enterprise in the CANAMEX region and to establish the minimum requirements of the system.
- 3) Encourage the State Libraries to work with the Department of Commerce, the Arizona-Mexico Commission and the Governor's Office of Telecommunications Policy to create and maintain certain components of the DataLink system developed as part of the DataLink prototype.
- 4) Encourage other CANAMEX states to participate in the creation of the DataLink system.

Mr. Haenichen stressed the need for an additional appropriation to the Department of Commerce in order to cover costs associated with starting up DataLink.

Mr. Haenichen moved the recommendations made by Ms. Colombo. Motion CARRIED by voice vote.

Without objection, the meeting was adjourned at 2:15 p.m.

Respectfully submitted,



Arlene Seagraves, Committee Secretary

(Tapes on file in the Office of the Secretary of the Senate)



Appendix D

Final Report

DataLink: A Virtual Trade Network

A Project of the CANAMEX Corridor

"Let 1,000 flowers bloom - and hook them all up to the Internet"

Pickard & Murphy, Inc.

William Pickard, Preston Hauck, Susan Golden, Scott Orange

November 15, 1995

Pickard & Murphy, Inc.

3213 East Alder Street
Seattle, Washington 98122-6314
(206) 323-5979 FAX (206) 860-4877
Internet: bpickard@Pickard-Murphy.com

November 15, 1995

Margie A. Emmermann
Policy Advisor for Mexico
Office of the Governor
State Capitol Building
1700 West Washington
Phoenix, Arizona 85007

Voice (602) 542-1345
FAX (602) 542-1411

Dear Ms. Emmermann,

We have completed the final draft document for the CANAMEX DataLink Project. The revisions suggested by the ATIC team have been incorporated, and the project is now complete.

Thank you again for engaging us to complete this project. We enjoyed doing the work and meeting the people, and we are very pleased with the final result.

If you have any questions, please do not hesitate to call Rob Gilmore or me.

Warm Regards,

William Pickard, Jr.
President

Enclosure

Final Report

DataLink: A Virtual Trade Network

A Project of the CANAMEX Corridor

"Let 1,000 flowers bloom - and hook them all up to the Internet"

Pickard & Murphy, Inc.

William Pickard, Preston Hauck, Susan Golden, Scott Orange

November 15, 1995

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1. EXECUTIVE SUMMARY

1.1 BACKGROUND

With the advent of NAFTA, Arizona State officials determined that there might be significant advantages to be had from making aggressive use of on-line technology to create and exploit international trade opportunities. The Arizona legislature appropriated funds to study the feasibility of developing an on-line information service (DataLink) to link trade and investment related databases that could support trade throughout the CANAMEX Trade Corridor (which includes the provinces of British Columbia, and Alberta, and the states of Washington, Oregon, Montana, Idaho, Utah, Nevada, Arizona, Sonora, Sinaloa, Baja California, Jalisco, and Nayarit.) This investment was approved because many people believe that an electronic trade enhancement system could be used to increase trade flows within the CANAMEX region by enhancing the availability and access of trade related information. This study bears out this belief.

In June of 1995, the Pacific Northwest Economic Region (PNWER) and its primary subcontractor, Pickard & Murphy, Inc. was selected through a competitive process to complete the study and publish its results. In addition, PNWER agreed to develop a working prototype of the system as part of the feasibility study to demonstrate certain aspects of how the concept might function. The purpose of the study is to provide guidance to the legislature through the office of Telecommunications Policy and support groups such as ATIC. This document is the Executive Summary of that study.

1.2 DATALINK DEFINITION

Our primary emphasis in this report is on DataLink as a trade development system. In the RFP, DataLink was envisioned as both a system and a specification for other systems, as well as an organization. This report lays out possible options for the organization, but after reviewing our findings, the consensus of the ATIC advisory committee is that the organizational elements of this report should be de-emphasized, and the private sector encouraged to develop the necessary systems on their own. Existing State and Local Government organizations such as the Arizona Department of Commerce or the State Library system could take on the evangelism functions we recommend with regard to the adoption of system specifications for private sector providers, and for the adoption of electronic communications in general.

The DataLink trade development system focus should solely on the facilitation of trade through the discovery, cataloging, and routing of trade related information such as trade leads and databases about companies, government agencies, and industry focused associations. It is more than just a fax-back trade leads distribution system. It is a communication system that can be used by State agencies and private sector firms to communicate interactively with Arizona businesses for many purposes. One of its primary purposes would be the distribution of content like trade leads through a variety of methods. These methods would include fax, voice mail, physical mail, and the various elements of the Internet.

DataLink is not designed to be a system for providing value added services such as customs forms processing, etc., but instead is a vehicle for assisting the providers of those services to notify would-be customers of their existence, products, and services.

The intended users of the DataLink System are primarily members of the private sector business community throughout the CANAMEX trade corridor and worldwide. Arizona State funding would be limited to building the Arizona State databases. Other states would build their own.

1.3 PROJECT SCOPE & APPROACH

To complete the study, the team traveled to Mexico with Carol Colombo as a liaison from Governor Symington's office to conduct the research necessary to understand the overall system requirements, and make recommendations for a system, policies, and procedures that would work across a broad spectrum of users in diverse geographic locations. We also conducted over 100 telephone interviews, and attended meetings with Arizona firms, committees, and officials, in Phoenix and Tucson.

We also researched a wide variety of databases and other on-line sources to collect the information presented here on trade related data sources and on-line technology and trends.

Finally, we built a working prototype of the DataLink system. The prototype includes two elements: a WWW page containing the results of some of our research into trade related data sources, and an operating, fax-based trade lead distribution system. Approximately 500 Arizona, Mexican, and Canadian firms are now receiving trade leads targeted to their specific interests through the pilot program.

We divided the work into three major analysis tracks: user requirements, existing data sources and trends, and technology requirements. Comments on early drafts of the study have been useful in focusing the final product.

The final product includes:

- an analysis of business user issues, data or content issues, service issues, technical issues, and financial or business issues relating to the development of DataLink.
- a technical description of the proposed system
- a cost of ownership model for the proposed system
- a working prototype of phase I of that system
- a number of appendices providing detailed support for the findings, conclusions, and recommendations of the study.

All of these materials can be found on the Internet at:

<ftp://ftp.halcyon.com/local/pickard/CANAMEX>

1.4 SUMMARY OF CONCLUSIONS

Based on our study, we have come to the conclusion that there is a market for trade related information and support services that a service such as DataLink can fill, provided they can be easily shown to provide a direct and timely benefit to the businesses they are designed to serve. While other types of services such as collections of links, and information may be useful and advertisers may find them to be worth supporting, few if any businesses will pay money to access that kind of content. Therefore we believe that a trade lead distribution system, such as the CATALIST prototype developed and piloted for Arizona as part of this project, would provide Arizona companies and others with access to it with a significant competitive advantage in developing business. An initiative that is begun in the public sector with private sector involvement is an appropriate vehicle to jump-start the project. Other conclusions include:

1.4.1 *Mission & Focus*

DataLink's focus should be solely on the facilitation of trade through the discovery, cataloging, and routing of trade related information such as trade leads and databases about companies, government agencies, and industry focused associations.

DataLink should not get into the business of providing value added services such as customs forms processing, etc., but instead should encourage the private sector to create those types of services.

1.4.2 *Financial*

It will cost very little for the State of Arizona to capitalize on the recommendations included in this report, and the benefits can be considerable. Capital and operating funds of approximately \$3MM would be required to develop the entire infrastructure requested by the RFP and described in this report. However, we must stress that most if not all of these funds will be provided by the private sector, and the key parts of the system already exist.

The highest priority item, the trade leads distribution system, has essentially already built by PNWER and it is operating and providing trade leads to Arizona companies now. Early reports are very positive. In addition, this same system is also serving a sample of Sonoran firms as well. To roll it out Statewide - in both Sonora and Arizona, it needs only the addition of A) an enhanced database of target lead receiving companies (with a focus on the key clusters), and B) additional work on developing enhanced sources of trade leads for those companies. Based on the CATALIST work in developing its own database, we believe this work can be accomplished for approximately \$45,000 to \$120,000 depending upon the number of companies included in the State database or target recipients.

No "canned" databases exist that can meet the need identified without a good deal of maintenance. Raw data from firms like Dun & Bradstreet can be acquired for approximately \$.35 per record, but commercial databases like these come with only 4 digit

classification codes, and approximately 35% to 40% of such data is incomplete or incorrect. To work correctly the database should have at least an 8 digit classification code, as well as relevant key words, and harmonized tariff codes if possible. A trade leads provider would need to develop and code an accurate Company database, and then line up relevant leads to match up with the profiles of the selected firms. Given Arizona's desire for closer relationships with Alberta and Sonora, for example, content from these two locations would be a high priority as well, and it will need to be developed.

The construction of DataLink should be executed by private sector firms with a financial stake in a successful outcome. Any State funding should be targeted at assisting in the rapid development of the database, and in underwriting the initial distribution of summary lead information to companies. This would fall under the "evangelism" and education initiatives discussed elsewhere in this report.

Users will pay for information if it is perceived to add value to their businesses. Smaller businesses are more skeptical than larger businesses, and qualified trade leads are the most useful information. By distributing the initial lead summaries at no charge to smaller companies, they can see the value of possibly paying for a complete package.

The scope of this report did not include detailed market research as to the amount companies would be willing to pay for leads in terms of subscription prices, transaction costs or other information. We do have anecdotal data however regarding the Open Bidding System (OBS) in Canada, a new venture sponsored by Dun & Bradstreet known as IBEX, as well as a market research report from a Seattle based advertising firm, Parallel Communications, that develops strategies for services such as Prodigy and the Microsoft Network. The OBS charges a fee of \$300+ per year, plus connection charges, plus download fees. IBEX also has a subscription fee of \$250 per year, plus transaction fees for every lead sent, plus a percentage of the gross of any deals consummated. Parallel, in a confidential report to their client who shared the conclusion with us, believes that lead distribution services such as those envisioned for DataLink could easily command subscription fees of \$400 to \$500 per year.

Thus, there are a number of revenue producing or cost sharing strategies available to the developers of DataLink. These include fees for on-demand information, subscriptions for the receipt of trade leads, on-line advertising, and several others. An ATIC committee is studying the market for such a system in Arizona, and will be providing the Governor's Telecommunications Taskforce with its results concurrently with the publication of this report. This information should be included in the RFP that solicits bidders from the private sector to develop the DataLink trade leads distribution system.

1.4.3 Organizational

Because of the virtual nature of an information network, if the concept is successful over time the CANAMEX borders will expand geographically. For this reason the organizational structure must remain flexible enough to accommodate growth, but the mission must remain focused so that investment and energy are directed in the most productive directions. For the same reasons, the technology employed must remain close

to the open, standards-based trends supporting the growth of the Internet.

DataLink should advocate the development of Industry Information Centers. In so far as possible, these centers should be developed and staffed by personnel from the Trade Associations or similar groups, or by existing libraries and library personnel through a competitive process.

DataLink should not become a centralized repository of information, but rather an on-line and staffed information service designed to direct users to existing repositories of information that are maintained by separate, independent groups with the budget, time, and motivation to maintain them.

DataLink should, in particular, cooperate with trade associations. By working through industry specific groups such as the GSPED clusters, more focused and valuable information will flow to businesses that need it.

If implemented as recommended here, the DataLink concept will drive the creation of both an organization and a system. The organization should remain small, and be modeled after a technology trade association.

This project should be moved forward rapidly by a small, full time staff, with a minimal investment in public funds. It should be kept inexpensive and market driven.

1.4.4 Governmental

Arizona will reap benefits from the DataLink investment by implementing it quickly, and working with Arizona companies to develop services and use the systems to gain a competitive advantage. In the coming (partially) virtual world, physical location will be less important than an understanding of how the information infrastructure can be engineered into a company's operations to improve customer service, increase speed to market, lower costs, and enable new, previously unexploited products and services.

The role for the State of Arizona is as an advocate for the adoption by all Arizona businesses of on-line communication as best represented by Internet e-mail and the World Wide Web. The legislature should make all Arizona government communications proactive through the maintenance of list servers, WWW servers and FAX servers. The state should encourage Internet access providers to implement remote-printer servers in every local calling area in the state.

1.4.5 Technical

The existing on-line infrastructure as offered by the typical Internet access provider is inadequate to support the growth of business transactions that will be generated by DataLink and similar systems. The successful provider will need an integrated telephone, Internet, and database infrastructure capable of supporting a high volume of transactions.

DataLink should be developed and operated by private sector contractors with a stake in

the success of the system, and it should be housed in a very high speed, reliable network operations center designed to accommodate the growth in on-line traffic that will occur over the next two years.

The centralized approach to database collection, maintenance and management will not work in the future. The worldwide growth in numbers of databases, database sizes, servers, and users precludes a centralized approach. A decentralized approach that places responsibility for content under the control of the creators and maintainers of content is the only practical method for keeping that content fresh and accurate.

The technologies employed by DataLink should be based on open standards. The study team concluded that the DataLink should make use of and aggressively advocate for others to use a distributed database searching, indexing, and sharing architecture that facilitates the use of remote servers, and automated information "brokers". We concluded that the Z39.50 protocol would be a superior implementation standard for this project.

The optimal "user interface" to the DataLink system is the interface preferred by individual users. The system must be capable of accommodating a diverse user base made up of users in Canada, the U.S., and Mexico, with different language requirements and different levels of technology. Interface technologies ranging from telephone, to fax, to dial-up terminal-host connections, to commercial on-line services, to the Internet must be accommodated.

Users, not service providers, should have the option of specifying how they wish to communicate with the system. Although many users could barely comprehend the proposed system or see its potential to improve their businesses, after discussing the system with them, most conclude that it makes sense for their business.

The system requires both proactive components (such as "narrowcast" fax or e-mail to deliver trade leads and other messages directly to businesses based on their profiles), and passive components such as on-line bulletin boards, WWW pages, or fax on demand systems that sit passively and rely on users to take the initiative to access them. Proactive distribution requires the maintenance of business profile databases, and accurate coding of leads based on standard business classification schemes to avoid distributing what might be perceived as unqualified leads or junk mail. The proactive fax component - while more costly to produce and operate - is the most effective way to reach "non-wired" businesses because it delivers useful information to them in a form they are comfortable with. Also, it simply arrives with no action required on their part.

Remote-Printer servers (e-mail to fax translation) are an important technology in bringing less sophisticated users into the on-line world, and equalizing the differences between rural and urban businesses relative to the use of on-line services.

The quality and reliability of much of the information found on-line is suspect. Much of the data is out of date, incorrect, or disorganized. Commercial services carry high prices, but may be better values. The best method of insuring cost effective, quality data, may be to create Industry Information Centers within Trade Associations or other communities of

interest, and then link these together via the Internet, WWW, and Z39.50.

1.4.6 *Philosophical*

Let 1,000 flowers bloom - and hook them all up to the Internet. Some will die, some will mutate into mighty oaks, some will just be flowers - but lots will happen.

By this we mean that the State should encourage experimentation, but stress adherence to communication standards. Encourage Arizona companies to "get wired", but give them economic and business reasons to do it - not hyper-fluff. The state should encourage competition between providers, avoid "exclusive deals" for content, and encourage deregulation in the telecommunications industry.

1.5 FINAL STEPS

The prototype lead distribution system will continue to operate at no further charge to the participants until December 31, 1995, and the WWW pages will be hosted on Pickard & Murphy's WWW site until that time.

2. RECOMMENDATIONS

We recommend the following course of action:

2.1 MISSION & FOCUS

The Arizona legislature should provide seed capital only for the development of the DataLink database within Arizona, and allow the bulk of the financing for any further initiatives to come from the private sector. The next phase should be initiated and organized by the private sector and managed by the private sector in the same way the GSPED efforts have been to date. We recommend that ATIC form a DataLink steering committee to manage the work in this area, and report to the governor and legislature on their progress. The scope of work of the next phase should include developing a detailed, profiled database of Arizona companies, so that the distribution of trade leads can continue on and expand from the pilot project. As part of this project, a contractor should be selected to carry out the proactive as well as passive distribution of trade opportunities and other information deemed to be important by the project committee. The other part of the scope of work should include a detailed marketing or "evangelism" plan to assist Arizona companies with recognizing and realizing the benefits of on-line communications and information.

The other elements described in this report should be included in an RFP process designed to select the database provider, but as this report points out, many private sector firms will provide most of the identified services on a fee or other basis anyway with little or no input from Arizona. What they need is encouragement or education about the existence of studies such as this one, and knowledge of existing demand. The focus of the RFP and the contractor should be limited to the facilitation of trade through the discovery, cataloging, and routing of trade related information such as trade leads and databases about companies, government agencies, and industry focused associations. The ATIC working committee dedicated to DataLink should focus on being an advocate for the adoption of on-line communication and commerce in Arizona. It can also inform other States and Provinces within the CANAMEX trade corridor of the benefits of DataLink, and influence them to extend the model to their territory as well.

As opportunities emerge for DataLink to expand its scope of services, those opportunities should be documented and publicized through DataLink so that they can be implemented by private sector firms in competition with one another.

In developing the plans for the implementation of DataLink, designers should establish specific policy goals to be achieved for the benefit of Arizona businesses. There should also be a periodic reporting mechanism, and review process established as part of the funding initiative.

In addition to providing seed capital to develop the initial DataLink databases, the legislature should support an aggressive program to integrate the use of on-line services into all aspects of government. Such a program should result in decreased costs, and an improved level of public service. This program should be used as a model, along with

successful private sector initiatives to promote the benefits of on-line information and electronic commerce. This last factor is a "hidden" benefit of the program. Through a proactive system tied to a detailed database, such as described in the report, the government sector can reach out quickly to its constituents and deliver information to them. Because the service would not be provided by the public sector but would instead deliver public information to the private sector, it could be done quickly and efficiently.

2.2 FINANCIAL

DataLink should be designed like any private sector venture to operate at a profit. While some services may be made available at low or no cost, in aggregate DataLink should be required to show an operating profit and reasonable return on investment by the third year of its operation. The State "seed" capital should be accounted for as if it were a venture capital investment, and if DataLink is sold to a private sector firm - as we expect it should be, then the State should receive an equity return as any other investor.

2.3 ORGANIZATIONAL

Adopt model B (below), and hire the Executive Director. Make the Director responsible for carrying out the next phase of the plan, including the recruitment of private sector partners, setting milestones, developing industry association contacts, recruiting volunteers, etc. Design the job to be as entrepreneurial as possible so that DataLink never develops the feel of a public agency. The director should be bilingual (English and Spanish), and an experienced technical organization person, with a track record for building coalitions, and raising money. The director should be comfortable with and have a good understanding of telecommunications, databases, and other forms of computing and on-line technology. The right person is more important than the right budget. If the budget roughed out here needs to be adjusted to hire the right manager, then it should be.

Recruit other CANAMEX states including Mexican states to participate in this process, share costs, and support the distributed architecture. Encourage private sector firms throughout the corridor to adopt this model, and link the systems together.

Build on the contacts established by this project team to expand Arizona's economic and business links in Mexico through the use of DataLink. Focus on developing relationships between trade associations and financial institutions, and building the electronic links between these groups.

2.4 TECHNICAL

Adopt the open standards, decentralized, Z39.50 flexible database model advocated here. Require that the NOC provider meet or exceed the technical specifications, and develop content storage and delivery systems for the physical DataLink system that enable all forms of interface described here including voice processing, fax-on-demand, narrowcast fax and e-mail, list servers, ftp, WWW, and other appropriate technologies. Find a partner who is open minded but knowledgeable about this approach, and willing to finance its development in return for a 5 year exclusive right to operate it on behalf of DataLink.

Require strict adherence to the distributed model so that the system remains open and accessible in the future. Use the exclusive access to all State content including State business leads (as OBS has done) to entice a provider.

Remote-printers are a distributed technology that allows e-mail messages to be converted into fax documents, and delivered to standard fax machines. We recommend the aggressive promotion of a state-wide installation of Remote-Printers through the legislature, appropriate regulatory bodies, and the Internet access provider community. We strongly recommend that the contract to develop DataLink be made contingent upon the provision of Remote-Printers statewide by the successful bidder.

Make trade leads, statistics, export, and marketing data the top priorities for system content. We also recommend that the successful bidder be required to provide a maintained set of WWW pages containing the types of links shown in the prototype DataLink WWW page we have developed.

Review the progress of the prototype in November. If businesses find value in the service, negotiate to keep it operating. Consider implementing a model in which the Part 1 leads are distributed at no charge as they are currently, but businesses pay a flat fee to receive the second, more detailed part.

Encourage trade associations to become collectors and keepers of industry-specific content, including extensive databases about their members, products, and services. Create incentives for them to expand their role in this area by reviewing state processes for maintaining databases. Make opportunities available to sub-contract out business database related work to the private sector, with priority going to trade associations.

3. END-USER ISSUES

The Datalink user survey was designed to investigate core issues involved in implementing Datalink, the state of Arizona's proposed electronic trade network that will provide information both to and from businesses throughout the CANAMEX Corridor.

In determining what form this system will take, much will depend on the users themselves: their willingness to embrace new technologies, ability to pay for information, and whether they would even find a trade network to be of any use.

As part of our investigation of these issues, the project team interviewed nearly 70 businesses, trade associations, and state departments of economic development to determine what is most important to potential users of Datalink. The companies surveyed were a mixture of small, mid-sized and large companies, evenly split between manufacturing and service industries. In addition, during four separate trips to Arizona and Mexico, we interviewed over 60 additional business executives, and officials from government offices at the State, Provincial, and Federal level. Finally, during the database and technical research tasks of the project we interviewed over 30 more businesses.

In selecting the companies to be interviewed, we focused on the GSPED cluster groups and groups listed in the Arizona-Mexico Commission Directory such as Bioindustry, Environmental Technology, High Technology, Minerals and Mining, Tourism & Experience, Transportation & Distribution, and Software. Approximately one-third of the companies surveyed are involved in higher-tech industries, therefore giving somewhat of a technology bias to our findings. While the sample size is small and not an "exact" representation of Arizona businesses, most of Arizona's key business clusters are represented. In addition, top executives in several trade associations completed the survey as a voice for their respective industries.

The primary results of the survey include:

3.1 SATISFACTION WITH CURRENT INFORMATION SOURCES

Nearly two-thirds of all companies surveyed claimed that there are key pieces of information crucial to the operation of their business that are either difficult to locate or are lacking altogether.

3.2 INFORMATION OF THE GREATEST USE TO COMPANIES

The top information needs of companies are 1) Statistics; 2) Export information; and 3) Marketing data and/or trade leads. Half of the respondents indicated this information would be used to increase the effectiveness of marketing and sales efforts, in turn generating additional revenue for the state.

3.3 USEFULNESS OF AN ELECTRONIC TRADE NETWORK

Two-thirds of respondents felt that a trade network would be of use to them in providing key information they currently lack in the operation of their businesses. 61% maintained that such information would help them solve their companies' most pressing problems.

3.4 PREFERRED METHOD OF ACCESSING INFORMATION

The Internet has succeeded in not only capturing the imagination of millions of computer users, but has quickly won converts to its use. More than half of the respondents said they would consider the Internet or an on-line service as the preferred way to access information on the Datalink system. This figure indicates a significantly higher level of use with the Internet and electronic networks than recent estimates based on the population at large by AT&T. This number also is supported by two independent studies, one completed by the Province of Alberta, Canada, and the other by the Morrison Institute of Arizona. Both these studies indicate that the penetration of modems¹ capable of supporting a DataLink type of network exist in over 80% of businesses. A majority of these businesses indicated a willingness to modify their internal processes to make use of on-line services to acquire business related information.

All things being equal 64% of respondents stated a preference for browsing and retrieving information themselves, rather than rely on it being sent periodically by fax or mail².

3.5 CURRENT EQUIPMENT USAGE

Although all companies interviewed have a fax machine, 56% use at least one on-line service, while 44% are current Internet users. This shows a widespread acceptance of electronic media, and given the advantages - ability to manipulate text, lower labor and overhead costs - could prove more effective than a system relying solely on fax delivery.

3.6 POTENTIAL FOR REVENUE GENERATION

The Datalink system has the potential to be a fully self-supporting entity. 83% of our sample indicated their willingness to pay for information they considered valuable in running their business. Although there are likely to be challenges in generating enough revenue to provide and maintain quality content, it is significant that the overwhelming majority of executives interviewed believe in the value of paying for information.

¹ Because of the content rich, graphical nature of the Internet and most commercial on-line services, it is strongly recommended that on-line users purchase modems rated at 14,400 BAUD or better. ISDN circuits would be even better for dial-up users. We assume that any business with a network of any size will acquire, at a minimum, a 56kbps Frame Relay circuit to connect their network to the Internet for at least e-mail exchange.

² CAVEAT: other studies have shown that the speed with which a user can search for and find useful information has a significant impact on the amount of time actually spent using on-line services. Slow connections, complex or confusing interfaces, poorly organized data, and poor quality data all have a significantly adverse effect on user preferences. A rising category of on-line publication is the personalized newsletter such as Individual Inc.'s "Heads Up" or KIRO Radio's daily NEWS FAX. Such services scan thousands of news articles and prepare a one page selection of abstracts based on a particular user's interests as indicated in a personal profile. The abstracts are sent via fax or e-mail each night.

3.7 ADDITIONAL FINDINGS

Besides identifying key issues in system use several other significant findings were reported:

3.7.1 *Awareness of SIC codes*

Of the companies interviewed, only 12-14% knew either their SIC codes or harmonized tariff codes for export. Fully 60% did not know their SIC code, a number which was separate from executives who knew their SIC code, but didn't happen to have the information at hand during the interview (20%). Several respondents, including representatives of trade associations and state departments of economic development, also confirmed that SIC codes were largely ineffective in classifying a business - even more so when distributing trade leads.

This finding is significant because several international consortiums are in the process of rolling out services that are based on four digit SIC codes. It has been our experience with other systems that four digits is insufficient for classifying businesses at a low enough level of detail. Truck manufacturers fall under one 4 digit SIC code, as do firms that build airplanes. To be useful, a prospective buyer needs to know what kind of trucks or airplanes a manufacturer makes. To get this level of detail, we found that a combination of 8 digit SIC codes, key words, and other sources such as harmonized tariff codes, and U.S. federal government procurement classification codes are required.

3.7.2 *Reliance on trade associations*

Half the firms interviewed belonged to between two and four trade associations, while 19% belonged to five or more associations. Most companies join trade associations in order to promote themselves in one form or another: more than half considered a function of their associations to be providing trade/networking opportunities (#1); while the promotion of membership (#3) and promotion of the industry as a whole were also important factors (#4). Trade associations vary among different industries, but it is clear that they provide a vital role to CANAMEX companies.

3.7.3 *Widespread acceptance of on-line services and the Internet*

Although it's a common perception that on-line services and the Internet are the wave of the future, many survey respondents have already begun to use both media today:: 56% use on-line services, while slightly less than half of all companies use the Internet. Although many companies indicate a preference for information by fax and Mexico's infrastructure does not yet support Internet usage on the same scale as the U.S., on-line media are clearly accepted to a greater degree than previously thought.

3.7.4 *Lack of trade leads*

At present only one out of four companies receives trade leads from government sources,

either at state or federal level. This finding, combined with a perceived lack of information and a need for more new business leads, represents an opportunity for Arizona (and possibly other states) to provide much-needed information to companies.

3.7.5 *Importance of word-of-mouth*

More commonly used than advertising and trade show exhibitions, the most popular form of lead generation among companies is word-of-mouth. The implementation of Datalink has potential to expand companies' contact universe even further.

3.7.6 *Important trading partners with Arizona companies*

(Given the small sample size of our survey, some leeway should be provided for the following finding.) While Arizona spends considerable effort increasing trade with Mexico, particularly Sonora, the three regions most frequently traded with by Arizona companies are Washington State, Nevada, and Oregon. This underscores the need for Datalink to be available to U.S. states, in addition to Mexico.

3.8 CONCLUSIONS

3.8.1 *User Perspective*

There are many issues to consider in deciding how to implement the Datalink system. From the user perspective, technology alone will provide a sufficient challenge for many businesses, as will determining the value that can be attributed to information that DataLink may provide. Many users had difficulty comprehending the scope or utility of the proposed system or how it might improve their businesses. Based on the positive responses we did receive however, we conclude that if a system like the proposed DataLink is properly designed, implemented, priced, and promoted, it will meet an existing need for business and trade related information. Furthermore, we can conclude that the feature set we have identified contains enough value that there is at least some revenue generation potential within the concept. Potential users appear to be willing to pay for good information and qualified trade leads.

The Open Bidding System (OBS) in Canada, Kansas Inc. system in the State of Kansas, and the numerous commercial database firms provide sufficient proof of the value of properly presented information. Research we have completed for CATALIST, plus the existence of the OBS, and the newly launched IBEX system from Dun & Bradstreet and others point to the specific market for qualified trade leads. Demand exists in all geographic regions of the CANAMEX corridor.

3.8.2 *Pricing*

We discussed pricing of content and services with prospective users. Based on the rather general description of the system we were able to offer, we got a mixed reaction. Most business people stated that they would be willing to pay for information that they found valuable to them in their business. Larger businesses are more used to paying for

information. Many smaller businesses would rather go without information than have to pay for it.

In general, qualified trade leads are perceived to have value. Their value would go up if the business decision maker was able to read an abstract about the lead (similar to the CATALIST 1st part notification) before making the decision to pay for it. The Canadian Open Bidding System experience is that qualified suppliers do not resist paying for tenders (procurement descriptions) because they know that the organizations making the offers to buy are qualified leads.

The IBEX system currently being rolled out by Dun & Bradstreet and the U.S. Chambers of Commerce among others, has chosen to pursue a relatively expensive, all-or-nothing model pricing model. As we understand it, they will charge businesses for leads sent whether or not the leads are of any use to the business. This would appear to run counter to what our research shows businesses are interested in.

General research and access to database information is more difficult to price. There are a large number of models to choose from. These range from the free information on the Internet and WWW pages, to expensive, professionally managed sources like DIALOG. Depending on who is doing the searching, different pricing models may be appropriate. Professional researchers do not object to paying higher fees if the information is well organized. Their time can be used more effectively. Inexperienced users will balk at high access fees for searching because they will take longer.

Content based fees are acceptable if the material can be viewed ahead of time. First Virtual Corporation has begun a service that allows content owners to deliver their content to holders of First Virtual accounts. The users would be able to browse the content, and then make a decision to buy. Other services will not allow browsing. This area is so broad ranging, that we reached the conclusion that content pricing should be left up to the owner of the content. The DataLink infrastructure and databases about databases should be flexible enough to accommodate a variety of schemes. Billing for content should probably be left up to the content owners - NOT DataLink.

Based on this analysis, we concluded that DataLink could charge for some form of membership, subscriptions to receive free abstracts of trade leads, full trade leads themselves, as well as a range of advertising services. The latter enable DataLink to not charge users at all for certain parts of the system. We discuss pricing more in the business model section of the report.

3.8.3 Benefits to Arizona Companies

3.8.3.1. Access to Trade Leads

If DataLink is implemented Arizona companies will have more access to business leads. DataLink management will work with multiple sources of leads to ensure a supply that can be delivered proactively by the lead forwarding part of Datalink. Certain industries such as Travel & Tourism depend heavily on this type of lead to fuel their business.

3.8.3.2. Access to better business information

Better information about the target market(s) or the competition will give companies an added advantage in the global marketplace. Better information will also result in better allocation of personnel and resources, better planning, and lower cost of sales - all contributing to lower prices.

3.8.3.3. Lower cost of information retrieval

The Datalink system should result in a lower cost of information retrieval from two perspectives: 1) Electronic information on a pay-as-you go basis saves time searching printed materials that could be better spent elsewhere; and 2) Competition between information providers should result in competitive pricing.

3.8.3.4. Faster access to required business information

63% of companies surveyed in our study indicated that there were key pieces of information for their business that were difficult to find or lacking.

3.8.3.5. Improve Quality of Sales & Marketing

Companies can open new markets, re-deploy their sales forces, or change their messages to markets once they have a better understanding of what is being demanded by their target market. Direct access to names, addresses, contacts, and descriptions about customers, suppliers, and competitors will sharpen overall focus.

3.8.4 Indirect benefits from companies' participation in Datalink:

3.8.4.1 Proactive Involvement From Industry Organizations

The involvement of trade associations in Datalink will improve communication between partners and competitors. Companies will find ways to work together on issues where they do not need to compete.

3.8.4.2 Embracing New Technologies

The use of Datalink will help leverage Arizona companies in other markets. It is believed that the benefits of the Internet and other on-line resources have given smaller companies a boost in terms of competitive advantage. Datalink should help smaller companies close the gap when bidding on work to be done, giving them a larger presence at a lower cost.

3.8.4.3 Better Planning With Better Information

The results of our User Survey show that a significant number of companies would improve their planning if they had access to better information. With Datalink, they will have access to much of the information needed to plan more effectively, including

customer leads, market research data, and regulatory information. This should help smaller companies with few resources to make the best of what they have available.

3.8.4.4 More Awareness Of International Trade Issues

Many smaller companies aren't used to operating in foreign markets. Datalink is a means through which they can seek out answers to questions about customs, export regulations, conditions in certain markets, cultural differences and other topics where good information is scarce. For companies used to operating internationally, Datalink would still be able to provide new business leads, and up-to-date information on regulations, taxes, and customs.

3.8.4.5 Improved Telecommunications Infrastructure

The focus on telecommunications and enhancing the Internet links in the corridor will begin in Arizona. Remote-Printers will accelerate the demand for Internet connections, and reduce the disparity between the urban and rural areas.

4. ON-LINE INFORMATION ISSUES

4.1 PROJECT SCOPE AND APPROACH TO DATABASE RESEARCH

One of the tasks within the CANAMEX DataLink project included compiling and evaluating sources of electronic information that could enhance a company's ability to conduct trade within the Western part of the U.S. and Canada, and in Mexico.

The sources of information we have investigated come in the form of databases found on the Internet or World Wide Web (WWW), or content provided by commercial on-line providers such as Dialog [800-334-2564] or LEXIS-NEXIS [800-543-6862]. They can also be located within a system such as the Open Bidding System in Ottawa, Canada, or the Oregon or Washington State *Marketplace* programs that are available as bulletin boards (BBS) or fax based systems.

The strategy for this project was to gather as many resources as possible within the time permitted, and review them to ensure that they would be relevant to the target audience. To do this a comprehensive search on the *Gale Directory of Databases* (carried by Knight-Ridder's Data-Star) was executed. This database contains descriptions of about 5,000 databases worldwide, including on-line databases and CD-ROMs. Each entry provides the database name, subject, producer name, on-line vendor, hardware and software requirements, time span, frequency of coverage, language and geographic coverage. A search of databases covering Mexico, Canada and the western region of the U.S. resulted in a report including hundreds of hits. The search arguments were then narrowed to include only subjects that were deemed by the researcher to be appropriate to this assignment, and separate lists were generated for the U.S., Canada, and Mexico. Those lists are appended to this document in Appendix 10.

Based on this research, plus interviews with over one hundred and sixty business people, content and services providers, and government officials, as well as "surfing" sessions using Internet based tools or repositories such as WAIS, Harvest, InfoSeek, Yahoo, Webcrawler, and Lycos, a "hot" list or "bookmark" list of interesting Internet sites has been developed as part of the prototype DataLink service. A copy of the list is attached in Appendix 8. This list is by no means comprehensive nor have sites been thoroughly evaluated. It is only a beginning, and it will be an ongoing job to make the list critical and comprehensive and to keep it current.

Wherever possible lists created by subject experts such as the National Law Center in Tucson, or the Latin American Trade Council of Oregon or Molly E. Molloy, a librarian and Latin America expert at the New Mexico State University Library have been included through "links". As noted elsewhere in this report, databases get old and out of date very quickly. Many simply cease to exist on-line, or are no longer maintained. For-profit, private sector groups with specific, identifiable constituencies that value access to timely, complete and accurate information and business librarians - provided their funding is secure and they remain in constant contact with their constituents³ - are more likely to

³ A number of research services provided by publicly funded libraries or university libraries have attempted to

maintain their lists and evaluate the quality of the information underlying them than individuals who may uncritically collect and publish electronic addresses or "uniform resource locators" (URLs).

The next phase of this project will require identifying and communicating with more subject experts and compiling and evaluating the Internet commercial on-line sites as they emerge. We have not undertaken to complete this task in this phase of the project, however this will be one of our recommendations for further action. More time could also be spent aggressively investigating "boutique" databases that may reside within government or academic organizations or trade associations.

4.2 DATABASES - USEFUL BUT LIMITED

4.2.1 *Diverse Needs*

The types of information needed by businesses engaged in trade - and particularly international trade - are as diverse as the companies themselves. This information falls into a variety of categories such as: business directories, demographic information, product catalogs, reports on industry trends, political or economic risk reports, marketing data, trade leads, culture, tourism, economics, regulations, export/import, legislation, laws, current events, etc.

As part of this project we spent a good deal of time culling and qualifying databases to increase the probability that those we discuss here and include in the prototype database collection are in fact useful to businesses involved in trade. Thousands of information resources exist that could support this initiative — some excellent, some acceptable, and some worthless. Of these, a large percentage (especially on the Internet) are "under construction" — which means that the creators may have good ideas but the ideas or the site to support them are still in the development stages. These resources can emerge and disappear and then suddenly reappear with alarming speed. The continuing existence of such sites is based on factors such as capital funding, operator expertise, and the motivation of the staff developing and maintaining the content on the site. Many Internet sites today are the result of the efforts of a single individual who may simply collect links and publish them on a page. Little or no maintenance is planned or carried out, and little or no qualification of the quality of the information displayed or the credentials of the author is attempted. This is true not only of databases supplied by individuals, but also databases such as those offered intermittently by U.S. federal agencies such as the U.S. Patent Office or the Securities and Exchange Commission (SEC).

On-line databases that reside with commercial vendors are often more consistent and

provide fee for service based research for (usually) local business or for specific types of industries such as Environmental Consulting. The history of these efforts has been disappointing. Personnel involved with several of these less successful initiatives list a number of reasons for their failure to achieve their goals including: lack of face to face contact with constituents; an overly "academic" orientation stemming from the attempt to "graft" a for-profit business on to what is essentially a not-for-profit, academic institution; lack of adequate funding; insufficient resources to provide timely "turn-around"; lack of sufficient industry specific expertise on the part of the research librarians involved; and internal politics.

robust (but expensive). However, they too have their quality failings and from time to time may require updating or repair. A case that illustrates this is the formerly excellent Canadian information source, *Kompass Canada*, that, although it is no longer updated, is still listed in Dialog as an "active" listing.

These databases can be exclusive to one vendor for years, as the *New York Times* was through LEXIS-NEXIS or can appear on a number of different systems as does the management database, *ABI/Inform*. Furthermore a collection of databases can be fully available at one site but only partially available at another. Dialog takes portions of the content of their popular business files and makes them available in the *Knowledge Index* that can be searched through Compuserve. The search capabilities on Compuserve are rudimentary compared to Dialog and the hours for searching are also restricted — but otherwise, for the novice business searcher, it can be an accessible bargain.

The cost of accessing electronic information has been steadily decreasing, but - depending on the source - it can still cost a good deal. For years the commercial vendors were the exclusive providers of this type of data and they charged accordingly. They were (and still are) very expensive, but for good reasons including: quality, reliability, completeness, and relative ease of navigation (after an appropriate learning curve for the researcher). The following anecdote is indicative of why a well maintained commercial service may well be worth the price charged for it.

A few years ago a group of environmental lawyers requested research to track "everything that was known" about ground water contamination in the U.S. — from 1908 to 1990! On-line databases, especially in the scientific arena, came into being approximately in the mid-1970s. So, for the years covering 1975 to 1990, it was possible to sit at a computer and in the course of a few hours download citations to most of what had been published on the subject during that fifteen year time span. To only partially cover the period from 1908 to 1974, however, it took six weeks of time by a professional researcher assisted by two graduate students. The work was done by combing the dusty print indexes at the University of Washington, locating the trade journals, reading the articles, writing abstracts and creating a new "on-line" database for the attorneys. Had the information been available on-line, a few "expensive" hours spent on-line with a commercial information provider would have been a bargain in terms of both time required to deliver the information and personnel resources required to develop the analysis from scratch. Because of the time required to catalog and digitize the work, it is unlikely that a free WWW site would ever be constructed to support this kind of source material.

Since the emergence of the Internet and the increasing popularity of companies like Compuserve, America On-line, and the looming Microsoft Network the commercial vendors have had to become more competitive in pricing their services. Consequently, the costs of these services have been steadily decreasing. Dialog has announced two major price adjustments within the past year or so, and its pricing system will change again this Fall. Small users pay higher rates because of their comparatively low usage volume of these services. A large corporation can negotiate far more favorable rates and thus might choose one vendor over another depending on the price reductions they receive. Trade Associations - because they can aggregate the volume of many smaller members - can also

negotiate successfully for reduced rates. Industry Information Centers, discussed elsewhere in this report, are rapidly becoming a valuable resource for members who want access to information, but lack the time, funds, and skills necessary to do extensive searches themselves.

For the most part, Internet resources remain free of charge — but some excellent ones like the *National Trade Data Bank* are charging a modest amount. The U.S. government has agreed to make the complete *EDGAR* (Electronic Data Gathering Analysis and Retrieval) files available free on the Internet — with only a 24 hour delay after filing. It is hoped that the U.S. Patent Office will soon follow suit, but they have been balking thus far. Since many Internet sites are in the free beta test mode, charging for access to certain Web sites may become more prevalent as these sites move into production. Business models and charging schemes are discussed in greater detail in the Business Model section of this report.

Finally, as evidenced by the story above, it is not possible to gather all information *electronically*. Just as some *time periods* are not covered under the scope of information available on-line, some *industries* are not covered well in this medium. For example, there is very little information on-line anywhere about the truck manufacturing industry. The best "electronic" source of information for this industry is a privately created database within the PACCAR Technical Center corporate library and is not publicly available. (Among other things, PACCAR manufacturers Kenworth and Peterbilt trucks). On the other hand, there are numerous sources of electronic information available on the computer industry — but when it comes to market projections, there is little published that is current or relevant except expensive market research reports. Unless a company can afford to buy these research reports, often priced in the five figures, they must extrapolate the data from dated, secondary, sources.

4.2.2 *The Quality Of Information*

As we are all too aware in this age of information overload, quality is not synonymous with quantity. An on-line database or Internet site or book or newspaper, market research report or trade publication is only as good as its content.

Leonard Fuld, author of *The New Competitor Intelligence*⁴ warns that "corruption of the business information food chain often begins at the fact gathering stage and quietly works its way up to the board room... Faulty information generates poor decisions, that in turn can cost a company its market." This of course is especially true when doing business across borders where accuracy of information (and clear communication) is so vital to success. Fuld goes on to say that "Once inside a company, bad data can corrupt the decision making process."⁵

All on-line services, but particularly large services that attempt to maintain extensive

⁴ Fuld, Leonard M. , *The New Competitor Intelligence : The Complete Resource for Finding, Analyzing, and Using Information About Your Competitors*. John Wiley & Sons. 1994.

⁵ Ibid

databases of information about products, companies, or any other domain with a high degree of information volatility, have a data maintenance problem that is very difficult to solve. Data acquisition and maintenance is one of the larger expenses of large firms such as Dun & Bradstreet (D&B), which maintains financial and demographic records on hundreds of thousands of companies, or Ziff-Davis, the magazine and database publisher that focuses on technology products.

While D&B does receive some creditor supplied payment history information, they get the majority of their financial information on non public companies by calling the companies and asking for it. They also make use of unverified secondary information such as mailing lists. Because of this practice, a business can appear to be larger or more solvent than it truly is, or it can be classified incorrectly as to what it makes or does, or it can be made to appear to exist - when in fact it has ceased or materially changed its operations years before. Ziff-Davis' problem is magnified because of the high rate of innovation and turn-over in the computing industry. Many products - or versions of products - have very short half-lives. It is very difficult to keep pace with the rate of new information and changes to old information being released by the manufacturers.

Fuld rightly warns that on-line databases have escalated the availability (and mass reproduction) of faulty data. "On-line data today represent almost nine billion records world-wide, with much of the information overlapping and much of it uncorroborated. Once an article appears in a respected business magazine or newspapers, it is likely to be absorbed by scores of databases. Any errors it contains find their way into dozens of references. "

He has also discovered that people evaluate the accuracy of data inappropriately. Through tests he has shown that corporate executives will believe data that comes to them from outside sources while simultaneously discounting information that comes from within their own organization — even if both pieces of information are the same. His conclusion is that "an expert is anyone living more than 100 miles away from a company".

Fuld recommends rating the validity of data with a 3 point rating code, based on identifying (and communicating) with the original source of the data: a #1 rating requires the person to offer at least 2 sources for the information; #2 requires at least one source and requires further verification; and #3 is given to rumors with no sources attached. (There used to be a Mergers & Acquisitions file in Dialog that had a "rumor" event code!).

Information distributed on-line can cause tremendous harm with incredible speed. Recently the major news magazines, talk radio shows, and the popular broadcast media were full of stories about how much of the Internet was taken up by pornography. A graduate student at Carnegie-Mellon University had prepared a "research" report on this subject, and then vigorously promoted it. The essence of the report was that the Internet was a veritable sewer, filled with filthy pictures and bad language. The media uncritically accepted the story and printed it without giving it the scrutiny it deserved. Imagine their chagrin when, almost instantly, qualified academic critics began to systematically dismantle every aspect of the report. In the end, the entire document and the student were discredited, but even now, months later, legislators and laymen, including powerful policy

makers all over the world are convinced that the Internet is in fact a sewer. This is a case of bad data receiving credibility it did not deserve and causing lasting damage. "My mind is made up. Don't confuse me with the facts."

Imagine the damage a seemingly credible rumor could cause to a volatile company's stock price, or the mischief that a clever writer could cause by planting disinformation disguised to look like "news" stories in places where market researchers might look for intelligence.

4.3 GLOBAL INFORMATION SOURCES

There are a number of on-line databases that are global in coverage and are important to search for information on the United States, Canada and Mexico. Most are carried by the major on-line vendors such as Dialog, Dow-Jones News Retrieval, LEXIS-NEXIS, Data-Star or Datatimes. The file numbers listed after each database name refer to Dialog's databases.

- *Findex* (File 196) — is a directory of industry and market research reports, studies, and surveys commercially available from the U.S. and international publishers as well as reports produced by investment firms covering individual companies and industries. The purchase price of the report is also included. It is reloaded quarterly.
- *Textline Global News* (File 799) — *Textline* provides full-text and abstracted articles from hundreds of international and regional newspapers, magazines, trade journals and news wires. *Textline* can be used to find news about a particular industry or company, an analysis of the economic climate of a country for the launch of a new product, identifying venture and risk capital opportunities in emerging economies, studying a corporation's financial and marketing activities or obtaining biographical information on leading international figures. *Textline* offers sophisticated, detailed indexing of each record by country, region, industry and by over 300 event codes. This is a unique feature for what is basically a news wire, thus it is extremely effective for searching broad, multi-concept subjects such as mergers and takeovers in the Mexican hotel industry. The coverage for the full file is 1980 to the present, and it is a full-text file that is updated daily.

The Information Access company is a distributor of some excellent, full-text on-line databases for local and international business research. They produce PTS Promt, the PTS Newsletter Database and the Trade and Industry Database, among others.

- *PTS PROMT* (File 16) — *PROMT* (Predicasts Overview of Markets and Technologies) is a multi-industry database that provides broad international coverage of companies, products, markets and applied technologies for all industries. *PROMT* is comprised of abstracts and full-text records from more than 1,000 of the world's important business publications, including: trade journals, local newspapers and regional business publications, national and international business newspapers, trade and business newsletters, research studies, SEC registration statements, investment analysts' reports, corporate news releases and corporate annual reports. It too has a detailed classification system that includes industry and

event codes. *PROMT* is updated daily and is retrospective to 1972.

- *Newsletter Database* (File 636) — another Predicasts publication, contains the full text of articles from over 500 business and trade newsletters covering nearly 50 industries, subject areas, and eco-political regions. Titles from more than 100 worldwide publishers provide Newsletter Database with important information on company activities, new products and technologies, changing market conditions, and government policies, as well as expert projections, analyses, and commentaries on market events, industry issues and business trends. It spans 1988 to the present, is full-text, and is updated daily.
- *Trade & Industry Database* (File 148) — is very similar in scope to *PROMT*, providing indexing, abstracting and much complete-text of over 300 trade and industry journals, as well as comprehensive but selective coverage of business and trade information from nearly 1,200 additional publications. This database provides current and comprehensive coverage of major trade journals and industry-related periodicals representing all Standard Industrial Classifications. The file is updated weekly, but daily updates can be found in Newsearch (File 211).

Other Information Access files of interest are *Predicasts Forecasts—International* (File 83) and *Predicasts Forecasts—U.S.* (File 81). They contain abstracts of published forecasts for the U.S. and all countries of the world. The files include projections on general economics, industries, specific products and end-use data. File 83 abstracts information from over 1,000 international source, including annual reports to foreign governments, statistical reports of industry and trade associations, publications of the United Nations, and other international agencies, bank letters, newspapers, and business and trade journals. Both files date back to 1971 and are updated monthly.

For data on imports and exports from U.S. ports, *PIERS Exports* (File 571) and *PIERS Imports* (File 573) are produced by the *Journal of Commerce* and are compilations of manifests of vessels loading or discharging cargo at U.S. continental seaports. 62 ports are covered in *PIERS Exports*, and 120 ports in *PIERS Imports*. Principal applications include: identification of new sources of supply for imports, monitoring imports of products whose details are lost in traditional government reports, and identification of potential trade partners. These databases are updated monthly on Dialog — or can be searched (for a fee) by the Journal of Commerce/PIERS offices in New York City. Many information providers at regional ports also have access to the relevant data for their region.

The National Trade Data Bank, produced by the U.S. Department of Commerce, and reached at the STAT-USA site on the Web, is a tremendous resource for U.S. businesses seeking international information. The following is a portion of the STAT-USA home page on the Web:

- *STAT-USA* — A division of the Economics and Statistics Administration of the U.S. Department of Commerce, is the Internet source for business and economic information produced by the Federal Government. STAT-USA gathers the most crucial, timely business and economic information from over 50 Federal agencies

and distributes this information from a central source.

A recipient of the 1994 Government Computer News Award for Excellence in the Application of Information Technology, it is leading the way in becoming the U.S. Government's premier Internet publisher of business, trade and economic information. If your business depends on up-to-date economic news and market intelligence, if you track the exchange rate for the Mexican peso, if you need Gross Domestic Product data, or if you are looking to break into new markets then you can't afford to miss STAT-USA/Internet.

With the breadth of an encyclopedia and timeliness of a daily newspaper: STAT-USA/Internet brings over 300,000 reports and statistical series (the equivalent of 7 sets of encyclopedias) right to your desk top, including press releases, trade leads, and reports that are released on a daily or weekly basis. STAT-USA/Internet data bases include:

- The National Trade Data Bank (NTDB) — one-stop shopping for export information that is critical to today's international businesses. The NTDB offers an abundance of export and trade related information, including export opportunities by industry, country and product; how-to-market guides; demographic, political, and socio-economic conditions in hundreds of countries; and much more.
- The National Economic, Social, and Environmental Data Bank (NESE-DB) — the definitive source of information on socio-economic programs and trends in the United States today. The NESE-DB provides in-depth coverage of economic trends, education, health issues, criminal justice, and the environment.⁶
- The Economic Bulletin Board — the source for economic and general business press releases, statistical series, and economic information files. On the EBB, you get late-breaking business developments minutes after they happen and in-depth analyses of markets, products, and economic trends.
- The Global Business Opportunities Service — an international procurement marketplace for U.S. businesses, providing billions of dollars in procurement opportunities from all over the world. GLOBUS brings together a variety of business opportunities to create a one-stop source for government-issued procurements. GLOBUS includes the Commerce Business Daily from the U.S. Department of Commerce and the Small Purchase Opportunities from the Defense Logistics Agency (DLA)
- Bureau of Economic Analysis — this site provides access to BEA's news releases, to Survey of Current Business issues, and to detailed data files from BEA's national, regional, and international economic accounts. Included are the national income

⁶ The National Trade Data Bank can be searched, free-of-charge at the following gopher site: <gopher://sunny.stat-usa.gov:70/11/STAT-USA/NTDB> but the interface is not as user friendly as the Web site.

and product accounts (including GDP), composite indexes of leading indicators, personal income for states and local areas, the U.S. balance of payments, and much more.

Searching is made easy with Inquiry, a natural-language search and retrieval software that makes locating files as easy as "find me all reports about automobiles in Japan" or "I need total exports of household appliances, especially toasters." For guidance, STAT-USA/Internet offers an abundance of on-line help documentation, including a frequently asked questions (FAQs) listing and an e-mail form to contact us directly.

TRADE CD-ROM: CD-ROM San Mateo-based TRADE (Trade Reporting And Data Exchange) Inc.'s TRADE Intelligence CD-ROM is based on shipment documents submitted to US Customs. The company claims that the CD-ROM contains an as yet unexploited source of data on which companies are importing what goods, who they are buying them from, and how much they are purchasing. The company was set up three years ago, with Dun & Bradstreet among its backers, to collect Bills of Lading for all waterborne imports into the US. Among the more interesting pieces of information these documents contain are the exporter's full name and business address; the buyer's name and address; country of origin; description of packages and goods which, by law, must be 'clear and accurate'; gross weight; and the shipper's declared value. TRADE is one of two companies in the US licensed to collect such data under the Freedom of Information Act. It began work on electronic products last year.

"We see people using this information internationally," TRADE's Vance Ikezoye told us, "for sales leads, looking for companies that buy specific products or type of products. This information can provide as qualified a sales lead as you can get. If you are looking at a very specific product, you can see who is buying it internationally and who they are buying it from."

TRADE sees its biggest potential market has outside the USA: 'We are trying to increase our worldwide distribution because we believe the product is more attractive internationally than perhaps it is in the US,' said Mr. Ikezoye. 'In the US a lot of people use it for sourcing, looking for certain types of goods, whereas as internationally companies use the data to verify business opportunities. Most companies, we believe, are more interested in trying to find people to buy their products.'

Dun & Bradstreet's D&B WorldBase Branching out from its core financial information services, in 1996 Dun & Bradstreet is planning to offer what is said to be the world's largest company database on-line and on CD-ROM. *D&B WorldBase*, in testing now and to be launched in phases during the next year, will contain over 38 million records and detail over three million corporate links.

4.3.1 Mexico

Six years ago, one would have been hard pressed to find quality business reporting in the United States on Mexico and/or Latin American issues, whether on-line or in hard copy. Fortunately today, the tide has turned in favor of more information about this region

being published.

Again, the question of quality of data comes into play. A recent article in the *Wall Street Journal* reported "Wall Street is particularly sensitive to the quality and quantity of good data flowing out of Mexico. It was the lack of good data that led millions of investors, both large and small, to be blind-sided by Mexico's sudden devaluation of the peso in December." The result was that Mexican officials promised that the country would supply better data, faster. The Bank of America is continuing to release critical economic and financial data on a regular basis. Unfortunately, the *Journal* goes on to report, other organizations have not been so open.

Keeping this in mind, there are now beginning to emerge numerous informative Web sites, commercial on-line databases and some CD-ROMs on the region.

The National Trade Data Bank (described above) contains nearly all the public information gathered by the U.S. Trade Development agency of the Department of Commerce about Mexico. It is spread around in various parts of the NTDB, but there is a great deal that is useful there.

Directorios Especializados is a CD-ROM published by Updata comprised of 10 directories and updated annually. The disc contains information on various Mexican sectors: Directory of Mexican Importers, Directory of Information Centers, Directory of Export Services, Directory of Postal and Telephone Codes, Alphabetical Directory of Street Names in Mexico City, Directory of Major Social Works Projects, Directory of Special Delivery Services, Directory of Government Services, Directory of Prospective Clients to Export to the United States, and Directory of Major Buyers. All but one are in Spanish. [800-882-2844]

In December, 1993, *Database Magazine*⁷ published the article "Latin America On-line — Best Databases for News, Business and Current Affairs". The first thing the article does is to caution the researcher to search on a country by country basis rather than by region. There are no unified states of Latin America, the concept is an abstraction. "Despite a common language and history of Spanish colonialism everywhere in the region except Brazil, from a practical point of view... difference among individual Latin American countries are substantially greater than the similarities."

Dialog is by far the best commercial on-line source of data on Mexico. Exceptions are the full text of the *Wall Street Journal* (that has been only available via Dow Jones News Retrieval and Datatimes) and the *New York Times* (that has been in the exclusive domain of LEXIS-NEXIS but will shortly be available full-text on Dialog). *Database Magazine* reports that "other on-line services have few sources of information on Mexico as a country or Latin America as a whole, that cannot also be found on Dialog".

Many subject oriented databases like *MEDLINE* (medicine), *GeoRef* (geology), and *Agricola* (agriculture), have substantial numbers of records on Mexico. Many directory databases

⁷ Levison, Andrew. "Latin America Online. Best Databases for News, Business and Current Affairs". *DATABASE* December 1993. pp. 14-28.

such as the *Encyclopedia of Associations* cover the area. Business-oriented directory files, like *Piers Imports*, *PTS International Forecasts* or *D&B-International Dun's Market Identifiers*, also detail individual exports to the country, national statistics or company profiles as part of their global coverage. Thirty-six files on Dialog cover general and business news. In 1993 when the article was written, the researcher found 153,330 records for Mexico.

Textline is the dominant leader in both political and business categories, but in some cases equals all the other news wires combined in the raw number of hits. In the category of full-text newspapers, the *Los Angeles Times* is a leader in political reporting with the *Miami Herald* coming in second.

Two specialized databases, *Info-South* and the *Newsletter Database* are the leaders in the categories of bibliographic databases and full-text magazines/newsletters.

Information Access Company's *Trade and Industry Index* and *PROMT* and the *Newsletter Database* are all equally strong in covering topics of interest to business, especially related to specific companies or industries. *ABI/INFORM*, a database focusing on news about broader trends would be appropriate for a search on a more general business topic such as privatization.

EIU: Business International, with the annual "Country Profiles" and quarterly "Country Reports", provide what amount to concise executive briefings on subjects such as foreign trade, monetary policy and political events. The weekly, full-text journal *Business Latin America* covers business news often missed elsewhere.

Textline, again, is in the lead of the business coverage of the news wires but *Knight-Ridder/Tribune Business News* surpasses *AP*, *Reuters* and *UPI*. The *Journal of Commerce* and the *Financial Times* have more business citations than the major dailies.

Bloomberg and *Dow Jones* provide valuable business intelligence for Latin American countries. *Bloomberg* [609-497-3500] has correspondents in most major Latin American capitals and a vast array of data. Subscribers gain access to business, political and regulatory overviews from The Economist Intelligence Unit, statistics from the International Monetary Fund, International Reports such as the Mexico Service, and global economic commentary from highly reputable business analysts. This is all in addition to a news service and data about foreign exchange markets and international equity. The price tag can be as steep (or inexpensive, depending on your viewpoint) as \$2,500.00 per month. *Dow Jones* [305-371-7553] uses the AP wire services network of correspondents to keep subscribers informed about political and economic developments throughout the world. Stock, currency prices, and commentary and analysis from the region is also included.

There are four major databases specifically focused on Latin America with little overlap between them:

- *Info-South: Latin American News* is produced by the North-South Center of the University of Miami, and provides citations and abstracts of materials relating to

contemporary economic, political and social issues in Latin America. The database provides coverage of a wide range of topics assessing the current situation in Latin America. It provides the opportunity to access worldwide sources of information on Latin America, including sources in languages not normally given a wide distribution. The heart of the file is 64 Spanish and Portuguese language newspapers and magazines from 22 different countries. The Mexican weekly magazine, *Processor*, provides frequent investigative reports on Mexico's political and financial elite, offering more insight into events than twenty times as many conventional news stories. Business news is covered but only if it has some national or international significance. With article titles indexed in both English and Spanish, it is a bibliographic database spanning 1988 to the present and is updated weekly. It also contains a statistical and Who's Who directory database with information on noteworthy individuals, organizations and businesses. [800-752-9567]

- *Interam Database for the Americas* — English-language translations of most major Mexican legislation affecting trade and international investors. The database, also available on CD-ROM is updated regularly with all important government decrees, regulations, amendments and technical standards. The cost is \$395/year. [602-622-0925]

- *The Latin American Data Base* can be found in the *Newsletter Database* on Dialog, Data-Star, NEXIS-LEXIS, Dow Jones News/Retrieval, and Newsnet. This resource is affiliated with the University of New Mexico and its Latin American Institute. LADB describes itself as a electronic news publisher whose stories happen to appear on-line. They produce three weekly full-text publications:

- ~ *Notisure*—*Latin American Political Affairs* covers political issues, including human rights.

- ~ *Chronicle of Latin American Economic Affairs* monitors economic issues, concentrating on trade, foreign investment, debt and economic policy.

- ~ *Sourcemex*—*Economic News and Analysis on Mexico* devotes major attention to NAFTA and the Maquiladora industry.

LADB's Program Manager described the unique content of their service: "Our publications provide news coverage on topics that are under-reported or inadequately treated by news media." They monitor not only print publications but radio broadcasts and reports from governmental organizations and non-governmental watchdog/advocacy groups. [800-472-0888]

Tradstat — Import and export data from the major Latin American countries, including their trade with Europe and other industrialized nations. Cost per report. [800-221-7754]

Two other sources to be aware of are the *Hispanic American Periodicals Index* (HAPI) and

the *Handbook of Latin American Studies* (HLAS). These are primarily aimed at the academic community of Latin American experts. HAPI can be accessed on-line via the Internet and RLIN. HLAS is produced by the Hispanic Division of the Library of Congress and is available on-line.

All four of the above databases are available on CD-ROMs produced by the National Information Service Corporation.

PAIS a database available on Dialog among other vendors and present on CD-ROM in many public and academic libraries, offers strong coverage of Mexican politics, economics, and public policy. The *National Trade Data Bank* has useful country economic and market overviews, along with foreign company listings that are difficult to find elsewhere.

Internet "list-servers" are a valuable source of information on the region and a good starting place to investigate those is Molly Molloy's list of Internet Resource for Latin America or the LATCO Web site. Both update their listings frequently.

The DataLink WWW pages list a number of databases that originate from within Mexico and other parts of Latin America. Most of the information about Mexico resides on U.S. based servers

4.3.1.1 Mexican Domestic Information Sources and On-Line Databases

While in Mexico we uncovered two sources of information that are not commonly known outside the country. The first is the National Statistical Database from INEGI, the National Institute for Statistics. The second is the on-line database called SIMPEX maintained by Bancomext, NAFIN, and SECOFI. SIMPEX is oriented toward the promotion of external trade and investment. Information about SIMPEX and a link to the INEGI home page can be found in the DataLink WWW prototype.

The INEGI materials are available by subscription through a proprietary Windows software application. Once the initial database is loaded onto a user's personal computer, updates may be retrieved on-line. INEGI is the source for most economic, employment, financial, and other statistical data published in Mexico, and has recently taken over the reporting of Treasury statistics as well. INEGI has a home page on the WWW and some of the statistical data is available there, but the raw data is only available through the subscription service at this time. They are sensitive to the criticisms leveled at Mexico described in the Wall Street Journal article mentioned above, but were extremely helpful to us during this study.

The SIMPEX system to promote external trade and investment runs on hardware managed by Bancomext. It is available on-line for a subscription fee. Demand for access to the system has been high in the past year, and new access policies were under development during this project. As of this writing it was not yet available on the Internet via telnet or the WWW, but SIMPEX management were discussing how to put it there. The existing SIMPEX system is a terminal/host system, and most remote users access it via relatively low-speed dial-up links. It has one of the better databases of potentially export ready

companies available in Mexico, and provides information about foreign companies who may wish to purchase Mexican products and services, or invest money in Mexico.

SIMPEX has information about Mexican companies looking for investments or having products or services available to export. The system also has links to INEGI and the Ministry of Tourism as well. Data is gathered and entered in the field through Bancomext offices within major Mexican cities, as well as from International offices. The Bancomext representatives in these field offices can be an extremely useful resource for foreign businesses wishing to invest or create joint ventures in Mexico or with Mexican partners. Bancomext officials became a critical resource for the project team during our visits to Mexico. They provided introductions, information, and insight during our entire project, and we credit them with a good portion of the success of this endeavor.

Another database currently under development by SECOFI is to be called SIMPI. This will be oriented toward internal trade and investment. The Ministry of Tourism has also undertaken an ambitious project to catalog all of the known tourist attractions and facilities in the country. They have also wisely focused on developing a process for maintaining their data. They believe it is better for a tourist to get an accurate address, phone number, and directions than an attractive but incorrect response.

4.3.2 Canada

Canada has a history of being a willing and well-endowed provider of information to their commercial sector. They make the on-line version of the World Bank's International Bank for Reconstruction & Development Monthly Operational Summary available electronically (and free-of-charge) to all businesses. This normally expensive on-line version gives Canadian companies a jump start on contract announcements, ahead of American firms who must wait for the print edition to arrive — sometimes weeks later after the electronic version. With the same foresight, the Canadian government has been swift to adopt the Internet as a tool to enhance communication between government and business.

Commercial sources of on-line databases covering Canada come and go, as they do for all subjects. One of the finest, *Kompass Canada*,⁸ was a directory of Canadian companies, 30,000 in all, with industry and product listings searchable in English, German, French Spanish and Italian. Kompass codes an international standard product classification system based on the Universal Commodity System (UCS), allowed for very precise product/service retrieval. Though still carried as an "active" file on Dialog, the wary searchers will note that the records have not been updated in two years, and it is not known whether it will continue to exist.

There are a number of other good sources of information available on Dialog and LEXIS-NEXIS. The *Canada Library* on LEXIS-NEXIS provides access to Canadian legal, news, company and country information. Legal material includes full text and summary case

⁸ When queried about the future of *Kompass Canada*, officials were optimistic that given the interest in on-line information services, the service may be revitalized. We included it here despite the fact that it is currently not up to date because of the quality of some of its existing materials.

law from all jurisdictions in Canada as well as decisions directly from the Ontario Court of Appeal and Ontario Court of Justice. Also carried is the Financial Post Corporate Survey, Investext Canada reports, US-Canada FTA Implementation Act, Public Law 100-449 and the U.S. Canada Free Trade Agreement Panel Review Decisions.

Among the Canadian subject databases currently available on Dialog are the following:

- *Cancorp* (File 491) — Provides directory, financial and textual information on over 8,000 Canadian corporations, the majority of them public. Similar to the Securities and Exchange Commission filings here in the U.S. The database contains resume, financial, and marketing data, SIC codes, holding company information, and the president's letter to shareholders. It is updated weekly and carries five years of historical data.
- *The Canadian Directory* (File 533) — contains basic directory information on over 1.1 million businesses. Included is name, address, phone number, employment data, key contact and title, SIC code, trade name information and actual and estimated financial data. A companion file covers 10 million U.S. businesses. The Canadian Directory was added to Dialog in July, is produced by American Business Information, Inc. and is updated quarterly.
- *Canadian Business & Current Affairs* (File 262) — is a resource that provides indexing to over 100,000 articles per year appearing in more than 500 Canadian Business periodicals and 10 newspapers. From 1986 forward, event and activity related corporate filings deposited with the Ontario Securities Commission are also included. From the business perspective, the file provides descriptive annotations on a wide range of company, product and industry information. From the current affairs perspective, the database covers significant national, provincial and local news, editorials, government activities, labor news and biographies.

Canadian Newspapers (File 727) — includes the complete text of six leading newspapers: the Calgary Herald, Financial Post, Montreal Gazette, Ottawa Citizen, Toronto Star and the Vancouver Sun.

Another uniquely Canadian information source is a service run by a subsidiary of the IBM Corporation, ISM, in Ottawa. Together with the Canadian federal government and the governments of every state except British Columbia, ISM has created OBS, or *Open Bidding System*. OBS is available for a subscription fee plus a transaction fee, and is used to electronically distribute "tenders" or requests for proposals to bid on government purchasing opportunities.

4.3.3 United States

There are hundreds of on on-line databases, CD-ROMs or Internet sites that pertain to domestic business. Commercial, on-line databases tend to be national, rather than regionally international in scope. A quick Dialog index category list under the category of U.S. Public Company Directories lists 12 databases, among them Disclosure and SEC On-

line. The category of U.S. Company Directories (including privately held companies) has 14 databases, including *TRW Business Credit Profiles*, *Standard & Poor's Corporate Register*, and *Corporate Affiliations*. Here also can be found Dun & Bradstreet. Under the Company News section one finds 26 files, including *Textline*, *PTS Prompt*, *Moody's Corporate News* and *Investext*.

LEXIS-NEXIS has their share of overlapping files as well as *EDGAR*, the *New York Times* full-text, State and Federal Supreme Court cases, and individual property records. (Here you will eventually be able to find the assessed value of Bill Gates' new home.)

CDB Infotek (formerly Prentice Hall) is an on-line service that provides access to the Secretary of State corporate filings by state. This can be one of the only sources of credible (though at times scanty) information about privately held companies.

Dow Jones News/Retrieval provides full-text access to the *Wall Street Journal* plus hundreds of regional newspapers, as well as investment reports and financial databases.

For regional information about U.S. companies, one turns to the regional daily newspapers and business journals. Found through many services, the following is a description of some that Dialog provides:

- *Business Dateline* (File 635) — contains the full text articles from more than 350 local and regional business publications from throughout the U.S. and Canada. Its editors add more than 2,000 new articles every week. Every article includes bibliographic information and the complete text of the article. Sources include city business journals, daily newspapers, regional business magazines and wire services. Subjects include: city economic conditions, new product announcements, manufacturing methods, executive profiles, company histories, market conditions, regulations, and legislation. It dates back to 1985 and is updated weekly.
- *Papers* (Numerous files) — Over fifty national and regional newspapers can be searched on Dialog from The Seattle Times to the Phoenix Gazette. Complete text of articles are carried with updates. Even more can be found on Datatimes, LEXIS-NEXIS, and Dow Jones News/Retrieval. These are an excellent source of information on individuals, corporations and business trends throughout the U.S. Cities bordering Mexico and Canada may also provide coverage on those countries as well.

There are many on-line databases and directories unique to specific industries or products. Of interest to companies throughout the Pacific Northwest and Canada is *PIRA* (File 248) (Packaging, Paper, Printing and Publishing, and Nonwoven Abstracts). The database provides comprehensive coverage of the literature of the pulp and paper industry. Subjects covered include package design, environmental issues, operations and machinery, distribution, printing and finishing, electronic media, pulping, raw materials, coating, recycling, market information and much more.

There are numerous databases of interest to the computer industry but a comprehensive

directory of firms can be found in *Corptech*. This file, only available from Data-Star (who is owned by Knight-Ridder, owner also of Dialog) is a company directory of U.S. high tech firms containing references to all manufacturing and development companies with products in the area of factory automation, biotechnology, chemicals, computers, defense, energy, environment, manufacture, pharmaceuticals, software, telecommunications and transportation. Holding companies in these areas are also included. 90% of the companies are emergent private firms or operating units of larger companies. The information is updated quarterly and corresponds to the hard copy published annually of the same name.

4.4 EXPERTS

A number of databases found on Dialog can be tremendous resources for locating experts. They are the *Encyclopedia of Associations* (File 114), the *Research Centers and Services Directory* (File 115), *Dissertation Abstracts On-line* (File 35) and *Ulrich's International Periodicals Directory* (File 480). The *Encyclopedia of Associations* is just that — and generally experts are within a call or two from a trade association or, for that matter, a research center. *Dissertation Abstracts* can be a resource for locating not only masters and Phd's writing on arcane subjects, but also names of the schools that are graduating these individuals and the professors overseeing their studies. Use Ulrichs to locate names and phone numbers of journals on the subject of interest. A quick call to the editor will often put you in the hands of the expert herself.

The Internet, since day one, has been a vehicle of communication for experts and it is even more so, today. A thoughtful question placed on the appropriate mailing list server can bring tremendous results. A query placed in a discussion group for information brokers and investigative reporters about a scrap metal firm in Turkey one morning, brought a response from the London School of Economics by days end. A similar query surfaced a reputable European detective agency able to gain background on a controversial Greek company.

A search of the Internet site: *Best North America*⁹ will result in a list of academic institutions where the desired expert teaches. The searcher must join *Best's* (very expensive) to find the name and contact information — but a well worded telephone call to the school will do the same thing.

⁹ The URL for this site is <http://medoc.gdb.org/work/expertise.html>. And though it has been Called Best North America for years — the name has apparently changed to the Community Science.

5. ORGANIZATIONAL/TECHNOLOGY ISSUES

5.1 LAYERS

Organizationally we have identified four different groups of participants. The groupings are based partially on the technology direction we are recommending, and partially on the characteristics of the two largest groups of participants, users and suppliers of content and services. Under this model, we see four groups or layers in the technical organizational model:

5.1.1 *The User layer*

Users are businesses and individuals. That they have some common requirements goes without saying. Beyond the first level common requirements however lies a tremendous diversity of interests and abilities. DataLink requires a form of "mass customization" in order to provide **genuine business value** for its clients. In a nutshell, we recommend an infrastructure that enables users to implement what ever technology they chose to use to access the information and services they want in the way they want to do it. The use of an open, standards based architecture and an Association-based implementation and maintenance process will ensure the necessary flexibility and response to change.

5.1.2 *The "Association" layer*

Groups of organizations who form to get things done in common. Associations may also be Content/Service providers and users. These are the groups that will ultimately set policy, develop class based standards, carry out much of the education, training and evangelism, etc. Associations will provide the recruiting and marketing functions necessary to draw a critical mass of users to this approach. Associations will provide tailored services that have value to their members. Examples are the Governor's Telecommunications Task force in Arizona, the Washington Software Association, the Environmental Services Assn. of Alberta, and Bancomext or CANACINTRA in Mexico, etc. Different geographic areas and industry sectors will do things differently. Associations can also be Content/Service providers. The model must reflect the reality that not all groups will be able or want to do things in exactly the same way, but most will recognize the utility of adopting standards. The more alike the firms within the association, the more common ground they will have for adopting standards. An additional role for the Associations is to provide the "expert" interface to databases for constituents who are not in a position to do it for themselves. Database searching is an inherently complex function. The skills required to do it efficiently are not common. Increasingly, Associations, on their own and in conjunction with local libraries, are providing Industry Information Centers to assist members with the more complex aspects of searching for information. The inclusion of the Association layer in the model is based in part on technology transfer research done for the Washington State Department of Trade and Economic Development.

5.1.3 *The "Broker" layer*

This layer in the model comes from the Harvest approach to wide area information organization and dissemination.¹⁰ This is a minimalist layer that acts only as the index to make users aware of content and service providers. In implementing a Harvest system, there will probably eventually be several mirrored sites spread around the region, but only a few will be required initially. This function will probably be performed by individual players in the Content/Service provider layer. We will discuss the technical aspects of the Broker model in greater depth later in this chapter, and describe what we believe to be a key role that the DataLink system can play as an information "broker" in this context in the discussion on organizational models in Chapter 6.

In the context of DataLink, it would make sense for the DataLink organization (as distinct from any DataLink system) to take responsibility for creating a "broker" that would specialize in trade related indexes.

5.1.4 The Content/Service provider layer

This layer is where the content and services really live. Rather than collect all content into central repositories and fill the world with thousands of Web crawler agents, we advocate using technology standards named Z39.50 and HTTP to keep the database maintenance and publishing widely distributed. Data collection and maintenance of information about products and services needs to be done by the people who are closest to it - the real owners. These owners, working with Associations and motivated users will devise their own business models that will allow them to set fees for their content - if they desire. Content owners will be free to subcontract the distribution of their content through exclusive or non exclusive contracts as they desire (as OBS/Canada do now). INEGI may not charge for its information, but Bancomext may wish to, etc. Services that are desired by users, such as on-line export documentation services, would be created or adapted by existing providers of those kinds of services within this decentralized model. The Association layer within a particular industry would work with potential providers to recruit them (if required) and educate them about the needs of their membership. The product/service providers would then make business decisions based on their own requirements as to how best to meet the needs of this potential market via this emerging channel.

5.2 POLICY ISSUES

In sales and marketing parlance, the "information highway" is just another advertising medium or distribution channel. Keeping this in perspective in the face of all the current hyperbole makes it easier to understand the realities of how it will be incorporated into existing business processes with today's technologies. Business people will still make decisions based on the same principles they have been using for a long time.

The principle guiding us in analyzing the user and provider requirements and technologies is to keep an open mind but avoid reinventing the wheel. To that end we propose using existing technologies and organizations, and relying on open technology standards. The issues of scale (hundreds of servers today growing soon to thousands and

¹⁰ Harvest technology is described further in the Technology Appendix.

eventually to millions) and the speed of change in this arena complicate matters further. Put simply, we need to adopt an approach that can accommodate the fact that so many different people can do so much so quickly for widely different but entirely valid reasons. These groups need a compelling reason to work together, because fundamental differences between groups will still arise because of the different business models each group have adopted to ensure its own success.

5.3 COEXISTENCE

Assuming that DataLink will eventually be only one of many similar initiatives leads us to the conclusion that a complex or centralized technology model will eventually fail because of the inability of the central authority to control everything. Other groups already have tremendous investments in legacy systems¹¹, and are developing new legacy systems right now. The standards adopted will need to be readily understandable, and must be able to accommodate the integration of legacy systems. This drives us to the conclusion that a flexible, decentralized system model is the only reasonable approach because it recognizes explicitly that people will implement things differently from one another over time. A decentralized approach also puts a premium on the adoption of open standards, and the process of communication between different groups that enables them to work together while still remaining independent.

A standards-based, decentralized approach will enable individual publishers to control access, billing, interface, and most importantly, the content they wish to serve to the world. Standards will enable users to buy standards based browsers and navigate where they desire to go.

DataLink will not be able to dictate terms to any other group, so designers must anticipate where the technology is going, based on business needs. The following instructive excerpt on a new content development technology from Sun Microsystems (Hot Java) was printed recently in Dr. Dobb's Developer Update. The bandwidth issue it discusses is relevant here, but the first point about remaining close to the evolutionary path is most important.

"Before examining Java, it is important to remember that, in evaluating any technology, you can sort out potential winners from also-rans by observing who's on the main evolutionary path and who is stuck on the byways. The details will remain unpredictable, but the broad outlines become clear. For example, a central issue that will never go away is the relative scarcity of bandwidth. Just as you can never be too rich, too thin, or have too much RAM or MIPS, the pipe that connects your desktop to the global network can never be too wide. Any technology that deals effectively with the bandwidth constraint will rapidly find its way into the

¹¹ See footnote 1, above. A "legacy" system can be loosely defined as an old system built with old technology. Legacy systems are usually large, mainframe based systems that have been developed over a long period of time. They are generally "critical" to the mission of the enterprise that uses them, and are complex. The cost of simply replacing the legacy system is usually significant, and thus business managers hold off on doing so until the negatives associated with using the old system greatly outweigh the costs of developing a new system. Usually, legacy systems are replaced with "client-server" systems that make use of more modern PC and workstation technology, rapid application development tools, networks, etc.

*mainstream. Throwing hardware at the bandwidth problem isn't necessarily a solution, because users will find new kinds of data to ship over the pipe: larger graphic images, animation, audio, and video."*¹²

5.4 COMPONENT TECHNOLOGY

The technology issues are complex and difficult to describe succinctly. To simplify the presentation but preserve the technical detail, we will address the technology and policy issues as a series of components. The components are semi-independent variables in the equation. Each requires analysis on its own, but because they interact, they must be analyzed as a whole as well. The components are being analyzed over three time horizons, and against the widely different needs of the organizations for whom the system is designed. Think in terms of an (at least) three dimensional matrix (see Figure, below). We will talk about only one side at a time, but we cannot forget about the existence of the other sides.

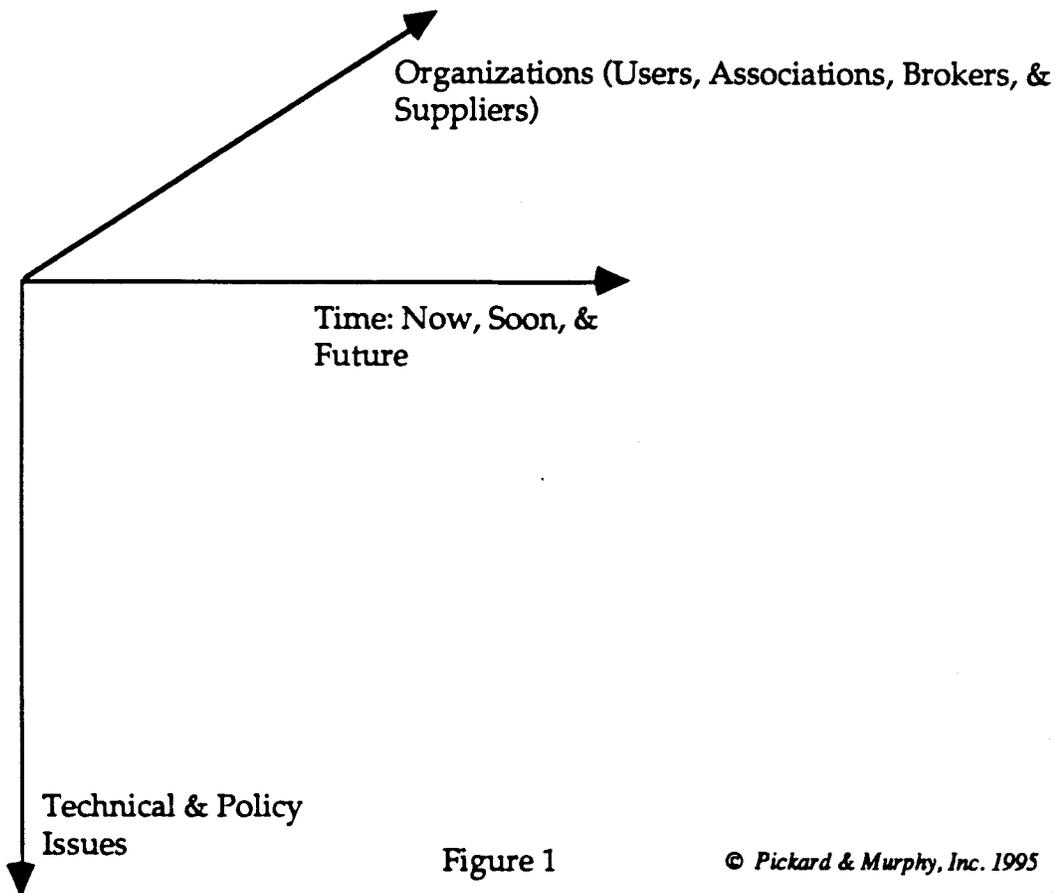


Figure 1

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Figure 1 —Three Dimensional System Requirements Matrix

Technologies and policies will be implemented over time, and adopted by users and suppliers over time. We have 3 different time perspectives we must deal with. For ease in explanation we have chosen "Right Now", "Soon" (next year or so), and "Future" (more

¹² Dr. Dobb's Developer Update (Volume 2, Number 8, August 1995)

than 18 months to two years from now - which with the rate of change in the world of telecommunications is a LONG time from now.) Depending on the geographic location of a User or Content Provider or their sophistication, each will address components in the model from a different time perspective. Thus, different people or businesses will view the system differently based on where they are themselves in their own business or cultural evolution. Visually, think of time horizons as running across the top of a two dimensional table.

The following matrix summarizes technology and policy evolution over the three time horizons described above.

Figure 2—Technology & Policy Matrix

	Time Horizons		
	Right Now	Soon	Future
Access Providers	Local and national Internet and Commercial on-line services	Same	Same
Bandwidth	Relatively low speed	The world now realizes things are too clogged, and public pressure for deregulation and open competition is overwhelming	128 Kbps ISDN or greater to every house and office
Billing, Collection, Customer Service, Subscriptions	No standards	Standards emerging, decentralization becoming more widely understood and accepted	Standards based, consumer driven, nearly ubiquitous the way ATMs are now
Brokers	very few	many in test	generally distributed
Business Models	chaotic, entrepreneurial	Shake out underway	Mature
Client SW	Many players, lack of accepted standards	More options, standards emerging	Consolidation, very low prices, defacto standards in place
Collocation	Reasons for adopting this approach not widely understood	Widely recognized as an acceptable alternative and means of ensuring adequate bandwidth and professional management	A generally accepted practice for all but the largest firms.
Communications	TCP/IP dominant but not universal	TCP/IP dominant and nearly universal	Next generation TCP/IP and ATM
Database	Diverse, with problems stemming from required proprietary interfaces	Moving towards standard interfaces and more robust transaction engines	Standards adopted for both clients and servers
Education & Training	Wide need, including evangelism to move industry groups along. Infrastructure in need of development	Infrastructure to deliver better established; needs better understood	Accepted as a standard business process. Routine

Figure 2: Technology & Policy Matrix (continued)

	Time Horizons		
	Right Now	Soon	Future
Gatherers	Standards under development. Need for domain specific product, industry, and functional categorization and definition of attributes.	Need for standards better understood, several initiatives completed and implemented. Revisions underway	Industry and function specific standards in place along with rapid review and modification processes
Interface(s)	Diverse, including telephone, fax, e-mail, terminal host, and graphical browser	Same, with enhancements	Same, with enhancements. The low and no-tech interfaces will be with us indefinitely
Marketing	Scattered, experimenting	A few have figured it out	Generally well understood. Part of the mainstream
Network	Under capacity, overloaded, particularly in rural areas. Regulatory impediments to expansion	Despite significant investment, still under capacity, overloaded, particularly in rural areas. Regulatory impediments to expansion finally being removed	Free market has increased capacity and modified the business model to more rationally allocate capacity based on combination of need and economic value. Geographic pockets still underserved.
Network/People Infrastructure	Under capacity. Insufficient engineering talent	Industry and academia finally catching up with need	In equilibrium
Policy or Administration	Overly regulated, irrational legal initiatives based on lack of understanding and fear	Difficult period	Deregulation with rational legal infrastructure
Public vs. Private	In transition from public to private.	In transition	Private sector dominated
Security	Needs improvement, but standards emerging	Period of acceptance of defacto standards	Normal business process

Figure 2: Technology & Policy Matrix (continued)

	Time Horizons		
	Right Now	Soon	Future
Server Software	Many players, lack of accepted standards	More options, standards emerging, specialization beginning to occur	Consolidation, lower prices, defacto standards in place; specialization well established
Standards <ul style="list-style-type: none"> • Taxonomies • Z39.50 • HTTP • X.12 • Other 	In debate, not widely understood	Need for standards better understood, several initiatives completed and implemented. Revisions underway	Industry and function specific standards in place along with rapid review and modification processes

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5.5 PHASES

As proposed, the Datalink system would not be a seamless networked system, but a loosely coupled set of technologies including direct dial networks, the Internet, and fax technology. This will evolve over time into a more integrated system as more content providers adopt the type of model we are recommending. Different participants in the organizational model may be at different phases or stages of development based on their own business, technological, or cultural positions. The overall model must support this.

5.6 INFRASTRUCTURE

We believe that any infrastructure dedicated to supporting DataLink should be designed to accommodate the exponential growth in transactional demand we project. This means that any physical DataLink servers should be collocated (or virtually hosted) in a network operations center (NOC) that is designed to support very heavy loads with a high degree of reliability. Typically this means that the bandwidth into the center is at least equal to a DS3 (45 MBPS), and that the engineering talent employed at the center have the experience necessary to design, implement and operate a dual homed, totally redundant infrastructure. The internal networks in such a center typically are linked to redundant 100 Mbps FDDI rings through routers that support limited numbers of servers on 10 Mbps Ethernet.

There are only a few such centers in existence, but it is our firm belief that as the geometric growth we predict above begins to occur, service providers without sufficient bandwidth, capital equipment and engineering talent in place will be unable to keep up. Service interruptions will be commonplace. To set up the DataLink service - which should be a model implementation - in a lesser facility would increase technical risk significantly.

A more detailed description of the server and network architecture is included in the system architecture specification. A part of the requirements of this project included the

development of a detailed model system. Such a system is described in DLARCHB.DOC which can be found at <ftp.halcyon.com/local/pickard/CANAMEX/DLARCHB.DOC>.

5.7 INTERFACE

The "Interface" to a system is the way in which a user interacts with it. The interface to a telephone involves the hand set and the key pad. Its use is relatively intuitive to a 20th century western educated child. The interface to a typical office fax machine is much like that of the telephone, and as such is relatively easy to use. Its operation is reasonably intuitive to a typical office worker. The Windows 95 user interface is a graphical click-and-point-with-a-mouse-and-keyboard interface to a personal computer. It is not intuitive to anyone.

The interface to Datalink is really a combination of interfaces to the component parts that will make up this evolving communication and information distribution system. Some parts of it may involve. Content from DataLink can be delivered in a variety of "user-defined" methods. In choosing a user interface, we asked the questions concerning what people would do with the information? How would they prefer to get it? And if they were to interact with some aspect of a DataLink system, how would their needs or preferences change over time? Because we are talking about the dissemination of information and communication, the options for interfaces to the system range from paper documents to the telephone (all types), wireless communication device, fax machine, dumb terminal, and personal computer. Various technologies and services are required to support these "interfaces" such as printers and the post office; voice processors, voice mail systems, and telephone lines; or e-mail packages and the Internet.

User research indicates that a "one size" interface will definitely not fit all users. Different businesses, based on factors such as corporate culture, geography, business partner or association preferences, or technological sophistication will require different kinds of information from the system, or will want to provide different kinds of information to the system. They will wish to interact with the system in different ways depending on their own circumstances. While one group may be supportive of a "low tech" or "no tech" approach to interaction, another may wish to rapidly proceed with a "high tech" approach. Some groups - both individually or in association, may for various reasons not wish lower tech alternatives to even be available to their constituents. Given the diverse needs of users, associations, and providers throughout the three countries in the CANAMEX region, we recommend a diverse set of interfaces to the system, and will need to steer clear of "religious" issues relative to the correct means of disseminating and accessing this information. In short, the choices here should be placed in the hands of the users and providers. To ensure the widest possible use of the resources of DataLink we recommend an approach that places the information resources in a repository that can be accessed by all of these methods.

Initially, the dominant interface for the trade leads part of the information will be the fax machine, but this should shift over time to e-mail transmission or browsing and therefore personal computers and databases. Other content will be primarily available on-line, but as content-based services become more wide spread, they will develop products and

services that are based on smaller niches. For example, a trade lead monitoring service could maintain very detailed profiles for customers and notify them of the receipt of a lead of a particular type or from a particular customer by paging them and sending them a detailed e-mail notice with a higher than normal priority.

5.8 SCALING

The issues of scale warrant serious discussion because most people have not thought about what will happen if businesses and individuals continue to embrace the Internet and on-line services at the current rates. In fact, for many readers this section may contain the most important insights delivered by this entire project. The problem is easy to explain, but difficult to remedy. When the Internet was created, only a relatively few people used it, and they used it primarily for text based activities such as e-mail and newsgroups, and for transferring compressed files via ftp and Gopher.

In the example below each "w" represents a single node. The lines represent communication paths (presumably with data flowing over them). The interfaces are represented by the arrow points. Thus in a universe with only four nodes, there are a total of 12 interfaces.

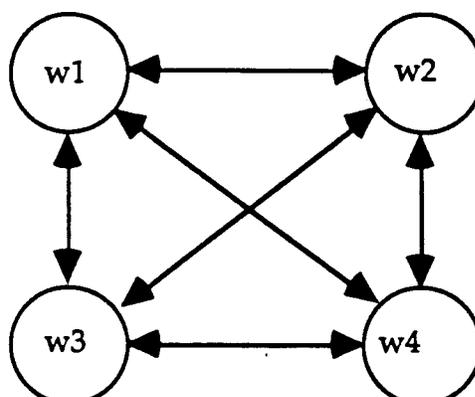


Figure 3 —A Four Server World

With the advent of the world wide Web, the growth of new users exploded, as did the number of servers. At the same time the usage pattern has shifted decisively toward the transmittal of larger, denser digital objects such as graphics, pictures, and very large files. Using a WWW browser it is very easy to generate a tremendous amount of traffic in a very short time. Using simple math, we once had "w" number of clients, sending "x" number of "message units" with an average size of "y" bytes at an average frequency of "z" message units per hour. The formula $w \times x \times y \times z$ could be used to approximate the number of packets sent per hour world-wide. With each of these variables growing at geometric rates, it is clear that the overall growth in traffic will continue to explode. Add to that the fact that each IP packet must be acknowledged by the receiving server before a message can be completed. When heavy volumes at servers cause packets to be dropped, the same packets must be sent again and again to complete a message. Thus, as the traffic congestion grows worse, it contributes to its own degradation.

5.8.1 Server Indexing Overload

Indications are that the number of servers is growing as rapidly as the number of clients.¹³ Thus more and more content is being made available for all these clients to search. In addition, with the rise in the number of servers has come a rise in the number of automated cataloging systems such as the Web Crawler or Lycos or Infoseek that send out intelligent agents to scan all the data repositories they can find and index them. At a recent conference one of the speakers joked that every computer science graduate student in North America was building their own set of intelligent agents to go out and search the Internet. This proliferation of agents contributes to the glut of IP packets, and also uses up resources on the servers that the agents are searching. Each different agent indexes every server it encounters, and repeats this process periodically to ensure that its target index is kept up to date. More agents and more databases means that more work is being done by the server, but no truly useful result is being accomplished. Specialized agents are already roaming the network cataloging not only the existence of sites and data, but also the attributes of the objects in the databases such as the availability and pricing of goods, services, and information for sale. For a variety of reasons ranging from a desire to frustrate comparative shopping to a desire to reduce server load, many sites are already being programmed to exclude agents altogether, thus defeating the data gathering and indexing schemes.

In the example, below, the universe of clients has doubled from four to eight, but the number of interfaces has increased by a factor of nearly five from 12 to 56. Given current growth rates, if every node sent an agent to search every other node - a practice that is advocated by some free electronic speech advocates - the growth would quickly be overwhelming.

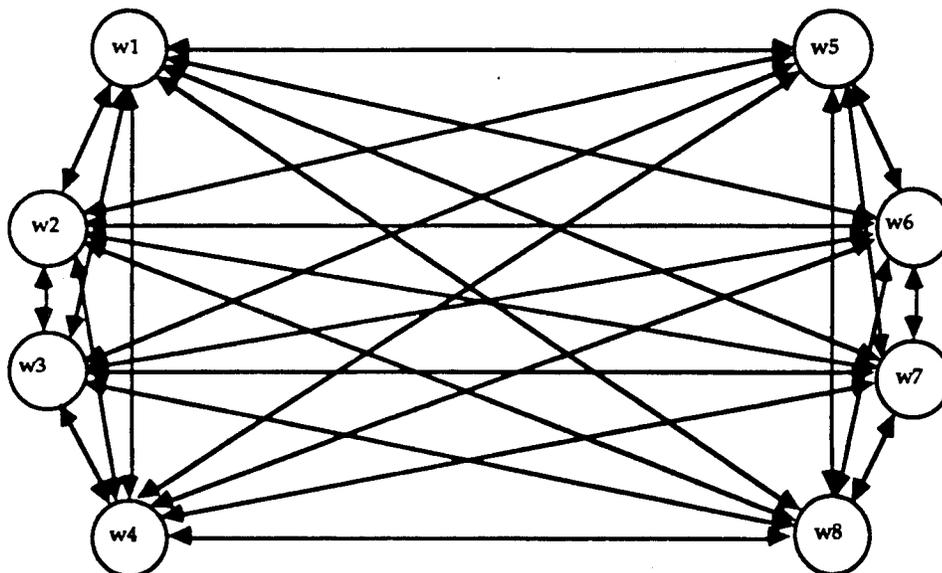


Figure 4 —An Eight Server World

¹³ See <http://www.nw.com/zone/WWW/report.html>.

5.8.2 Distributed Searching

What makes more sense is for each server to index *itself* according to a set of standards, and then for a client to send a search request to a collection of servers. In this architecture, server data is indexed only once. This approach, codified by the standard Z39.50 is what we recommend. The result of the adoption of such a standard will be a massive reduction in the number of interfaces (client to server interactions) required to make effective use of an information network.

The Z39.50 standard defines a consistent way for two or more computers to communicate for the purpose of information retrieval. Specifically, Z39.50 supports information retrieval in a distributed, client and server environment where a computer operating as a client submits a search request (i.e., a query) to one or more computers acting as information servers. Software on the server performs a search on one or more databases and creates a result set of records that meet the criteria of the search request. Servers return records from their result sets to the client for processing. The client combines and ranks the results from all servers, and presents this information to the user. If the user then requests a specific piece of content, this request goes directly to the appropriate server.

The power of Z39.50 is that it separates the user interface on the client side from the information servers, search engines, and databases. Z39.50 provides a consistent view of information from a wide variety of sources, and it allows a much larger universe of searchable information.

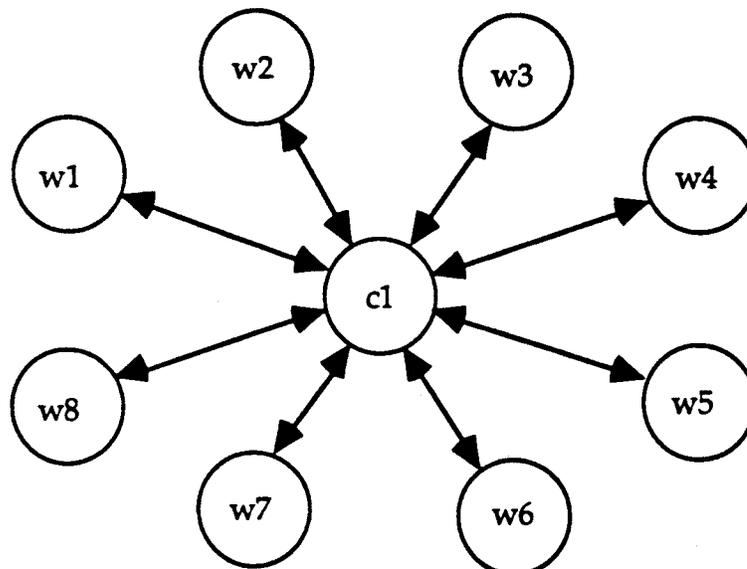


Figure 5 —An Eight Server Z39.50 World

Z39.50 and related technologies like Wide Area Information Servers (WAIS) are described in more detail in the technology Appendix.

5.8.3 Index Brokering

An additional approach to reducing the Internet indexing load is for servers to distribute their individual indexes to a set of designated "super-indexes" that are maintained for just that purpose. The machines that store the aggregate indexes are called "broker" servers.

In Figure 6, the world still has 8 servers, but the two middle servers act as index brokers for w1 through w8. Each of the servers indexes itself once, and sends its index data to the brokers. If w4 wants to find out where something is, it sends a query to S1 or S2 (the brokers), and the broker searches its index. This creates one message out and one back. The next message goes directly to the server where the desired content resides.

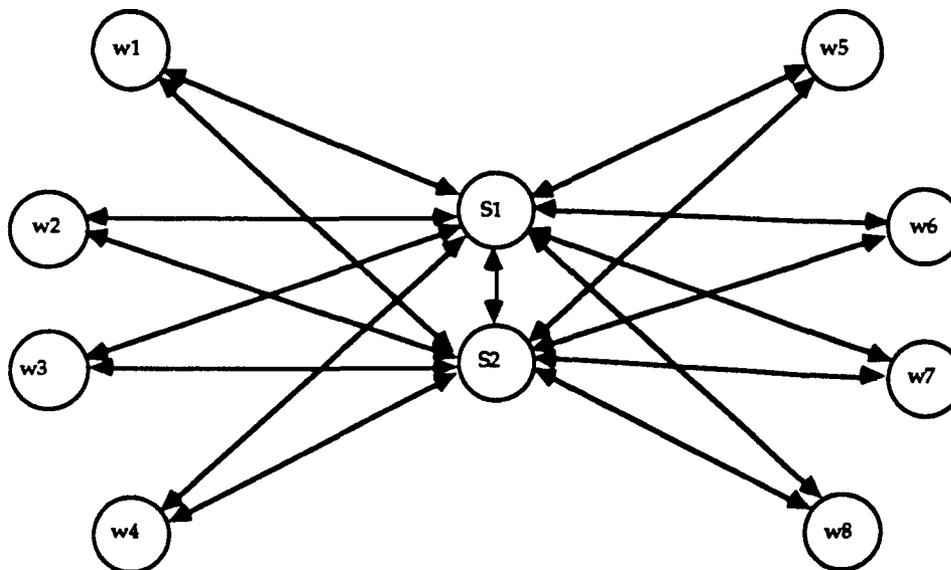


Figure 6 —An Eight Server World, with Brokers

The central broker indexes do not hold the content (databases) that the user may be searching for. The broker "S" servers hold only indexes. Proprietary on-line services have been attempting to centralize all content on massive banks of servers, controlled at single locations. The advantage of these centralized efforts is that they can impose security and billing rules, and may offer some advantage in consistency of interface. Their disadvantage is that they cannot scale up fast enough to hold all the content that people want to publish.

5.9 DATALINK DATABASE ARCHITECTURE

In the user survey we learned that one of the foremost information needs of companies in the corridor area is for directories of companies, products, services, and capabilities. Old line firms such as Thomas Publishing produce the Thomas' Register, a set of green manuals familiar to every manufacturing engineer. Dun & Bradstreet also produce company listings containing brief descriptions and financial data, among other things.

In assembling the DataLink system, we recommend using existing third party sources where ever possible, and linking to them. A current "hole" in the market exists in the

area of a comprehensive set of databases. We believe that a possible way to fill this hole is for Trade Associations to develop comprehensive databases of information about their members, member's products, services, and capabilities. Participation would be voluntary, and the companies themselves would be encouraged to maintain the data about themselves. A standard database schema could be developed for use by companies, with adaptations of it designed to cover the differences between industry classes. A similar "object oriented" approach to classing and sub-classing could be used to accommodate products, services, and capabilities. These classification schemes plus key words defined by the companies themselves will increase the effectiveness of searches.

5.10 DATALINK SYSTEM PROPOSAL

A major deliverable of this project is a proposed DataLink architecture. While much of the infrastructure will come from existing sources such as the Internet itself, content providers, and open standards, there will be a need for a DataLink Network Operations Center (NOC), and some distributed technology. The specifications for the NOC itself are important. This NOC could become the hub of a large co-location and hosting system as companies and organizations realize the benefits of close proximity to the high bandwidth carriers, and the full costs of developing and maintaining a robust system becomes more obvious.

We believe that all of this infrastructure will be provided at no cost to Arizona by the private sector, but that some funds may be required to get the State databases built initially. The business models below describes one approach to the organization and financing of the system. The system description itself is lengthy, as is the cost of ownership model associated with it. For this reason these documents have been published separately and are available at the ftp site as the following files:

[ftp.halcyon.com/local/pickard/CANAMEX/COSTMDL.XLS](ftp://halcyon.com/local/pickard/CANAMEX/COSTMDL.XLS), (for the cost model) and
[ftp.halcyon.com/local/pickard/CANAMEX/DLARCHB.DOC](ftp://halcyon.com/local/pickard/CANAMEX/DLARCHB.DOC) (for the proposed system architecture.)

5.11 NETWORK INFRASTRUCTURE, BANDWIDTH, AND REGULATORY ISSUES

We discussed the rapidly growing need for bandwidth and robust server and searching systems above. The infrastructures within different parts of the CANAMEX region are very different, and must therefore be addressed differently.

5.11.1. Mexico

Mexico is emerging from a long period of monopoly control of their telecommunication systems. Consumer access to services is far behind that found in both the U.S. and Canada, but the commercial infrastructure is much farther along. Business services are primarily running on measured rate tariffs, and services like Frame Relay and many options U.S. firms take for granted are not available - yet. However, Telefonos de Mexico (TELMEX) has installed more fiber optic cable on a per capita basis than any other system we know of. This means that Mexico, while it may currently lag in certain areas, has the potential to

radically increase its telecommunications capacity.

Deregulation is underway. Major Mexican banks (for example) are aligning with U.S. and other international telcos to offer competing business services - particularly long distance service. Bancomer is aligned with GTE. Banamex is aligned with MCI. Telmex is aligned with Sprint and a consortium of European carriers. Within the next year Telmex and Sprint will be rolling out Frame Relay and other services based on existing Sprint technology. This will include a national Internet program. They have no plans to invest in ISDN at this time.

Within the next two years, many things will change, and we believe that pricing will come down, quality will improve, and service options will expand - for business customers. The caveat here is that Telmex defines a business customer narrowly. Their definition excludes much of the Mexican economy which is based on very small one and two person shops and factories that may or may not have even telephones.

The saving factor in this is the existence of large trade associations. Every business must belong to a Chamber of Commerce or Industry. Companies that may not be reached initially by DataLink can be reached through the associations.

Mexico has access to the Internet, but Internet links from Mexico to the U.S. are limited in number. Because they originated in the academic community they are not yet optimized for business use. The number of Internet providers is growing rapidly though, and it should not be difficult to recruit Internet providers to participate in the advocacy and education components of the program.

Existing on-line access is therefore not widely distributed and it is expensive to get. All businesses do use fax machines however, so the Remote-Printer approach, discussed below, may be an excellent way to introduce the benefits of on-line services. There are a number of WWW page hosting services in Mexico, but their use is not yet widespread because there is not yet much Internet use in Mexico as compared to the U.S.

5.11.2 Canada

Canada's infrastructure, while not as expansive as that in the U.S., is none-the-less, far better than Mexico's. The protective regulatory environment has limited the amount of competition in the marketplace so costs are higher and innovation in terms of services is limited. However, for the most part, except for price considerations, the Canadian list of on-line options is similar to what is found in the U.S. Overall capacity is lower than that available in the U.S., but it is more than adequate for DataLink's needs in the next few years.

5.11.3 United States

The U.S.' already preeminent position in the world relative to telecommunications would improve, in our opinion, if the telecommunications industry were deregulated completely. Aside from that, there is not much to say. The demands for infrastructure

development will tax the capital structures of the private sector participants, but for now it appears that the government will not become involved. This means that bandwidth development and pricing decisions will - in large part - be made by private sector firms with the discipline of the marketplace as their guide. This is good from our perspective as it will channel investment toward the kind of infrastructure DataLink will require.

5.12 REMOTE-PRINTERS – E-MAIL TO FAX TRANSLATION

This is a key element of the recommended technology scheme. This technology operates on inexpensive servers, and enables local access providers to set up servers that will intercept e-mail messages sent to the telephone numbers of fax machines in their service area. Once intercepted, the e-mail messages are translated into faxes, cover sheets are created that can carry advertising messages as well as routing information, and the faxes are delivered to the intended recipient. Costs of providing the service include the PCs or workstation doing the translation, plus the fax system and the required number of local telephone lines.

When implemented, this technology will reduce operating costs for information delivery services, act as an incentive for businesses who may be looking for a reason to get on-line to at least experiment with e-mail, improve the connections between businesses in the corridor in general, and provide Internet service providers running the remote-printing translation service with a stream of qualified business customers in need of their services. Providers could sell advertising on their cover sheets, and add their own messages.

This direct connection to potential customers should be, we believe, an incentive for access providers to offer the service in their local calling areas. Only one provider per area is required, and providers may service areas as small as a single 3 digit telephone prefix within a single area code.

6. BUSINESS MODEL

6.1 PROPOSED ELEMENTS OF THE SERVICE

Depending on the direction the Legislature adopts, the technologies and processes discussed here can be supported in a variety of ways. DataLink can develop into a full blown on-line service, or it can remain a set of specifications. It can be funded completely by the private sector, or partially by the public sector. We do not believe, however, that it makes any sense to attempt to do it completely in the public sector.

As we envision it, there are many elements to the system. This is important because it enables us to break the problem down, and demonstrate how a broad consortium of public and private sector groups can participate in the design, development, and operation of DataLink. There are "physical" elements to the service including: a transport or delivery infrastructure (the telephone system and the Internet), as well as computers, fax servers, and databases (some of which might be owned by an organization created or engaged to construct the initial DataLink broker server.)

There are several "virtual" elements, including databases that are created on-the-fly by users interacting with the system. These elements are created, used, and disposed of through the transactions running through the system. They are not "physical" in that they are never kept in a database or other repository for later use. They can be created properly by the system because they are created based on the standards, and used by applications according to the standard rules associated with their creation.

Finally, there are the necessary policies and procedures developed the ATIC DataLink committee on behalf of the Arizona Legislature and in cooperation with the management of the private sector DataLink service provider. Policies, for example, might include the adoption of an open standards approach or the use of Z39.50 as the preferred access and storage standard, or the requirement that the service provider also provide a state-wide network of remote-printers. The ATIC DataLink committee would also develop an educational and marketing plan in conjunction with the Arizona Department of Commerce and the State Library system.

The three time frames discussed in the previous chapter are appropriate for the business model as well, so business options are described not only in terms of what they are and how they are accomplished, but also in terms of when they might be accomplished.

6.1.1 *Facilitation Organization Not Centralized Data Service*

DataLink is both a system and a specification for other systems, and it is an organization. The DataLink organization, for which options are discussed below, is a trade facilitation organization. Under this vision, it owns systems that facilitate trade, and works with others to develop content and services that can support international transactions.

It is not a powerful, centralized service. For the technical, maintenance, and cost reasons discussed above we do not believe that a centralized approach to storing, maintaining, and

distributing information makes any sense. A decentralized, cooperative approach also makes sense for political and "control" reasons. Groups and individuals are more willing to cooperate if they can retain control over their access and billing policies. DataLink as an information service about trade information services, and a provider of trade leads can get along with everyone, and compete with only a few.

6.1.2 Role of Trade Associations or "Clusters"

Trade associations are always looking for "value" to provide their members. Using trade associations as the primary means of maintaining databases and by providing "transparent¹⁴" distribution of leads, the associations receive the credit for valuable trade opportunities, and appear to be on the cutting edge of technology. Companies who are not involved with the Association have an incentive to join.

6.1.3 Role of Libraries and Other Public Sector Institutions

The thrust of this report is that it makes more sense for the private sector to perform most of the work envisioned for DataLink, and to make most of the investment. We do recommend some "seed" funding from the government sector to jump-start certain aspects such as the Remote-Printers however, and we would also recommend that policy makers consider allowing Libraries and Librarians to become part of the information infrastructure as well.

There is a large, existing level of public investment in libraries and librarians, particularly in the University setting. Libraries and librarians have significant research and information organization skills. While we would not recommend turning over the management of DataLink to any public sector organization with another, more central, overriding mission, it may make sense to treat publicly funded libraries and librarians as if they were private sector firms when looking for groups to develop or maintain, under contract, Industry Information Centers or specific research and information services to refer business users to.

It may make sense, for example, to include a university business library in the pool of qualified bidders for the task of maintaining the DataLink WWW pages and qualifying the information sources located there. The business librarians at a major, metropolitan library could well be the best qualified people to take on the role of "experts about experts" for certain industry clusters. Policy about what is to be included on WWW sites or what services should be offered would be set by the DataLink board to ensure that the service meets the needs of its constituents, and is not overly academic in nature or slanted toward one industry at the expense of another. Because of the skill base and similar mission, it seems reasonable to us to include this public sector group in the pool of groups who could be hired to carry out the policies.

¹⁴ "Transparent" distribution of leads means that the trade association working cooperatively with DataLink gets "credit" for the delivery of the trade opportunity. The DataLink system is capable of sending a fax or e-mail message that appears to be coming from, for example, the Arizona Department of Commerce or the Washington Software Association.

6.2 ORGANIZATIONAL MODEL & MISSION

DataLink's mission should be solely the facilitation of trade through the discovery, cataloging, and routing of trade related information such as trade leads and databases about companies, government agencies, and industry focused associations. Its job is not to create information, but to provide information about other information and services. It should be a linking service.

The organizational elements of the service can be achieved through several different models, but at this time it appears that no separate organization will be required. Instead, ATIC will form a DataLink Committee to assist the Legislature and Executive Branches with policy formulation, and the development of an RFP.

6.3 WHO WILL BUILD IT, WHO WILL RUN IT?

We envision DataLink growing into a multi-state, international marketing and trade support network run by a loose alliance of groups interested in promoting trade, and not afraid to work with competitors to achieve mutually beneficial results. In a sense it is a networking initiative inside a big trade association. It will start off as a primarily Arizona project to benefit Arizona companies, and grow as other States adopt the model.

Industry clusters (trade associations) in the various geographic sub-regions within the CANAMEX region should be recruited to work together to develop the necessary company, product, service, process, capability, and other information standards necessary to ensure that databases and infrastructure are compatible. With the exception of maintaining data about itself, its member organizations, and its services, DataLink should not maintain databases of content. It should maintain databases *about* databases and services provided by others that support its mission. DataLink should serve as a "broker", and take on an educational - initially missionary - role.

6.4 MARKETING AND ADMINISTRATION

A small administrative and marketing staff within the private sector operating firm could manage subcontractors who could provide technical and educational services, or these functions could be filled by 3rd parties who "advertise" through DataLink. Because it is, by definition, an international, geographically distributed trade development organization, eventually DataLink's members will be physically dispersed.

The marketing staff would also serve as technical evangelists whose job would be to support the spread of standards-based, distributed technology.

6.5 INFORMATION CENTER

Initial drafts of our report recommended the provision of a prototypical Industry Information Center (IIC). (See the Appendix.) The review committee opted for a much more limited view of the scope, and restricted their endorsement to a proactive information delivery system. Industry Information Centers are to be left to trade

associations to develop on their own.

The Department of Commerce may chose to adopt parts of this approach and assist key cluster associations with developing such centers. For that reason we have left the relevant material in the report even though it will not be a part of the initial DataLink system. For implementation purposes, IICs could be outsourced to private sector firms, and would have as a primary responsibility the continuing development and maintenance of the best trade-related information services in the CANAMEX corridor for their respective industries. Staff would be specialists in knowing where to look for information, or who to talk to. Human and electronic links to experts, services, and information sources could be provided. The human links would maintain the electronic links in the Home pages, and would also maintain (as required) the Z39.50/WWW type "brokers".

A major function of the IIC staffs would be to remain in close contact with trade associations and chambers of commerce and industry that they believe provide value to the development of the trade and information exchange process. A primary reason for this would be to assist the associations with developing their own databases about their members, and assisting their members with developing themselves.

As a major trade support and information distribution agency within the corridor, it would make sense for DataLink to take an aggressive position relative to the collection, qualification, and proactive distribution of information about actual trade opportunities. Provided the opportunities are qualified and properly targeted, business people we surveyed were heavily supportive of receiving this type of information, and were willing to pay a fee for it if it was of sufficiently consistent quality.

Many trade associations have Industry Information centers now, and more are considering them. Done properly, DataLink could become a force in establishing the value of information to smaller businesses and demonstrate how they can find and access it cost effectively.

A more detailed description of the functions of an Industry Information Center is contained in Appendix 12.

6.6 ALTERNATIVE ORGANIZATION AND FUNDING MODELS

During our research we identified a number of business model alternatives. On the completion of the analysis we chose Model C (below) as the preferred alternative to recommend. We chose Model C because if the legislature and the industry cluster groups in Arizona wish to make tangible progress toward their goals relative to DataLink and the CANAMEX trade corridor in the "Now" time frame, then some private sector group needs to be dedicated full-time to the task of organizing and pushing the effort. It takes time, energy, and expertise to assemble industry consortiums, and without dedicated, funded support it is unlikely to happen. State seed money to locate a provider, and assist them with the development of a state-wide database of companies and capabilities will get DataLink built rapidly, and keep it in the private sector.

6.6.1 Business Models

6.6.1.1 Model A - Public Sector Model

Hire quality full-time, professional staff; maintain extensive links and on-line searchable databases; and provide qualified sources (rated). Maintain lists of experts and information sources that are focused on trade - particularly in the CANAMEX corridor. Provide for English and Spanish languages in both printed materials and in support staff. Develop/acquire capability to maintain highly detailed, sophisticated databases of companies, products, processes, and capabilities, and consult with trade associations and others so that they (not DataLink) actually maintain the data on their own systems, built to DataLink specifications. In doing this, DataLink will become a conduit for the distribution of leads and assistance. By conduit we mean be a robust means of channeling trade related information and assistance directly to businesses in the corridor. The systems and procedures should be designed for flexibility and change over time to meet anticipated changes and evolving needs. All systems should reflect the need for both proactive and passive distribution, and a flexible user-defined interface to the information.

Create and market value added information services for a subscriber base including basic research services as well as referrals. Establish a professional staff to sell advertising and other revenue generation activities, and manage the outsourced collocation services, hosting, etc. needed from the private sector. Establish memberships for providers as well as users, and adopt an advertising/value added services model. Incorporate flexible pricing and a menuing approach that enables businesses to select participation levels that are appropriate for their needs, interests, and commitment. This option still makes use of existing public and private sector providers of information because they will own and maintain most of the databases used. The funding is for the expert assistance, marketing, advocacy, standards development, member administration, etc.

6.6.1.2 Model B - Public/Private Sector Model

Almost the same as above, but subcontract as much of the work as possible. Hire only a Director to work through private sector groups, and a minimal support staff. Do it well, but for less. Far fewer people, no searching at all, 100% referrals to experts. Outsource the qualification of databases, etc. but do it. Maintain the lists and databases above. Membership by providers as well as users/advertising/value added services model. Flexible pricing, etc.

6.6.1.3 Model C - Private/Public Sector Model

Leave the execution ALL up to the private sector to do, but identify priority parts to assist in funding, and get the money to do it from the public sector. Develop the plans, specifications, etc. and evangelize the ideas, concepts, standards, etc. But do not get involved in execution except to push the key ideas, and provide some of the seed

money for database development. Under this model, the public sector would subsidize a few initial DataLink activities because it believed that they did, in fact, add value to the trade development process and would significantly speed up the introduction of a system. Public funds would be required because the private sector was not (yet - depending on time frame) convinced of that to a point where it was willing to fund it.

6.6.1.4 Model D - Public Evangelism - Private Funding

Leave the execution ALL up to the private sector to do, but identify priority parts to assist in funding, and get the money to do it primarily from the private sector. Develop the plans, specifications, etc. and evangelize the ideas, concepts, standards, etc. But do not get involved in execution except to push the key ideas, and provide some of the seed money.

6.6.1.5 Model E - Public Initiative - Private Execution

Leave the execution ALL up to the private sector to do on their own schedule. Do the plan, etc. and evangelize the ideas, concepts, standards, etc. But do not get involved in execution.

6.6.1.6 Model F - Marketplace

Forget it. Let the private sector make up its own rules, and keep an eye on them so you don't get left behind. Don't spend another dime of public money on anything. Let the associations and private companies read the final report of this project and go from there.

All options except Model F require a concerted marketing effort by the states and any other governmental and quasi-governmental bodies to succeed. The key is to build critical mass of interested parties early on. Engage competitors to cooperate in developing the context of HOW this is to be done at a base level. Let them compete based on Content and the higher level details of how the context is implemented and enhanced.

6.7 FINANCING

Financing requires recognition of both the capital and working capital start-up needs, as well as on-going operating capital. Between \$40,000 to \$120,000 in start-up seed capital is projected to come from the Arizona Government sector over two years to create detailed, coded databases of State companies.. Other States and provinces would need to fund their own database development. In all, the private sector would need to invest \$2,765,000 over the first two years to complete the plan the RFP requested. If completed however, (somewhat optimistic) revenue projections show nearly \$2MM in revenues by the end of the two year time frame. Private sector firms will invest to get a portion of the on-line business. Governments will invest to save costs of current operations, and because their missions will be enhanced by the existence of DataLink.

6.7.1 Revenue Opportunities

Operating costs present a problem only if one does not believe in the concept, or assumes that cash flow from revenues will come in much less strongly than the model projects. Operating costs will eventually have to be met by revenues.

Revenue opportunities come from a number of potential sources including:

- Membership Fees
- Content Subscriptions
- Dept. of Commerce type organizations & Federal grants, agencies desiring narrow casting services (to meet their own needs)
- Private sector firms desiring narrow casting services
- Download (on-demand) fees
- Display advertising
- On-Demand message advertising¹⁵

In the print advertising business the traditional means for charging for service is to base the charges on a (somewhat) verifiable measure of circulation or potential exposures. "Hits" or recorded accesses by an IP address on a WWW site initially were tested as the basis of transaction based billing because they could be measured. Hit counting has rapidly lost its appeal as people began to understand that hit rates were just another easily measured meaningless indicator of performance. New schemes are evolving that include No charge registration and the capture of demographic information. With these schemes, advertisers and distributors of all sorts of content can gain valuable insight into the kind of browser who views their content. When collected over a period of time, this - essentially free - market intelligence will become a very powerful marketing tool.

Charging for access to information or to be able to use a WWW site is a controversial issue. Based on the research conducted for this study, and several others mentioned in the Research section elsewhere in this report, we know that business people are skeptical of the value of information they must pay for in advance (with good reason, as shown here), but that if real value can be demonstrated, they will pay for access to content. Similarly, advertisers will pay to support sites they believe will attract "crowds" of viewers that meet the profiles they are looking for or wish to sell to. If sites are proven to have inferior or inaccurate content, repeat visits will be few and far between, and thus the site will suffer in its ability to command high advertising revenues.

In a well-supported article in the September 4, 1995 issue of *Information Week*¹⁶, Kate Maddox, Mitch Wagner, and Clinton Wilder examine the prevalent Internet business models. They state that,

"...A great deal of money is being made on the World Wide Web in ways

¹⁵ On-demand messages on Local Remote-Printer e-mail-to-fax conversion cover sheets would be controlled by the local provider for the top cover sheet. Other messages on different cover sheets would be controlled by DataLink and would cover the transmission itself.

¹⁶ CMP, Inc., Issue 543, page 31

unforeseen by industry experts. In the first seven months of 1995, 11 companies—a small subset of the complete Web universe—took in total Web-related revenue of nearly \$25 million...In the roughly 18 months since the Web began its stratospheric growth curve, thanks to graphical browser interfaces, four distinct revenue models have emerged for doing business in the nascent marketplace:

- Direct selling or marketing of a company's existing products and services.
- Selling advertising space.
- Charging fees for the actual content accessible on a Web site.
- Charging fees for on-line transactions or links."

6.7.2 Funding

Initial capital funding would most likely come from a combination of public and private sector grants, subscriptions from members, and from the sales or commissions on sales of information products. This mix would shift depending on the organizational model adopted. Major sources of on-going funding would most likely be the larger private sector firms who benefit the most from the existence of an organization whose mission is to foster the growth of electronic commerce and international trade such as the major telecommunications, on-line services, and technology firms. These same firms, plus the federal government agencies with an interest in accelerating the development of this sort of initiative, would be likely sources of "seed" capital to launch the project.

6.7.3 Pricing

In the User Survey, one of the original questions asked was whether users would be willing to pay for Datalink and if yes, how much. In nearly all cases the respondents indicated that because they didn't know the exact form, content, or quality of the service that it would be impossible to put a specific price or value on information provided by DataLink.

This question was soon changed to read, "Of the information you described as useful to your business, which items would you consider valuable enough to pay for receiving?" When this revised question was asked, many of the respondents indicated not only which items they would consider paying for, but also indicated roughly the amount they would be willing to pay for information.

The degree of eagerness to pay for information provided by Datalink can be broken down into three categories:

1. A solid "Yes" response - "I believe that business information is worth paying for, and would have no problem doing so."
2. A "Yes" for information that would be of direct benefit - "Sure, I'd pay for information that would help my business."
3. A "Conditional Yes", or a probable yes - "You would have to prove the value

to me; I would need to see a return on investment in order to pay for Datalink. But if those conditions were met, then yes, I probably would be willing to pay for information from the Datalink system."

A tally of the responses in these three groups, although not precise, shows 24% as a solid yes; 38% yes for a direct benefit; and 38% yes on a conditional basis. Again, we must point out that because the degree of willingness was not asked, these figures should be considered as only rough approximations and suggest further study (see below).

In general, larger, more established companies in mature industries are used to paying for information and showed the least resistance to paying for information.

The top technology-based companies have been known to pay \$35,000 for customized research into specific questions. Divisions of these companies have been known to have annual budgets for market research of more than one-quarter of a million dollars. These are high-profile, highly competitive companies who depend on state-of-the-art, up-to-the-minute research that can significantly affect these companies' bottom lines. It is also unlikely that the information on Datalink will suffice for these companies, since they are sophisticated, well-funded, operate internationally, and likely depend heavily on accountants, lawyers, and foreign distributors for international information. In terms of marketing data, much of the need is for customized information, and therefore not applicable to Datalink.

The smaller companies, especially startups, were more reticent to the idea of paying for information. A spokesperson for the Washington Software Association, stated that "[software] companies have such limited resources that they would rather go without the information." The software industry is rather unique in this regard, because approximately 70% of all software companies (in Washington State) consist of 5 employees or less. The key issues these companies face are 1) getting talented people; 2) getting sufficient capital; and 3) rapidly changing technology.

In these smaller companies, much of the attention is on engineering rather than finding markets. The quality of engineering is dependent on the intellectual capital of a company's personnel and their ability to bring innovative solutions to market quickly. In short, it will be difficult to convince these types of companies of the value of trade data, since 1) they let others worry about marketing (i.e., distributors) and 2) frequently take the position that customers will find them if their product is good. This type of business will no doubt benefit from an educational campaign and introductory price incentives designed to get users to try the system.

In addition to advertising and sponsorship revenue, DataLink will be able to charge fees for its own content such as trade leads, as well as subscription (access) fees. The billing mechanism for the service may also have to accommodate billing and collection for content providers who chose to contract out those services, although in a distributed system such as we have described here, it would be preferable for them to perform these functions themselves. Never the less, the DataLink customer accounting and billing system should be designed to be both robust and flexible. It should have the capability to

capture a great deal of information about subscribers and other types of users. This demographic and usage data also has value as a potential revenue stream, and may serve to keep subscription prices lower.

Keeping prices low may prove to be an important factor in building usage. Prices are dropping for all types of on-line services. Cost reductions and competitive pressures such as the explosion of Internet access and the creation of the Microsoft Network are putting downward pressure on overall price levels. Economies of scale will have a positive effect on cost structures, so the final pricing strategy should include some form of incentive scheme to induce businesses to use the service. Provided marketing costs do not increase beyond their marginal level of utility, discounting can serve to increase subscriptions and thus spread costs over a wider user base. Examples of such schemes include:

- A free trial period, followed by conversion to a monthly payment plan or annual subscription
- One free report or information or detailed trade lead, tailored to a prospect's industry or individual situation as proof of the quality of Datalink materials
- A reduced introductory rate, good for a limited time (i.e. 3 months) then a shift to the regular price
- Provide a basic listing in the companies database for the basic (low) subscription price, but charge more for an enhanced listing which might include more links, pictures, etc. Similar to the yellow pages.
- Certain content (say all Arizona State content) would be free, and included in the base price. State Agencies would pay DataLink for hosting content on the basis of their own internal cost savings. The legislature could mandate that all State content be put on-line, and give DataLink an exclusive franchise to host it for a period of time. A State sponsored incentive program to get people to access State information via one of the DataLink interface mechanisms (voice mail, fax-on-demand, narrow cast fax or e-mail, on-line database, etc.) would serve as advertising for DataLink, reduce State administrative costs, and increase DataLink's user count.
- DataLink could also price its services on a wholesale basis for the benefit of trade associations so that such associations would become the "retailers" of tailored or "private label" versions of the DataLink offerings to their constituents. The associations would be responsible for inducing companies to maintain their own database records about their products, services, company, capabilities, etc. and would share revenue derived from their activities based on DataLink with DataLink.

In conclusion, it appears that pricing is a complex issue, and plans that will work for one group may not work for another. We recommend that pricing decisions for content, to the greatest extent possible, be left in the hands of the content owners that DataLink is connected to. For those services that are provided directly by DataLink, or for items like advertising on DataLink pages, etc. We will recommend a) testing, and b) best guesses so that lengthy studies can be avoided. We believe that common sense and a willingness to experiment will work better than complex strategies.

6.7.4 Proposed Full-Service Budget

To facilitate discussion we have assembled a "full-service" budget that includes both capital and operating components for two years. The detail supporting this summary can be found at the ftp site at [ftp.halcyon.com/local/pickard/CANAMEX/COSTMDLB.XLS](ftp://ftp.halcyon.com/local/pickard/CANAMEX/COSTMDLB.XLS). In our recommendations we state that we do not recommend that the Legislature consider spending this amount of money. This budget is the approximate cost of building the DataLink system discussed in the RFP.

Two year revenues are estimated separately (and optimistically) based on growth in trade lead subscriptions, however nothing is included for advertising, or private sector sponsorships except cost offsets. Total revenues are estimated to be approximately \$2MM. These figures will probably be adjusted downward in the early years because of start-up delays, however based on the research we have done, we found demand at the price levels we have discussed. Please see above on pricing recommendations.

As discussed elsewhere, there are a number of revenue opportunities beyond trade lead subscriptions that could be exploited by the designers of DataLink. We believe that the State of Arizona will determine that most of the capital and operating cost required to build and operate DataLink will come from the private sector, therefore most of the risk - and the coincident reward - will be reaped by the private sector as well.

For purposes of this budget, we have assumed that the State of Arizona, and other States to be recruited by Arizona in Year 2 will bear the some of the costs of advocacy and education. The major costs from the proposed budget include the following table.

Based on this budget, total two year operating revenues are estimated to be approximately \$2.2MM. Total operating costs are estimated to be \$2.1MM, and total capital investment required is estimated to be \$1.0MM. Working capital requirements for the entire project, as a whole will be approximately \$2.0MM to finance the delay between revenues and expenses. It should be remembered that these figures are **VERY** preliminary.

FIGURE 7 – BUSINESS MODEL SCENARIO

Business Model Elements	Time Horizons		
	Right Now	Soon	Future
Access to Services (the DataLink WWW Pages)(done by DataLink)	(See Industry Net) Access to available to the World for free. Registration required for access to "member" areas.	Shift to "controlled circulation" model to enhance advertising revenues and ensure capture of better data	Respond to market
Service Access Fees for DataLink Server	Nominal or free at first to build participation. Subsidize to build participation or find a private sector provider who will offer a no-cost or low cost "get acquainted" option to prove value	Moving to private sector operation & market pricing. Better understanding of value of various types of content and leads.	100% private sector operation, some subcontracted from State & Fed Govt. agencies, some offered as competing products. Fees set by provider or negotiated.
Content Searching & Delivery (Z39.50/broker) (done by DataLink)	Recognize that there are many different methods and accommodate them. Evangelize Z39.50; provide listings of providers who use it.	Same. Fund/participate in conferences to foster the use of open standards and efficient technologies	Same
Navigation Assistance (contract)	Establish links to libraries based on minimal database, and limited short term staff. Build to "soon" scenario.	Establish a clearing house with "experts on experts and locations". Begin developing stronger Industry Information Committee (IIC) services	IICs should dominate and be distributed around the region. Probably cooperation between State IICs.

Figure 7 – Possible Business Model Scenario (continued)

Business Model Elements	Time Horizons		
	Right Now	Soon	Future
Trade leads (done by DataLink)	Subsidize the proactive distribution of first part (abstracts), charge a fee for the full tender. Subscription vs. on-demand fees. (\$20/mo. or \$6.00 per document)	Create both an on-line service and a proactive service. Phase out subsidies in favor of letting private sector support this as a marketing cost.	Full market service. "Franchise" standards require that part 1's or basic access be free or negligible charge, rest is up to market. End up with a combination of OBS and CATALIST type services run by the private sector with contracts and revenue sharing agreements with the public sector providers of trade opportunities & information
Government Information	Push for proactive distribution of Arizona Government information, as well as passive hosting. Push for proactive education and advocacy for these services - let the public know.	Build it into all department plans & subcontract out the work. Mandate cooperation and use of open standards (such as Z39.50). Set of goal (mandate?) to modify the necessary operating procedures to ensure that all public records - state wide - are available on line by 1/1/2001	Encourage private sector to compete, and link up all agencies. Come up with new ways to serve constituents better at less cost.
Broker Servers	Initially establish a co-located Z39.50 based server (or have content hosted) to serve as the central index.	Recruit more servers, etc. as part of the advocacy program.	Standards process and advocacy have created an environment where 1,000's of Z39.50 servers are on-line with trade related information, and they all know about each other.

FIGURE 7 -- POSSIBLE BUSINESS MODEL SCENARIO (CONTINUED)

Business Model Elements	Time Horizons		
	Right Now	Soon	Future
General Information	Passive, maintain links, policies up to individual providers	Semi-automate. Resource staff maintains links & becomes expert on the experts & sources. More automation. More self searching.	More Z39.50 penetration geometrically expands universe of data available.
Education & Advocacy (for all aspects of program) (specialize & focus)	Initially create program through volunteer organizations like ATIC in cooperation with Cluster committees and identified public and private sector organizations with interest, knowledge, and ability. Free and fee (cost recovery) seminars, etc. Budget for travel.	Continue in the volunteer mode, but begin to transition to IICs and private sector. Develop marketing plan that builds on this document.	IIC's should dominate and be distributed around the region. Probably cooperation between State IICs. Private sector should be well established by this time.
Extended Services (DataLink is a pointer - only)	Initially just information and trade leads.	Mandate State services to plan for how to effectively use on-line services, and (where appropriate) publish for DataLink.	Full range of services "pointed-at". Private sector driven. Gov't agencies use it just as any private sector firm would - as a way to improve service delivery and lower costs.
Remote Printer Servers (E-mail to Fax conversion)	Advocate and educate the private sector Internet service providers. If necessary, fund a pilot project. Sell ad space & evangelize use of e-mail.	No more subsidies, private sector program. Evangelize to other parts of region. Eliminate regulatory and competitive barriers. Begin specializing for Mexico to recover local costs.	Fully private sector program, enhanced by value added services, and now beginning to make a major impact on e-mail usage.

FIGURE 8 -DATA LINK ANNOTATED TWO YEAR BUDGET

Funding Purpose	2 Year Total	Comment
Personnel	\$399,500	These are primarily costs associated with the incremental operations of the data center, as well as personnel dedicated to marketing and managing the DataLink program under contract to the State. All funded by the private sector.
Benefits	83,895	Benefits at approximately 21%. All funded by the private sector.
Marketing	251,413	Costs, based on a percent of projected revenues for advertising, promotion, and private sector evangelism of the service. All funded by the private sector.
Equipment	413,100	Capital costs for hardware necessary to develop and expand the NOC, servers, fax servers, voice processing system, and remote-printer nodes. All funded by the private sector, except an allowance for a possible subsidy by the States to encourage the installation of remote-printers to translate e-mail into faxes, thus encouraging businesses to shift to e-mail technology.
Supplies & Software	318,970	All technical expenditures funded by the private sector, with the exception of the elements necessary to promote the concept, and the rural/e-mail to fax subsidy noted above.
Contractual	680,378	All technical expenditures funded by the private sector, with the exception of the elements necessary to promote the concept, and the rural/e-mail to fax subsidy noted above. This category however includes the Advocacy and Education work we believe is critical to the success of the concept.
Telcom	737,699	All funded by the private sector.
Other	192,343	All funded by the private sector. With the exception of funds to hire an evaluation consultant to monitor progress in the development and implementation of the DataLink system, travel funds, and a small amount of fudge to make the numbers come out neatly.
2 Year Total	\$3,077,297	Nearly 90% of which comes from the private sector.

FIGURE 9 – DATA LINK ALLOCATED & PHASED BUDGET

Funding Purpose	Year 1			Total	
	Assumed Arizona Funding	Other Government Funding	Other Sources of Funding		
Personnel	0	0	\$183,500	\$183,500	
Benefits	0	0	38,535	38,535	
Marketing	0	0	96,446	96,446	
Equipment	\$24,457	\$24,776	\$148,867	\$198,100	
Supplies & Software	\$6,561	\$6,554	157,305	170,420	
Contractual	54,714	23,551	350,939	429,204	
Phone & Telcom	0	0	196,356	196,356	
Other	10,674	14,540	53,790	79,004	
Sub Total	\$96,406	\$69,422	\$1,225,738	\$1,391,566	
Funding Purpose	Year 2			Total	2 Year Total
	Assumed Arizona Funding	Other Government Funding	Other Sources of Funding		
Personnel	0	0	\$216,000	\$216,000	\$399,500
Benefits	0	0	45,360	45,360	83,895
Marketing	0	0	154,967	154,967	251,413
Equipment	26,543	26,890	161,567	215,000	413,100
Supplies & Software	\$5,719	\$5,713	137,118	148,550	318,970
Contractual	32,019	13,782	205,373	251,174	680,378
Phone & Telcom	0	0	541,343	541,343	737,699
Other	15,313	20,860	77,166	113,338	192,343
Sub Total	\$79,594	\$67,245	\$1,538,893	\$1,685,732	\$3,077,297
Total Project Cost	\$176,000	\$136,666	\$2,764,631	\$3,077,297	
% of Total Budget	5.7%	4.4%	89.8%	100.0%	

7. LEGAL ISSUES

We engaged the Mexico City-based firm of Santamarina Y Steta to review Mexican law relevant to the operation of an on-line information and trade support service. They reviewed the plan for a service as we described it, and provided us with an opinion letter to the effect that, provided the servers for the DataLink service itself are physically resident in the U.S., then U.S. intellectual property law should have precedence. But they suggested a number of warnings and disclaimers that should be included in any subscription agreements, log-in screens, or other notices. In essence, the due diligence expected of a business involved in publishing in the U.S. would be expected in Mexico with regard to intellectual property issues such as: system operator liability, trade secrets, publication of pornography, or use of offensive or libelous language.

Mexican law is as yet silent on many issues of concern to the on-line publishing world. The same cautions that are appropriate in the U.S., are therefore appropriate in Mexico. The same quandaries exist as well. For example, if a system operator connected to the Internet decided to publish inappropriate or offensive material, they would be liable under Mexican law only if their server were in Mexico or they were deemed for some other reason to have a permanent presence there. If the publisher were outside Mexico, then the "carrier" or importer might be deemed liable. However, if the carrier were the Internet, then the carrier (the local Internet access provider) would (probably) not be liable because they exercised no control over the content they delivered. A particular recipient might proceed against a sender of offensive or harmful material, but not the carrier. "Monitoring private e-mail may be considered an offense as well according to the Mexican Constitution and to the Criminal Law."¹⁷ Thus it appears that the carrier or access provider would not be liable for the acts of individuals, unless they were involved in the creation or publishing of the offensive material or other illegal act.

Services rendered completely on-line through the Internet serve as a good buffer to separate DataLink from both the publisher of potentially offensive content and the recipient because DataLink would have no control over the transaction and the transaction would be deemed to have taken place outside of Mexico. However, because part of the DataLink concept includes providing an e-mail-to-fax conversion service, then the issue of ownership of the fax hardware comes into play because the service would be deemed to have taken place inside Mexico. If DataLink establishes an agency relationship with a firm in Mexico to own and operate local fax distribution centers, then DataLink would have some stake in the transaction. This will also be an issue relative to income taxes, as we will see below.

7.1 GOVERNMENT INFORMATION AND LICENSING

Counsel advised securing written contracts (not e-mail agreements) with any government agency whose information is to be published.

¹⁷ September 7, 1995 letter from Sergio Legorreta G., Santamarina Y Steta, Mexico City

7.2 IMPORT/EXPORT, TAX TREATMENTS, AND REGISTRATION

Content of any kind that is transmitted across the border and not physically shipped across the border (on a CD or diskette for example) is not considered an import under Mexican law. Software or other digital material that is transmitted electronically is not subject to duties.

Under Mexican law, if DataLink or another entity (identified for the sake of example as DataLink, Inc. or another information provider charging Mexican firms a fee for downloading content) is established in the U.S., then for purposes of Mexican tax law, the entity would be regarded as a non-resident company since its base was abroad. Non-resident companies are subject to Mexican Income Tax *if they have a source of income or a permanent establishment in the country*. If these conditions exist, any services provided to Mexican firms such as subscriptions or fees-for-service would require a provision to accommodate some form of income tax withholding. Withholding rates vary from 5% to 35%. Under Mexican law, a content provider would be deemed to have a "permanent establishment" if the provider maintains an agent or place of business in the country. Any taxes paid in Mexico should offset against credits on U.S. taxes, thus the impacts should be minimal.

Counsel believes that if Datalink - or other providers - has no equipment/infrastructure or personnel in Mexico then it would be considered to be a non-resident corporation without a source of income or permanent establishment, and would therefore not be subject to Mexican income taxes. However, if DataLink, Inc. directly or indirectly had an agent or equipment in the country for use in managing its business in Mexico, then it would be liable for payment of taxes. Prudent business practices would dictate that as any services are rolled out, the specific agency and processing arrangements should be clearly documented so that the legal implications of such an agency are clearly understood.

If any servers or equipment are installed in Mexico, then the only official requirement is to record the service with the Ministry of Communications. If all access to DataLink is through unrelated Internet providers or long distance calls to the U.S. or another country, then no recording or permit is required.

The full text of the opinion letter is provided in the Appendix.

8. APPENDIX—DATA LINK INTERACTIVE TRADE INFORMATION DIRECTORY

This list of databases and WWW URLs is being integrated into a home page, and should be on-line "soon". After October 11, 1995, navigate to:

<http://www.halcyon.com/pickard/CANAMEX/>



DataLink

© 1995 The State of Arizona

**"An electronic commerce project
of the CANAMEX Trade Corridor"**

Welcome to DataLink The CANAMEX Electronic Trade Directory

The purpose of this location is to present information about trade, NAFTA and trade related issues. The geographic focus is Western Canada and the Western U.S. and Mexico. Would you like to add to this site? Want to annotate your own link here? Contact us with questions or comments.

NAFTA Information

Arizona State NAFTA Pages

NAFTA Market Place

NAFTA Watch

NAFTA NET

NAFTALAB

NAFTA Information

Call for fax-back 202-482-1495. #1 provides information on Canada, Mexico, & NAFTA doc. #0101 is Main menu. #6000 = Mexican tariff schedule. #7000 = Canadian tariff schedule.

NAFTA Facts

Collections of links by TradePoint USA, a UN organization, Facts on Doing business in Canada, Mexico, and information on NAFTA.

ITA NAFTA OnLine

North American Institute

Thomas Register

SEE THE U.S.-MEXICAN POLICY STUDIES PROGRAM HOME PAGE

Free Trade News Online

Mexican Sites & About Mexico

Mexico (U. Texas)

This page provides links to information on the country of Mexico. Subjects covered include maps, history, articles on Mexico Out of Balance and Mexico's Electoral Aftermath and Political Future, Conference Memoria, Universities, government info, and more.

INEGI INSTITUTO NACIONAL DE ESTADISTICA GEOGRAFIA E INFORMATICA

INEGI is the National Institute for Mexican statistics.

Bancomer Informe Economico

Bancomer is a very large commercial bank based in Mexico City. The Economic Analysis section of the bank publishes an excellent series of monthly reports on the economy of Mexico. These reports are essential reading for anyone serious about trade.

Bancomext

Bancomext is the primary bank for the development of external trade and investment.

Consulado de México en Nueva York

Bienvenidos a este nuevo foro electronico que el Consulado General de Mexico en Nueva York pone a su disposicion.

AMDH Bulletin Archive 1995

U. Texas LANIC Virtual Library: Latin American Studies AMDH Bulletin Archive 1995 by thread

CONNEXX INTERNATIONAL

Making new business connections for your nationwide/worldwide venture capital, financial services, marketing, new products, business opportunities, import/export, distribution and closeout merchandise

Internet de Mexico

LaJornada

La elaboración de estas páginas es un servicio de La Jornada Difundido desde la Universidad Nacional Autónoma de México

University of Texas Latin America References

Reference sources on Mexico.

Red de Informacion Ejjidal (RIE) - Gopher

Mexico Information

Collection of Yahoo Information on Mexico

University of Sonora*

The site provides academic and historic information about the university including sensitive maps of the campus, the City of Hermosillo, and Sonora State with general information. It also includes local news and more.

Map of Mexico (1248x1010) 305 kb

Central American News

Mexico: a Big Emerging Market (BEM)

Mexican News

CIA Factbook: Mexico

How to do Business in Mexico. (FAO)

Internet Providers In México

THE LIST -- Mexico

The List is another service that provides catalogs of e-mail addresses and URL's for Internet service providers.

City Net - Mexico

Transportation information and city guides, maps, culture, statistics, travel & tourism information.

WWW Servers in Mexico by State

Servidores WWW En Mexico Lista Por Estado*

Servers by State, * in Spanish

Internet de Mexico (Services & Subjects)*

*In Spanish

InfoSel (Reforma/El Norte/+)*

* In Spanish

Universidad de Guadalajara Mexico Info.*

Sistema Profesional de Informacion (SPIN)*

Internet Resource Guide for Latin America

Lann American Database (LADB) at the University of New Mexico (\$) (800) 472-0888

Fee based service.

InterAm Database for the Americas at the National Law Center for Inter American Free Trade (\$) (520) 622-0925

Also see NatLaw under the Legal Section.

Latin American Sites & About Latin America

Corporacion Andina de Fomento

Directorio America Latina Global Net

Spanish WWW subject catalog

Eco Travels

InfoSel Home Page

INFO-SOUTH

Latin American Information System (800)752-9567

Inter-American Development Bank

ITINET

ITINET - ITIWeb

Latin American and Caribbean Center (LACCD)

Internet Resources for Latin America

Internet resources for Latin America

Welcome to Latin American Trade Council of Oregon LATCO

Latin American Trade Council of Oregon Gopher

Gopher site with a large collection of documents, staffed by an informed group.

Latin America Data Base

Latin American Newsletters

NACLA Report on the Americas

SunSITE, Latin America, Chile

SunSITE, Latin America, Chile, Universidad de Chile, DCC

Latin American Network Center

UT-LANIC Home Page Latin American Network Center

Canadian Sites & About Canada

Canada Net Pages

Canada Net Pages

Canadian Business Directory

Canadian Business Directory

Canadiana -- The Canadian Resource Page

Canadiana -- The Canadian Resource Page

Canadian Airlines International, Ltd.

Canadian Airlines International Ltd.

Champlain: Canadian Information Explorer

Champlain: Canadian Information Explorer

DEAIT/MAECI Canada

Dept. of Foreign Affairs and International Trade Index of Canadian exports

Industry Canada Internet Site

This database provides an explanation and links to the contents of the Internet document database of the Canadian Government's Industry Canada Ministry.

<http://www.mmltd.com>

Canadian Government's Industry Canada Ministry

List of Canada/U.S. Business Experts

From Joseph C. Grasmick's "Rolodex"

Micromedia Limited

Micromedia is the premier provider of information from Canadian sources, both in Canada and in the global market.

Pacific Northwest Business Exchange

PATSCAN

UUNET Canada Home Page

Welcome to Statistics Canada

Canadian Business News

North American Institute

This site provides information about the North American Institute, a thinktank that was partially responsible for the text of such legislation as the North American Free Trade Agreement (NAFTA). Offered here are numerous documents

U.S. Immigration for Canadian Businesses & Professionals

This site provides information about US immigration and work permits for Canadian businesses and professionals.

Micromedia: Canada's Information People

Micromedia is the premier provider of information products in Canada. We offer a wide range of information products and services to the library and business communities in a variety of formats

U.S. Sites & About the U.S.

US Governmental Sites

U.S. Government - Jump Points

Government Sites Relating to OSD. FedWorld is the master index for all of the US Federal Government Web Services. If you didn't find what you were looking for elsewhere, check here to peruse the other US government servers.

"How To" Export Information

US Business Advisor

STAT-USA/Internet

This is the major repository for much of the U.S. Government's materials including the National Trade Databank (NTDB)

U.S. Foreign Trade Information

Links to U.S. Government Agencies

This is a collection of links to over 15 U.S. agencies or databases that are related to trade in some way.

ITA's Fax-on-Demand and Information Centers

A number of offices now offer documents on demand, delivered directly to your fax machine 24 hours a day.

International Trade Administration

World Trade Data

U.S. Marketing & Demographics

Yahoo's collection of census, demographics and Internet statistics.

ITA Analysis: Big Emerging Markets

Federal Regulations

Agriculture

select NAL Information Centers

Dept of Trade Frustration

Government Information Locator Service (GILS) Demonstration

Chambers of Commerce Directory

Chambers of Commerce Directory

Hispanic Association

Hispanic Association on Corporate Responsibility

Arizona State Information

Latin America Net (LANET)

Arizona State Dept of Commerce

Tried for several hours to get through one Sunday night, 8/27/95, but the server would not respond.

BANET

According to its developers: The BANET (Business Access Network) is the only national/international "on-line" system specifically designed for businesses and their customers. Very much "under construction".

Welcome to the Arizona NAFTA Internet Page!
University of AZ NAFTA Network

Washington State Information

The Washington Trade Center

Looks flakey because of broken links, lack of content, and provider quality - but has some interesting information. See if there are any other sites with these directories - and possibly copy them and have others support them who will last longer

Washington State International Affairs Directory

Looks flakey because of broken links, lack of content, and provider quality - but has some interesting information. See if there are any other sites with these directories - and possibly copy them and have others support them who will last longer

Washington State Trade & Economic Development

Government Agencies Assisting International Trade

Export Assistance and Financing

Small Business Development Centers

City of Spokane, Department of International Development

Washington International Trade Organizations

Washington Apple Commission

General International Statistics & Information

InfoSeek Net Search Results: International trade

International Business Resources

International Business Resources on the WWW

International Corruption Monitoring Service

A Joint Initiative of Transparency International and the University Goettingen .
The service defines corruption, provides a ranking, a discussion of cultural differences, and examples.

International Net Directory

Corruption Ranking by Country 1995

U.S. - Travel Advisories

British - Travel Advice Notices

UN Food and Agriculture Organization

World Bank FTP Site

Commercial On-Line Services & Database Vendors

Carl Uncover

CommerceNet Home

Commercial Services on the Net

Dataquest

DataStar

Dialog

Dun & Bradstreet Information Services

Knight-Ridder

Lexis-Nexis

Dialog (Knight-Ridder) Home Page
On-Line Inc.

On-line database and CD-ROM.

NSAMER (North and South America Library)

Excellent information at NSAMER (North and South America Library) Mead Data, fee based service. For an account contact (800) 227-4908 or (513) 859-5398 or webmaster@lexis-nexis.com or PO Box 933, Dayton, OH 45401-0933

Procurement Services

Industry Net

This is an excellent example of a commerce and trade related page that a trade association could emulate.

FAST Broker Project

Anna-Lena Neches, USC/ISI, the FAST Project, 4676 Admiralty Way, Marina del Rey, CA 90292 USA Phone: 310/822-1511, Fax: 310/823-1482

Thomas Register

PartNet Home Page

Welcome to PartNet, a distributed component information system providing online desktop access for internal and external users. PartNet enables a user to identify, search for, and select components from a distributed world-wide catalog of parts.

World Trade Yellow Pages

Washington State Procurement

Oregon State Procurement

Texas State Procurement

Virginia State Procurement Information

Software.net home page

CAS Inc

Based in Arizona, this firm is focused on developing trade and information exchange between Sonora and Arizona, and eventually expanding into a broader range of international markets.

Trade Services

GlobalBiz

The Trade Zone

Lots of links. List servers, Publications & News This one bears exploring further.

Links of Export Concern

Export Sales & Marketing Manual, FedWorld, International BusinessDirectory, Global Trade Center, Encryption export controls, Dept of Commerce On-Line Information Service, National Trade Databank, NAFTAnet, and more

Trade Point USA

Trade Oriented WWW Sites

International Market Service

U.S.-MEXICO CHAMBER OF COMMERCE

Legal Services

International Trade Law Home Page - International Trade Law Project - Ananse

This page provide links to many sites related to international trade law. Some of

the areas covered include WTO/ GATT1994, United Nations (trade-related organizations), ICC addresses, a comprehensive list of international trade, and more.

Trade Law Library - Internet sites for Law, Economics and Commerce

Same location as above, but a different set of links.

National Law Center for Inter-American Free Trade

Key changes in Mexican commercial law are tracked each week in Inter-American Trade and Investment Law, a bulletin and online database (InterAm) published by the National Law Center for Inter-American Free Trade.

More on the National Law Center

The Bulletin summarizes important changes and regulations affecting financial reporting requirements, customs, tax codes, banking law and other matters. The summaries are complemented by full text in the database.

Even More on the National Law Center

The database, InterAm, contains full-texts of statutes, regulations and technical standards. The Diario Oficial is available online the same day of publication. You can reach the NLCIFT at 800-529-3463 for complete subscription information.

WTA /WTO & GATT 1994

The Final Act and Agreement Establishing the World Trade Organization. General Agreement on Tariffs and Trade, Uruguay Round (including GATT 1994). Marrakesh, 15 April 1994.

Free Trade Treaties

An index of treaties related to various aspects of free trade, this page contains links to the text of the recent Maastricht treaty, 1994's WTO/GATT, and the North American Free Trade Agreement (NAFTA).

Advertising Law Internet Site

North American Free Trade Agreement

The full text of the North American Free Trade Agreement is presented, including daily notes dispatched from the White House and a collection of White House press releases dealing with the agreement.

Intellectual Property

This page describes intellectual property law. Topics include trademark, trade name, fictitious business name, corporate name, registering your trademark/service mark, trade dress, and more.

Trade & Investment Opportunities (World Wide)

Agricultural Trade Leads

Relatively current and updated set of USDA collected opportunities

US Trade Opportunity Program (TOP)

Daily TOP Government Trade Opportunities

Daily TOP Private Sector Trade Opportunities

Eastern European Trade & Investment Opportunities

This is an eclectic set of leads. Some are new, many are old.

Weekly Summary of TOP Trade Opportunities

Free Trade News Online

Free Trade News is a fee based publication about NAFTA and GATT related informational updates, international business newsbriefs, multi-lateral trade opportunities and is distributed in the USA, Canada, Mexico, Colombia and Panama. San Antonio, Texas

Finance

Economics & Finance

Economics & Government

Useful jumping-off points for information on economics and government.

FinanceNet

FinanceNet reaches across the world to provide listings of Government Asset Sales for the general public while providing electronic document Libraries and Mailing Lists

Commercial Finance ONLINE!

A service that matches finance companies and investors with deals. Post information on a deal you have that needs financing, or set up a web page advertising your finance related firm.

Holt Report World Financial Data Summary

The Holt report summarizes financial data from the world markets. It is updated each day, but lags the market by a day. Each day's record is saved, and the archive may be searched by changing the date in the URL shown on the browser's "Location" line.

Commodities Markets

Chicago Mercantile Exchange Home Page

Welcome to the Home Page of the Chicago Mercantile Exchange (CME), the world's busiest futures exchange and the innovative leader in exchange-traded financial futures and options.

Current Daily Oil & Gas Pricing

Updated several times daily, prices for all sorts of petroleum products

Quote.Com Weather Trades

QuoteCom, in cooperation with Freese-Notis Weather, offers weather forecasts and commodity trading recommendations based on those forecasts. Subscriptions or fee for service pricing.

Exchange Rates

Real Time Reported Exchange Rates

This is a short list of the most actively traded currencies.

U.N. Reported Exchange Rates

Updated approximately monthly

Technical Sites

WAIS indexes by net domain

WAIS Directory

TRW Smart Searching System

For more information about TRW Search Access write: TRW Business Intelligence Systems 1329 Moffett Park Drive Sunnyvale, CA 94089
1.800.767.8457 smart-info@bis.trw.com

NAFTAnet EC/EDI

lbex

Fax on demand technology

Color/Hex Tables

Telecom Information Resources

Secure Financial Transactions - Netscape

ODMG

For more information about the ODMG and the latest status of its work, send electronic mail to info@odmg.org. You will receive an automated response. If you have questions on ODMG-93, send them to question@odmg.org. Book orders use ISBN 1-55860-302-6

Yahoo Electronic Commerce

Information Extraction

Information extraction (IE) systems analyze unrestricted text in order to extract specific types of information. This paper is a short introduction to information extraction systems, with additional pointers to research.

ORGANIZATIONS--Standards

Premenos' Electronic Commerce Resource Guide

Electronic Commerce (EDD) Resources

Harvest Information Cataloging Technology

Harvest Standardization Planning

Harvest Papers

Automatrix Cataloging System

MIT Research Program on Communications Policy

DataLink DRAFT FINAL REPORT for Word for Windows 2.0 and above, including 7.0 (but not 6.0)

DataLink DRAFT FINAL REPORT for Word for Windows 6.0

DataLink DRAFT FINAL REPORT for Word for Macintosh 5.0 and above

This is a preliminary copy of the final report on the virtual trade corridor concept prepared by Pickard & Murphy, Inc. for the Arizona Legislature. Final5A.mac is the Mac version. Final 5A.doc is the windows version for everyone but users of Word for Windows 6.0. Because of an added feature set users of Windows 6.0 will have to use FINAL5C.doc.

Virtual Catalogs

Infomaster - A Prototype Virtual Catalog

Infomaster is a General Information System. It integrates heterogeneous, distributed databases, and allows the user access to a single virtual comprehensive database via multiple input modalities.

Virtual Catalogs - Arthur Keller

Arthur M. Keller, "Smart Catalogs and Virtual Catalogs," in USENIX Workshop on Electronic Commerce, August 1995

Developing an On-Line Presence - Arthur Keller

William T. Wong and Arthur M. Keller, "Developing an Internet Presence with On-line Electronic Catalogs," accepted for publication in Workshop on Electronic Commerce, December 1994.

A Smart Catalog and Brokering Architecture

Arthur M. Keller, Michael R. Genesereth, Narinder P. Singh, and Mustafa A. Syed, "A Smart Catalog and Brokering Architecture for Electronic Commerce," accepted for publication in Workshop on Electronic Commerce, December 1994

An Approach for Integrating Data from Inconsistent Databases

Shailesh Agarwal, Arthur M. Keller, Krishna Saraswat, and Gio Wiederhold, "Flexible Relation: An Approach for Integrating Data from Multiple, Possibly Inconsistent Databases," appeared in Int. Conf. on Data Engineering, Taipei, Taiwan, March 1995.

A Version Numbering Scheme with a Useful Lexicographical Order

Arthur M. Keller and Jeffrey D. Ullman, "A Version Numbering Scheme with a Useful Lexicographical Order," appeared in Int. Conf. on Data Engineering, Taipei, Taiwan, March 1995.

CIT's Work on Smart Catalogs and Virtual Catalogs

Stanford Center for Information Technology (CIT) is developing the technology for smart catalogs as part of its efforts on CommerceNet.

Stanford CIT's Technology for CommerceNet

CIT has produced these short papers on smart catalogs.

Virtual Catalogs Presentation - Arthur Keller

Current Approaches in Deployment

Interesting Information

Copyright Clearance Center Middle of Nowhere/Electronic Frontier

A collection of some very thought provoking writings on the subject of things cyber. Not specifically trade related, but many are quite business related and appropriate for business people evaluating how to make use of this new medium.

The URL-minder: Your Own Personal Web Robot!

The URL-minder keeps track of resources on the World Wide Web, and sends you e-mail whenever your personally registered resources change.

The Geographic Name Sever

Quick & Crude U.S. city data. Enter: 1. The name of the city that you want information about (e.g. "Phoenix"), or 2. The name of both the city and state of the city you want (e.g. "Seattle, Washington"), or 3. the zip code for the city (e.g. 98122)

Dilbert. The Official CANAMEX Comic Strip



Click Here to download an Acrobat Reader. Some of the reports that can be found under some of the links on this page are presented in Adobe Acrobat (tm) format to preserve page formatting and the integrity of embedded charts and graphs. To download an individual Acrobat document, click on it as you would any other document. If your system is memory constrained, save the documents for viewing later after you have exited your browser.



The State of Arizona would like to thank *Pickard & Murphy, Inc., International Management Consultants* for creating and hosting the CANAMEX - DataLink home pages. If you have questions as to how we might assist your firm, please contact us via e-mail at bpickard@pickard-murphy.com. Pickard & Murphy, Inc. 3213 East Alder Street Seattle, Washington 98122 (206) 323-5979 Fax (206) 860-4877. Pickard & Murphy, Inc. enables its clients to compete more effectively in the global economy through the implementation of appropriate technology within critical business processes.

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9. APPENDIX—DECENTRALIZED, WIDE-AREA ELECTRONIC SEARCH AND RETRIEVAL TECHNOLOGY (Z39.50)

The World Wide Web provides a pervasive solution to the problem of displaying information that is obtained from diverse sources on the Internet. A number of Internet indexes are available that attempt to categorize the wealth of information on the Internet. Most are simply searchable collections of keywords retrieved from public Internet sites; several are organized by topic areas.

9.1 PROBLEMS WITH CURRENT INFRASTRUCTURE

There are five key problems with current Internet information search-and-retrieval capabilities:

- 1) Finding the good sources of information. It is difficult to keep centralized indexes up-to-date with the location and content of every information source. It also is difficult to locate appropriate information sources because simple keyword searching generates too many 'hits'. Furthermore, there is no way to find and select specific databases from a potentially unlimited pool.
- 2) Integrating commercial information sources. Most of the current keyword-based indexes rely on software that traverses the Internet collecting free content from information provider's Web sites ("WWW robots"). In order to obtain adequate indexing, a site must provide all its content at no charge. This is unacceptable to commercial information providers, since their business is "pay-for-content". This in turn puts severe limitations on the kinds of information that are available from current WWW-robot based indexes.
- 3) Incompatible user interfaces. There is no universal, easy-to-use interface for finding and retrieving information. Currently users are forced to learn many entirely different search systems, each with its own internal structure and its own query language.
- 4) Scaling problems. Centralized information indexes will not be able to sustain the rapid growth in the volume and diversity of available information. Past history has shown that only a distributed architecture can accommodate the explosive growth of the Internet. Scaling problems are aggravated because existing WWW robots place significant load on information servers and network links, and they do not share information gathering among themselves.
- 5) Lack of access by non-Internet audiences. Although we expect that the Internet will eventually be the dominant form of on-line service, it is a long way from 100% penetration. To meet the objective of "best way" information delivery via fax, phone, on-line service or Internet - as the customer desires - a single database must support a variety of interface technologies.

9.2 A BETTER APPROACH TO SEARCH AND RETRIEVAL

What is needed is an international standard for network information search and retrieval. The standard should allow a user to access remote database records by specifying universal search criteria. Then, the standard must allow a user to request transmission and presentation of the records that meet the search criteria.

The interface should consolidate data from many different sources and allow manipulation of this information without regard to its origins.

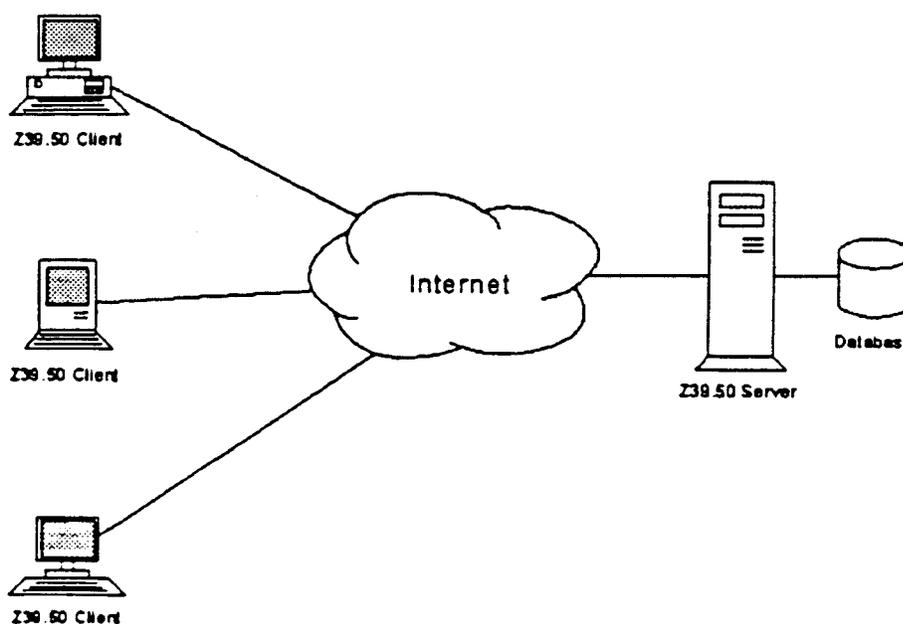
The search-and-retrieval standard should be distributed and scaleable. This allows for the future growth of both the complexity and number of clients and servers.

It also should be flexible enough to accommodate a wide range of different types of content and different search strategies.

Finally, the standard should support security and billing, offering a commercial incentive for organizations to make valuable information available on the Internet.

9.3 A STANDARD THAT IS AVAILABLE NOW - Z39.50

ANSI/NISO Z39.50 defines a standard way for two or more computers to communicate for the purpose of information retrieval. Z39.50 makes it easier to use large information databases by standardizing the procedures and features for searching and retrieving information. Specifically, Z39.50 supports information retrieval in a distributed, client and server environment where a computer operating as a client submits a search request (i.e., a query) to another computer acting as an information server. Software on the server performs a search on one or more databases and creates a result set of records that meet the criteria of the search request. The server returns records from the result set to the client for processing.



The power of Z39.50 is that it separates the user interface on the client side from the information servers, search engines, and databases. Z39.50 provides a consistent view of information from a wide variety of sources, and it offers the capability to integrate information from a wide range of databases and servers.

Z39.50 is a mature standard. Its development was spearheaded over seven years ago by the library community for implemented distributed book catalogs. Since then, Z39.50 support has grown and the protocol now is supported by over seventy organizations and is widely used in the Internet environment.

9.4 Z39.50 DISTRIBUTED SEARCHING OVERVIEW

A Z39.50 distributed search system is composed of three separate parts: clients, servers, and a protocol that connects them.

The client is the user interface, the server does the indexing and retrieval of documents,

and the protocol is used to transmit the queries and responses. The client and server are isolated from each other through the protocol. Any client that is capable of translating a users request into the standard protocol can be used in the system. Likewise, any server capable of answering a request encoded in the protocol can be accessed by a client.

A power of standardized protocol is that it allows different clients and servers to interoperate even when there are differences between computer systems, search engines, and databases. Software for end-user interaction and for display (the client) is separate from the software that manages the information, performs the search, and returns the results (the server).

The client-server model allows each database residing on information servers to have unique characteristics. For example, databases may differ in the way they store data and in the specific fields available for searching. The records in each of the databases may also have different structures and consist of different data elements. The objective of distributed searching is to support computer-to-computer communication in standard and mutually understandable terms and support the transfer of data between the systems independent of the structure, content, or format of the data in a particular system.

9.4.1 Client Details

On the client side, questions are typically formulated as English language questions. The client application then translates the query into a standard protocol, and transmits it over a network to a server. The server receives the transmission, translates the received packet into its own query language, and searches for documents satisfying the query. The list of relevant documents are then encoded in the protocol, and transmitted back to the client. The client decodes the response, and displays a summary of the results. Specific documents can then be retrieved from the server.

9.4.2 Servers

A server is a source of information. It can be located anywhere on the network. The client can request information about all available servers. All servers make public information available that includes how to contact the server, a description of the server contents, and the cost to use the server.

A server provider can make local decisions about how to implement and manage the information that is local to a server. For example, information search strategy can be optimized for the specific data that resides on a particular server. A server also can choose to whom and when the data should be given.

9.4.3 The Protocol

Creating an infrastructure where new information sources can be readily integrated requires an open, publicly available protocol.

Unlike centralized retrieval systems, a distributed protocol can support more than one

simultaneous source of information. With a standards-based client/server architecture, the user selects a set of sources to query for information, and then formulates a question. When the question is run, the system automatically asks all the servers for the required information with no further interaction necessary by the user. The documents returned are sorted and consolidated in a single aggregate response. The user has transparent access to a multitude of local and remote databases.

9.4.4 Searching a Database

When a database is searched, the client passes a query to the server. The query contains search terms (i.e., terms that the user has identified to be matched against access points in the database) and attributes of those search terms (e.g., specifying the terms as an "author" or "title," specifying if the terms are to be "truncated," etc.).

Often a search is performed two passes. First, a database containing a list of all the available information servers is queried. The results of this query consist of a list of servers that are qualified to answer a particular query. Then, the detailed query is sent to each of the qualified servers.

After the server executes a search of a database, the server creates a result set consisting of those records that match the criteria of the query. Clients can request that servers return those records from a result set, or they can issue additional searches that further qualify a result set or use result sets as arguments in subsequent searches. The client merges the results of all queried servers, ranked by relevance, and presents this list to the user.

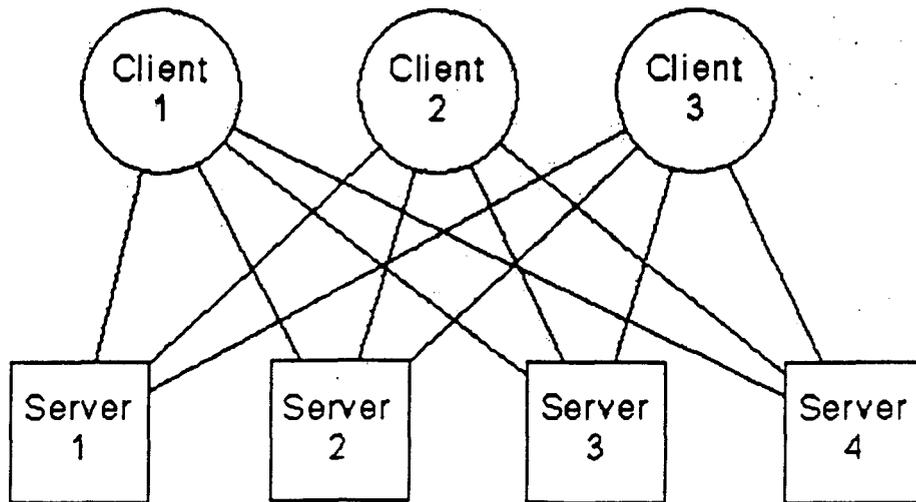
When the user wants to display records listed in the result set, the protocol provides choices about which data elements from the database record the user can request. It also gives choices about the format for transferring the record from the server to the client.

During either the search or retrieval phases, the server may require the client to provide information such as passwords or authentication. The client and server also may ask for and provide information related to the resources that will be or are being expended to carry out specific search and retrieval activities such as the cost of a particular search.

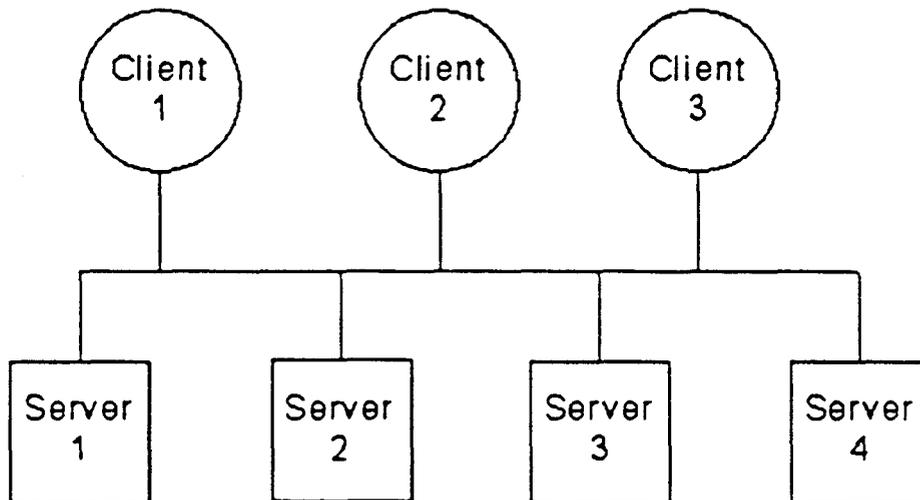
9.5 ADVANTAGES OF Z39.50 STANDARDIZATION

9.5.1 Based on Open Standards

National and international standards are critical for promote widespread acceptance of distributed technology. Network publishing depends on a "critical mass" of publishers and users. Without a universal standard, it becomes increasingly difficult to support large number of systems. For example, the following diagram illustrates "m" clients needing access to "n" servers without an interchange standard. Each client must be programmed to support "n" different interfaces, resulting in the development of "m x n" interfaces. The same is true on the server side.



However, with a protocol standard, each client needs to support a single interface, and each server as well. This results in the development of "m + n" interfaces: a much smaller number, especially once "m" and "n" become large.



Two successful examples of open communications standards are TCP/IP and HTTP. The former has provided a universal transport for worldwide data communications. The latter has provided a universal approach to formatting and displaying graphical information. In both cases, implementation effort is reduced greatly when clients and servers need support only one interchange standard.

9.5.2 Scalable to Large Numbers of Distributed Clients and Servers

Z39.50 is designed to be scalable to large numbers of distributed clients and servers. The standard includes mechanisms for finding what servers are available, how to contact them, and how much they cost. Furthermore, queries can be transmitted to many servers

simultaneously, with no additional effort on the part of an end-user.

9.5.3 Scalable to Small and Large Data Collections

The size of a data collection can range from less than a megabyte to tens of gigabytes. Z39.50 allows a wide variety of different underlying implementations that support both small collections of information and very large databases.

9.5.4 Access Restriction for Security

A user might be able to get information about a database but be restricted from searching or retrieving information from it, or in other cases no information would be available to outside users. Varying levels of security are available on a database-by-database basis. Adequate security protocols encourage organizations to make information available over public communications infrastructure by ensuring reasonable levels of protection against unrestricted access.

9.5.5 Accounting Information for Billing

Z39.50 supports a variety of different billing methods. These include both pay-per-search and pay-per-retrieval. With a client-server system, each server is free to set its own policy with regards to billing. Servers, for instance, can make document header or document index information available at no charge to encourage browsing, but charge for full-text document retrieval. Real-time billing estimates also allow users to protect themselves from unexpectedly large expenses during search sessions.

9.5.6 Flexibility to Adapt to Changing Needs

The Z39.50 protocol suite is flexible enough to accommodate the needs of a rapidly changing industry. The protocol has already undergone over seven years of standardization work, including two refined versions of the original standard. Efforts to develop the fourth generation of protocol enhancements are beginning now.

9.6 IMPLEMENTING Z39.50 SOLUTIONS

Over seventy organizations are registered as Z39.50 implementers. More than six hundred Z39.50-compatible databases are available worldwide.

9.6.1 WAIS

One of the earliest and most popular Z39.50 implementations is WAIS (Wide Area Information Server). WAIS was developed by Brewster Kahle of Thinking Machines Corporation, and was released in 1991. The WAIS protocol is not strictly Z39.50 compatible, since it consists of several nonstandard extensions to Z39.50.

Much of the popularity of WAIS is due to freely-available source code for both the client and server components. Today, WAIS has been ported to many different hardware

platforms and operating systems. In addition, several organizations provide commercial implementations of WAIS.

9.6.2 *Client Solutions*

9.6.2.1 Native Clients

There are many freely available client software packages that provide Z39.50 query capability. These packages support a wide variety of different operating systems, including MS-Windows, Mac-OS, OS/2, and UNIX.

9.6.2.2 Z39.50 Gateways

Due to the popularity of the World Wide Web, several gateways are available that allow Web browsers to query Z39.50 databases.

In addition to World Wide Web gateways, other gateway implementations also allow Gopher and e-mail users to perform Z39.50 Internet search-and-retrieval.

9.6.3 *Server Solutions*

9.6.3.1 Commercial Z39.50 and WAIS

Many companies have developed Z39.50 server implementations (for a listing, see the URL <http://lcweb.loc.gov/z3950/agency/register.html>). Some of these systems target specific industry groups, such as library management. Other systems are general-purpose, allowing easy integration of information search capabilities into a wide-variety of existing information sources.

9.6.3.2 Free Z39.50 and WAIS

There are several important free Z39.50 server implementations available, including freeWAIS, freeWAIS-sf, and ZDIST.

The following URLs provide more information:

<http://cnidr.org/welcome.cnidr.html>

<http://charly.informatik.uni-dortmund.de/freeWAIS-sf/freeWAIS-sf.html>

9.7 THE FUTURE OF Z39.50

Since the first release of the Z39.50 standard in 1988, Z39.50 has been significantly enriched and its popularity has increased considerably, as evidenced by the growing numbers of registered implementers, nationally and internationally. Z39.50 implementers have expanded to not only include representatives from the librarian community, but also representatives from government agencies, educational institutions, and the commercial sector.

The first version of the Z39.50 standard is referred to as Z39.50-1988 or Z39.50 version 1. In 1992, the second version of the Z39.50 standard was finished and in 1995, the third version. Each version has included important new features. Version 2 introduced more powerful search primitives, access control, and resource control. Version 3 expanded search capabilities further, as well as adding more options for retrieving different document types and intermediate results, specific formats for encryption and authentication, support for international character coding, and arbitrarily extensible fields and records. Each version is designed to be upward compatible with previous versions of the standard.

Z39.50 continues to receive active standard attention, and the Z39.50 committee has plans to begin working on another version of the protocol in the near future.

9.8 RELATED DEVELOPMENTS

Although Z39.50 is a key piece of the overall standards picture, there are other important initiatives that are necessary to ensure a well-integrated global information infrastructure.

For example, both MIME (Multi-Purpose Internet Mail Extensions) Content Types and HTML (Hyper Text Markup Language) assist in displaying information in a device-independent way. Support for a wide variety of languages and character sets also have corresponding standards.

Another active area of standard development is decomposing information servers into simpler and more interchangeable components. Recent research at the University of Colorado investigates a building block approach to server development that uses standard reusable components that are interchangeable.¹⁸ Furthermore, by deploying different server components on different machines, server implementations can make very efficient use of network traffic, CPU resources, and disk space. In particular, an important aspect of the University of Colorado Harvest architecture is the existence of a "broker" machine that efficiently combines index data from many other servers and responds to client search requests.

¹⁸ The Harvest Information Discovery and Access System's Internet home page is located at: <http://rd.cs.colorado.edu/harvest/>.

10. APPENDIX—DATABASE RESOURCES

As a result of our research we collected an extensive list of resources that may be of interest to persons interested in trade within the CANAMEX corridor. This research was conducted from June through August, 1995. The citations may therefore be somewhat out of date. However, the annotated listings provide a rich source of information about where one might look for data.

10.1 MEXICO

This is a large file. It can be retrieved at:

<ftp://ftp.halcyon.com/local/pickard/CANAMEX/mexicodb.doc>

10.2 CANADA

This is a large file. It can be retrieved at:

<ftp://ftp.halcyon.com/local/pickard/CANAMEX/canadadb.doc>

10.3 UNITED STATES

This is a large file. It can be retrieved at:

<ftp://ftp.halcyon.com/local/pickard/CANAMEX/usdb.doc>

10.4 TRAVEL & TOURISM

This is a large file. It can be retrieved at:

<ftp://ftp.halcyon.com/local/pickard/CANAMEX/tourisdb.doc>

Business Mexico.

American Chamber of Commerce of Mexico, A.C.
Lucerna 78

Col. Juarez, Del. Cuauhtemoc
06600 MexiCity D.F., Mexico.

Phone: 52 5 7243800

Fax: 52 5 7032911

Full text (FUL).

English (EN).

Contains the complete text of Business Mexico, a monthly publication dedicated to the promotion of trade and investment between the United States and Mexico. Provides analysis of the economy, financial issues, industry, government, agriculture, trade, the environment, and the Mexican business community.

SUBJECT COVERAGE: Trade and investment between the United States and Mexico.

Geographic coverage: Mexico and the United States

Time span: March 1989 to date

Update frequency: Monthly.

NEXIS

Database label: BUSMEX

OA Also online as part of: ABI/INFORM.

Universal Machine Language Equipment Register

Acronym: UMLER.

Association of American Railroads

Data Base Management Division.

50 F St., N.W., Rm. 5303

Washington, DC 20001-1564 USA.

Phone: (202)639-2418

Fax: (202)639-2414

Directory (DIR)

Numeric (NUM).

English (EN).

Contains details on the internal and external dimensions, carrying capacities, equipment weight, and special equipment on locomotives, end of train units, railcars, trailers, and containers used in interchange service in the United States, Canada, and Mexico. Covers 1,500,000 registered cars and 1,400,000 registered trailers and containers.

SUBJECT COVERAGE: Internationally and nationally owned containers, trailers, freight cars, locomotives, locomotive end-of-train information systems, and carless technology equipment transported or

used in railroad freight service in the United States, Canada, and Mexico.

Railroads; Freight-transportation; Transportation.

Geographic coverage: United States, Canada, and Mexico

Update frequency: Twice daily.

Association of American Railroads

Data Base Management Division

FYI News Service.

AT & T EasyLink Services.

5501 LBJ Fwy., Room 1015

Dallas, TX 75240 USA.

Toll-free: (800)242-6005

Full text (FUL)

Numeric (NUM).

English (EN).

Consists of several files of information and news in a variety of business and general interest areas:

Newsline--provides access to selected UPI news stories and to USA

Today Decisionline; in-depth reports on current news topics;

business-related bulletins; reports on legislation affecting business

from the U.S. Chambers of Commerce; personal computing news and

information; sports scores, stories, and bulletins; and news of

conditions affecting railroad transportation (e.g., weather and track conditions).

Business and Finance--contains prices for stocks and stock options on the New York and American Stock Exchanges and NASDAQ Over-The-

Counter

issues; prices for Treasury bond and note futures, Government National Mortgage Association futures, commodities futures, lumber and plywood futures, petroleum futures, spot prices for 22 agricultural products, and London Metal Market prices; domestic money

rates, foreign exchange rates, and spot gold prices; news and

analyses of foreign exchange market and stock market developments; Latin American currency prices; and stockholder information.

Personal Interest--contains a variety of information, including passages from the King James Bible, bestseller lists for hardcover and paperback books, horoscopes, film reviews, reports of films released on videocassette, ski reports (in season) for 25 states, and texts of congratulatory greetings.

Travel--contains news and information on business travel, cruises, and airline schedules and fares. Also provides travel industry news and a U.S. regional events calendar.

Products and Services--provides product analyses produced by Consumers Union, real estate information covering properties in 25 countries, and an online shopping service.

Forecast—contains 2 day weather forecasts for 25 major U.S. cities and hurricane advisories for the Gulf of Mexico, the Atlantic, and the Caribbean.

Trade provides access to International Business Clearinghouse (described in a separate entry).

SUBJECT COVERAGE: Business news and general interest news.

Federal government; Meteorology; Travel and travel industry; Commodities; United States; General interest; Government; United States-Federal; News; International.

Geographic coverage: International

Time span: Current day

Update frequency: Varies by service, from daily to continuously, throughout the day, with most services updated 2 to 3 times a day.

Business Latin America.

Business International Corporation.

215 Park Avenue South, 15th FL

New York, NY 10003 USA.

Full text (FUL).

English (EN).

Provides interpretation and evaluation of the political, economic, and business-related trends, government policy changes, and regulatory developments in Latin America. Standard features include Management Alert, an article that provides a brief summary of current political, economic, and social events for each country; and Business Outlook, an article that covers the political, industrial, agricultural, labor, and foreign trade prospects for a particular country. Corresponds to Business Latin America.

SUBJECT COVERAGE: Business concerns, including marketing, labor conditions, trade, tax and foreign exchange regulations, and profit opportunities in the following Latin American countries: Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela.

Latin-America; Argentina; Brazil; Chile; Colombia; Mexico; Venezuela; Business-and-industry; Advertising-and-marketing; Labor-and-employment; Trade; International; Taxes; International; Economics; International; Laws-and-regulations; International; Currency-exchange-rates; Politics.

Geographic coverage: Latin America

Time span: 1987 to date

Update frequency: Weekly.

NEXIS

Database label: BUSLAM

ED Status: New (N).

Project 104: Mexican Newspapers on ROM.

ROM Mexico, S.A. C.V.

Leonardo Pasquel 22

Col. Modelo C.P. 91040

Xalapa

Veracruz, Mexico.

Phone: 281 80429

Fax: 281 86195

Full text (FUL).

Spanish (SP).

Contains the complete text of selected articles from Mexican national and regional newspapers. Provides reporting and analysis on Mexican issues at the national and regional levels. Among the newspapers covered are La Jornada, El Financiero, Excelsior, El Nacional, El Norte, El Porvenir, El Universal, El Dia, and Ocho Columnas.

SUBJECT COVERAGE: Mexican news and information at the national and regional levels.

Mexico; News; Mexico.

Geographic coverage: Mexico

Time span: June 1991 to date

Update frequency: Quarterly

Year first available: 1992.

ROM Mexico, S.A. C.V.

Price: \$2500 for an annual subscription (current disc); \$3000 for an annual subscription (current disc plus June-December 1991 disc).

Ye

ROMWARE from Nimbus Information Systems.

IBM PC or compatible; 640K memory; hard disk recommended; ROM drive; mouse (optional).

ARIES.

CETEI ((Centro Tecnologia Electronica e Informatica).

Camino Real a XochimilNo. 60

16020 Xochimilco, Tepepan, Mexico.

Phone: 0525 675 3001

Fax: 0525 675 4484

E-Mail: wolf@profmexis.dgsca.unam.mx (Internet)

MM Amparo Castillo or Nicole Wolf.

Directory (DIR).

Spanish (SP).

Contains information on more than 17,000 research projects conducted by more than 7000 researchers at the major universities and research institutes in Mexico and at the San Carlos University of Guatemala.

For each project, provides title, objective, description, year, researcher name, collaborator, expertise, and institution.

SUBJECT COVERAGE: Mexican research projects in the areas of social and natural sciences, agriculture, engineering, and medicine.

Research; Mexico; Social-science; Science-and-technology;

Agriculture; Agricultural-research; Engineering; Medicine.

Geographic coverage: Mexico

Time span: Current information

Update frequency: Semiannual

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICH)

Price: \$300 for an annual subscription

UNAM from the Universidad Nacional Autonoma Mexico.

Contact UNAM for details.

IRESIE.

CETEL ((Centro Tecnologia Electronica e Informatica).

Camino Real a XochimilNo. 60

16020 Xochimilco, Tepepan, Mexico.

Phone: 0525 675 3001

Fax: 0525 675 4484

Bibliographic (BIB).

Spanish (SP).

Contains more than 39,000 citations to articles dealing with all aspects of education published in some 580 English-, Spanish-, Portuguese-, and French-language periodicals held by the principal Mexican research libraries.

SUBJECT COVERAGE: Education.

Education; Mexico.

Geographic coverage: Mexico.

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICH)

Price: \$200 for an annual subscription

TestUNAM

Alternate name: TESIS.

CETEL ((Centro Tecnologia Electronica e Informatica).

Camino Real a XochimilNo. 60

16020 Xochimilco, Tepepan, Mexico.

Phone: 0525 675 3001

Fax: 0525 675 4484

Bibliographic (BIB).

Spanish (SP).

Contains more than 180,000 citations to theses submitted to Mexican universities from 1914 through 1992.

SUBJECT COVERAGE: Theses in all subject areas.

Dissertations-academic; Mexico.

Geographic coverage: Mexico

Time span: 1914 to date

Update frequency: Annual.

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICH)

Price: \$800 for an annual subscription

UNAM from Universidad Nacional Autonoma Mexico.

Contact UNAM for details.

Global Report

Alternate name: Citibank Global Report.

Citicorp.

77 Water St., 2nd Floor

New York, NY 10043 USA.

Phone: (212)898-7425

Toll-free: (800)842-8405

Fax: (212)742-8769

Full text (FUL)

Numeric (NUM).

English (EN).

Contains information on worldwibusiness and finance. Comprises the following 6 files:

Foreign Exchange--contains real-time spot and cross rates for 100 currencies, spot and forward rates for all major currencies, historical rates for 26 countries, and a summary of central bank activity. Includes weekly recommendations, technical forecasts from FOREXIA and MMS International, and the International Finance Alert from Financial Times Business Information, which provides daily hedging recommendations. Provides information on exchange regulations and the tax implications of alternate buying and selling strategies. Also includes market commentary and analyses.

Country Reports--contains news on 100 countries and information on conditions affecting business in the following 15 countries: Australia, Brazil, Canada, France, Germany, Great Britain, Hong Kong, Italy, Japan, Mexico, The Netherlands, Spain, Sweden, Switzerland, and the United States. Covers the position of each country's currency on world markets, economic indicators, business practices and regulations, and current political and economic news. Currency information, provided by Business International, includes the annual average exchange rates against the U.S. dollar for the past 5 years, 5-year forecasts, and 5-year monthly closings and averages; a consensus forecast from financial staff of major international companies of high, low, and mean forward rates for the next 3-, 6-, and 12-month periods; and an analysis of current factors affecting the position of the currency in world markets. Also provides information on domestic financing, credit conditions, economic indicators, current investment yields, restrictions, key tax provisions, tax laws, changes in tax laws.

Money Markets--contains real-time rates for money market instruments in major world markets. Covers Eurocurrency and Eurodollar deposits, certificates of deposit, U.S. Treasury bills, mortgage-backed securities, issuer-placed commercial paper, U.S. federal agency discount notes, short-term financing rates, and money market futures. Also provides U.S. interest rate data, including Federal Reserve weekly rates and the prime rate, and news and commentary on international money market activity. Sources include Financial Times Business Information, Knight-Ridder Financial Information, and MIMS International.

Bonds--contains rates and prices for major fixed income markets. Includes corporate, municipal, treasury, and mortgage-backed bonds. Eurobonds, and interest rate futures. Companies--contains news, company profiles, and financial information on 10,000 companies, including 800 foreign firms, traded on the New York, American, Over-The-Counter, and regional exchanges, as well as current securities quotes on publicly traded companies from major exchanges worldwide. Also contains profiles of 20,000 leading companies in Italy and the United Kingdom. Data on securities include last sale price, bid, ask, open, high, low, volume, and stock and bond descriptions, including latest Standard & Poor's ratings. Also provides background and earnings information, including location, directors, earnings, financing, sales, operating statistics, and litigation, new products, mergers, acquisitions, and leveraged buyouts. Information sources also include Comtex, Databank SpA, II Sole 24 Ore, and Exiel.

Industries--contains news of 30 broad industry groups (e.g., leisure

and recreation) and 60 specific market segments (e.g., sports equipment). Covers company news, including mergers, acquisitions, and sales; new product announcements; and litigation affecting the industry. Sources include Comtex, Exiel, Standard & Poor's, and Knight-Ridder. News--contains business news and stories, as well as weather reports, from wire services around the world. Sources include Comtex, Exiel, and Knight-Ridder and its Knight-Ridder Financial News publication.

SUBJECT COVERAGE: International news covering world events, countries, U.S. and European companies, industries, foreign exchange and money markets, equities, bonds, commodities, and other business affairs. Business-and-business-administration; Banking-and-finance; Corporations; Stocks-and-bonds; Money-market; Mergers-and-acquisitions; Business-and-industry-news; International; Corporate-finance; International; Corporate-finance; United-States; Country-assessment; Currency-exchange-rates; Investments; News; International; Securities; International; Securities; United-States. Geographic coverage: International

Time span: Varies by file, with earliest data from 1982 and currency rate forecasts through 1994

Update frequency: Continuously, throughout the day.

FAME Information Services, Inc.

Info Globe Online

Compuser Information Service

Database label: GLOREP

Rates: \$8.95/month for Basis Service; hourly fees, surcharges, and membership may apply for some databases; contact vendor for details

DRI International Auto.

DRI/McGraw-Hill

Data Products Division.

24 Hartwell Ave.

Lexington, MA 02173 USA.

Phone: (617)863-5100

Time series (TSM).

English (EN).

Contains approximately 1500 monthly time series on the international automobile industry in the following countries: Argentina, Australia, Austria, Belgium, Brazil, Denmark, Finland, France, Germany, Greece, India, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland,

and the United Kingdom. Includes new registrations by make and model, vehicles in operation by make, production by make, model, and cylinder size, exports by country of destination and by make and model, imports by country of origin and by make, and sales by make. Primary sources of data include several European automotitrade associations, central statistical agencies, and government ministries.

SUBJECT COVERAGE: The automobile industry in the following countries:

Argentina, Australia, Austria, Belgium, Brazil, Denmark, Finland, France, Germany, Greece, India, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, and the United Kingdom.

Automotive industry; Argentina; Australia; Austria; Belgium; Brazil; Denmark; Finland; France; Germany; Greece; India; Ireland; Italy; Japan; Korea; Mexico; Netherlands; New Zealand; Norway; Portugal; South Africa; Spain; Sweden; Switzerland; Great Britain; Automotive industry.

Geographic coverage: International

Time span: 1970s to date

Update frequency: Monthly.

DRI/McGraw-Hill

Database label @AUTODB

DRI International Economic Data Base.

DRI/McGraw-Hill

Data Products Division.

24 Hartwell Ave.

Lexington, MA 02173 USA.

Phone: (617)863-5100

Time series (TIM).

English (EN).

Contains more than 5000 weekly, monthly, quarterly, and annual time series providing economic and financial indicators for 44 countries.

Information is derived from major business and financial sources, including Dow Jones International Banking Wire, free-lance stringer journalists, central banks, government statistical offices, and ministries worldwide.

SUBJECT COVERAGE: Economic and financial indicators for the following

countries: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, People's Republic of China, Colombia, Denmark, Ecuador, Finland, France, Germany, Greece, Hong Kong, Indonesia, Ireland,

Israel, Italy, Japan, Korea, Kuwait, Malaysia, Mexico, The Netherlands, New Zealand, Norway, Peru, Philippines, Portugal, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Venezuela, United Kingdom, United States, and Yugoslavia.

Argentina; Australia; Austria; Belgium; Brazil; Canada; Chile; People's Republic of China; Colombia; Denmark; Ecuador; Finland; France; Germany; Greece; Hong-Kong; Indonesia; Ireland; Israel; Italy; Japan; Korea; Kuwait; Malaysia; Mexico; Netherlands; New Zealand; Norway; Peru; Philippines; Portugal; Saudi Arabia; Singapore; South Africa; Spain; Sweden; Switzerland; Taiwan; Thailand; Turkey; Venezuela; Great Britain; United States; Yugoslavia; Economics; Business-international.

Geographic coverage: International

Time span: Current information

Update frequency: Varies by series.

DRI/McGraw-Hill

DRI Latin American Forecast.

DRI/McGraw-Hill

Data Products Division.

24 Hartwell Ave.

Lexington, MA 02173 USA.

Phone: (617)863-5100

Time series (TIM).

English (EN).

Contains annual historical and forecast time series for 8 Latin

America economies. Includes more than 100 series for Brazil, Mexico, and Venezuela; more than 50 series for Argentina, Chile, Colombia, Ecuador, and Peru; and 20 series for all countries combined. Covers gross domestic product (GDP) by type of expenditure, inflation, foreign debt positions, money supply, exchange rates, and balance of payments, industrial production, income, and population. Forecasts are linked to DRI projections for other world economies. Data are derived from DRI Developing Countries Data Bank, DRI External Debt Data Base, DRI Latin American Models, and IMF International Financial Statistics Data Bank.

SUBJECT COVERAGE: Latin American economy and finance, including GDP

by type of expenditure; inflation rates; income; population; trade and balance of payments accounts; industrial production; foreign debt positions; money supply; exchange rates.

Economic-forecasting; Latin-America; Brazil; Mexico; Argentina;

Colombia; Chile, Ecuador, Peru, Venezuela, Economics; Latin America,
Finance; Latin America
Geographic coverage Latin America
Time span: Earliest series from 1970s, with 10 year forecasts
Update frequency Quarterly.
DRI/McGraw Hill
Database label: @LATAM/MODELBANK

Electric Power Database

Acronym: EPD.
Electric Power Research Institute ((EPRI)
Technical Information Division.
3412 Hillview Ave.
P.O. Box 10412
Palo Alto, CA 94303 USA.
Phone: (415)855-2000
Fax: (415)855-2954
Directory (DIR).
English (EN).
Contains information on more than 33,000 ongoing and completed
research and development projects related to electric power
generation, transmission, and distribution. Includes hydroelectric
power, fossil fuels, nuclear power, solar power, transmission,
economics, advanced power systems, metering, load management, and
environmental assessment. For each project, provides work
description, start and completion dates, dollars allocated, results,
and project reports, publications, and contact persons. Covers
research projects of EPRI, U.S. and Canadian utilities (e.g., Pacific
Gas & Electric), EPRI contractors (e.g., General Electric), the
Canadian Electrical Association, the Central Research Institute of
the Japanese Electric Power Industry (CRIEPI), and the Mexican
Instituto Investigaciones Electricas. Also includes 8000 abstracts
of all EPRI technical reports. Corresponds in part to the annual EPRI
Research and Development Projects.
SUBJECT COVERAGE: Hydroelectric power; nuclear power; fossil fuels;
advanced power systems; transmission; distribution; stations and
substations; customer utilization; economics; personnel; area
development; environmental assessment; and other subjects to support
general research and development.
Public-utilities; Electric-power; Energy-resources; Research.
Geographic coverage: United States, Canada, Japan, and Mexico
Time span: 1972 to date
Update frequency: Monthly.

DIALOG

Database label: 241
Rates: \$60/connect hour, 55 cents/full record online, 55 cents/full
record offline
CAN/OLE
Database label: EPD
Rates: \$Can. 40/connect hour, \$U.S. 10 royalty rate/connect hour, 5
cents/full record online, 5 cents/full record offline

ElectricGuide.

Electric Power Research Institute ((EPRI)
Technical Information Division.
3412 Hillview Ave.
P.O. Box 10412
Palo Alto, CA 94303 USA.
Phone: (415)855-2000
Fax: (415)855-2954
Directory (DIR)
Bibliographic (BIB)
Image (IMA)
Audio (AUD).
English (EN).
Provides information on EPRI research projects, products, and
publications, as well as communications media, color slide
presentations, transferable software, and technical reports dealing
with the electric power industry. Comprises the following 6 files:
Electric Power Database (EPD)--contains information on more than
33,000 in-progress and completed research and development projects
related to electric power generation, transmission, and distribution.
Covers hydroelectric power, fossil fuels, nuclear power, solar power,
transmission, economics, advanced power systems, metering, load
management, and environmental assessment. For each project, provides
work description, start and completion dates, dollars allocated,
results, and project reports, publications, and contact persons.
Covers research projects of Electric Power Research Institute (EPRI),
U.S. and Canadian utilities (e.g., Pacific Gas & Electric), EPRI
contractors (e.g., General Electric), the Canadian Electrical
Association, the Central Research Institute of the Japanese Electric
Power Industry (CRIEPI), and the Mexican Instituto Investigaciones
Electricas. Corresponds to the annual EPRI Research and Development
Projects and to the online Electric Power Database.
EPRI Publications Database (PUBS)--contains more than 7000 citations,
with abstracts, to technical reports, articles, computer software,

technical brochures, and videotapes published or produced by EPRI. Includes references to articles from the EPRI Journal. Corresponds in part to the online Electric Power Database.

EPRI Products Database (PRODBOOK)--contains descriptions of some 1000

products that have been produced or are in development as a result of research sponsored by EPRI. Each description includes contact information.

Communications Media--contains images of hundreds of publications, including brochures, Tech Briefs, Ready Nows, and First Uses from all of EPRI's technical divisions.

Color Slides--provides images and scripts of color slide presentations, including some with audio narration.

Transferable Software--contains downloadable electronic catalogs and software demonstration packages.

SUBJECT COVERAGE: Hydroelectric power, nuclear power, fossil fuels, advanced power systems, transmission, distribution, stations and substations, customer utilization, economics, personnel, area development, environmental assessment, and related subjects.

Public utilities; Electric power; Energy resources; Research; Products and vendors.

Geographic coverage: United States, Canada, Japan, and Mexico

Time span: 1972 to date

Update frequency: Quarterly.

Electric Power Research Institute ((EPRI)

Price: Available to members of the Electric Power Research Institute at no charge; also available for licensing by U.S. government agencies.

KAware2 from Knowledge Access International.

IBM PC or compatible; 640K memory; MS-DOS 3.0 or higher; EGA or VGA

card recommended; monochrome or color monitor; ROM drive.

ENFLEX INFO-International.

ERM Computer Services, Inc.

912 Springdale Dr.

Exton, 19341 USA.

Phone: (215)594-4400

Toll-free: (800)365-2146

(365)544-3118

Fax: (215)594-4481

Full text (FUL).

English (EN).

Contains the complete text of environmental, health and safety, and hazardous materials transportation laws and regulations from Brazil, France, Italy, Mexico, Spain, the United Kingdom, and the European Community. Includes citation, type of regulation (compliance, permitting, recordkeeping, reporting), amendments dates, and type of operation, facility, and substance to which the regulation applies. Citations are provided when complete text is not available. Searchable by country, reference citation, date or passage or amendment, subject index, or text. Regulations from additional countries will be added. Copies of original-language documents or hard copies of translated documents are available through a document delivery service.

Geographic coverage: International

Time span: 1986 to date

Update frequency: Monthly.

ERM Computer Services, Inc.

Price: \$3500 for an annual subscription

ROMWare from Nimbus Information Systems.

IBM PC or compatible; hard disk; 640K memory; MS-DOS 2.0 or higher; monochrome or color monitor; Microsoft ROM Extensions 2.0 or higher; ROM drive.

International Interest Rate and Exchange Rate Database

Acronym: FXBASE.

FAME Information Services, Inc.

77 Water St.

New York, NY 10005 USA.

Phone: (212)898-7800

Fax: (212)742-8956

Time series (TIM).

English (EN).

Contains time series of daily, weekly, and monthly Eurocurrency interest rates and currency exchange rates. Includes bid and offer rates for 1-, 3-, 6-, and 12-month Eurocurrency interest rates; domestic interest rates for Canada, Italy, Japan, United Kingdom, and United States; 1-, 3-, 6-, and 12-month spot and forward rates for Australian dollar, Belgian franc, British pound, Canadian dollar, Danish krone, Dutch guilder, European currency unit (spot only), French franc, German mark, Greek drachma (spot only), Hong Kong dollar, Irish punt, Italian lira, Japanese yen, Mexican peso (spot only), Norwegian krone, Saudi riyal (spot only), Singapore dollar, South African rand, Swedish krona, and Swiss franc; and special drawing rights (SDR) and precious metals rates, and London morning

gold prices Corresponds to the online International Interest Rate and Exchange Rate Database.

SUBJECT COVERAGE International currency exchange rates.
Coinage and money; Banking and finance; Currency exchange rates.
Geographic coverage: International
Time span: Varies by type of data.
FAME Information Services, Inc.
Price: Contact FAME Information Services, Inc. for pricing information.

FIRSTMARK International Database.

FIRSTMARK, Inc.

34 Juniper Lane

Newton Center, MA 02159-2861 USA.

Phone: (617)965-7989

Toll-free: (800)729-2600

Fax: (617)965-8510

Directory (DIR).

English (EN).

Provides listings for more than 4 million companies located in 54 countries outside the United States. Selections may be based on Standard Industrial Classification (SIC) code and country.
SUBJECT COVERAGE: Companies located in the following countries: Argentina, Aruba, Australia, Austria, Belgium, Bermuda, Brazil, Canada, Chile, People's Republic of China, Republic of China, Colombia, Costa Rica, Denmark, Dominican Republic, Ecuador, Finland, France, Germany, Greece, Guatemala, Hong Kong, Ireland, Israel, Italy, Jamaica, Japan, Korea, Liechtenstein, Luxembourg, Malaysia, Mexico, Netherlands, Netherlands Antilles, New Zealand, Norway, Panama, Peru, Philippines, Portugal, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Trinidad & Tobago, United Kingdom (England), Northern Ireland, Scotland, Wales, and Venezuela; U.S. subsidiaries abroad.

Business-and-industry-directories; Canada; Business-and-industry-directories; International; Business-and-industry-directories; Australia; Business-and-industry-directories; Austria; Business-and-industry-directories; Belgium; Business-and-industry-directories; Denmark; Business-and-industry-directories; Europe; Business-and-industry-directories; Finland; Business-and-industry-directories; Germany; Business-and-industry-directories; Ireland; Business-and-industry-directories; Israel; Business-and-industry-directories; Italy; Business-and-industry-directories; Japan; Business-and-industry-directories; Liechtenstein; Business-and-industry-

directories; Luxembourg; Business-and-industry-directories; The Netherlands; Business-and-industry-directories; New-Zealand; Business-and-industry-directories; Portugal; Business-and-industry-directories; Spain; Business-and-industry-directories; Sweden; Business-and-industry-directories; Switzerland; Business-and-industry-directories; Taiwan; Business-and-industry-directories; United-Kingdom.

Geographic coverage: International, excluding the United States

Time span: Current information

Update frequency: As needed.

FIRSTMARK, Inc.

Price: 25 cents/label; \$1.00/record for telemarketing cards, printout, and diskette. 2000 records required minimum order. \$200 set-up and consultation fees additional; contact FIRSTMARK for details.

LEXIS-NEXIS

Former name: Mead Data Central, Inc. (MDC), LEXIS

VA 9443 Springboro Pike

P.O. Box 933

Dayton, OH 45401-0933 USA.

TV Phone: (513)865-6800

Toll-free: (800)453-6862

DB Mexl Tra and Law Reporter

AC Vendor conditions: Numerous pricing plans available, including hourly, transactional, subscription, zero connect, and, for small law offices, a special program of limited materials called Maximum Value Products. Connect and telecommunications charges are \$46/hour. Hourly connect charges range from \$0 to \$445, depending on the file accessed. Transactional pricing ranges from \$16 to \$41 per search for most files. Zero connect pricing is similar to transactional pricing with a \$7 surcharge per search and no connect or telecommunications charges. Contact LEXIS for details.

Lee Foster's Travel Disks: Travel Sampler U.S. and Worldwide.

Foster Travel Publishing.

P.O. Box 5715

Berkeley, CA 94705-0715 USA.

Phone: (510)549-2202

Fax: (510)549 2202

MM Lee Foster.

Full text (FUL).

English (EN).

Contains the complete text of travel articles on more than 80 destinations in Europe, the U.S., Mexico, Asia, and Australia by Lee Foster. Reports on each region include transportation information, history of the area, description of the main attractions, suggestions for nearby side-trips, and how to get further information. Some articles describe special features of a region. Corresponds in part to the Adventures in Travel and West Coast Travel online databases.

SUBJECT COVERAGE: Travel information on destinations worldwide.

Geographic coverage: United States, Europe, Mexico, Asia, and Australia

Time span: Current information

Update frequency: Annual

Year first available: 1988.

Foster Travel Publishing

Price: \$14.95

IBM PC or compatible; floppy drive; hard disk; 256K memory; MS-DOS 2.0.

Apple Macintosh Plus; 800K floppy drive; 1MB memory.

ED Status: Revised (R).

FRANCIS

Alternate name: French Retrieval Automated Network for Current Information in Social and Human Sciences

Former name: CDSH Data Base.

France Institut l'Information Scientifique et Technique ((INIST).

2, allée du Parc Brabois

F-54514 Vandoeuvre-les-Nancy Cedex, France.

Phone: 33 83504699

Fax: 33 83504748

E-Mail: appel@inist.fr (Internet)

MM Ms. Appel, Product Manager.

Bibliographic (BIB).

French (FR), keywords also in English.

Contains more than 1.6 million citations, with abstracts, to the world's literature on humanities, social science, and economics.

Comprises the following 19 files:

Amerique Latine--contains more than 13,600 citations to social science literature relating to Latin America.

Archeology (Proche-Orient, Asie, Amerique)--contains more than 50,200

citations to literature dealing with the art and archeology of the Near East, Asia, and pre-Columbian America. Covers the ancient civilizations of Egypt, Ethiopia, Mesopotamia, Assyria, Persia, Syria, Islam, India, Sri Lanka, Nepal, Tibet, China, Korea, and Japan, and the pre-Columbian cultures of the Pueblos, Mexico, Central America, the Andes, Amazonia, and Brazil.

Bibliographie Geographique Internationale--contains more than 110,548 citations to literature on geography. Covers cartography; historical, human, physical, and theoretical geography; methodology; and world and multiregional geography (Africa and the Indian Ocean, Americas, Asia, Europe, Oceania, and polar regions).

Bibliographie Internationale Science Administrative--contains some 84,999 citations to literature on administration. Covers methods, structures (e.g., central administration, local government, town and country planning), civil service, public administration, and business administration.

Bibliography of the History of Art--contains more than 290,000 citations to literature on art and archaeology from the Paleochristian period to 1939. Covers art theory, iconography, restorations, collections, and general history of architecture, sculpture, painting, and decorative arts.

Economie l'Energie--contains more than 35,500 citations to literature on energy economics. Covers methodology, economics data, energy policy, and specific studies on coal, gas, oil, electricity, nuclear power, and new energy technologies (e.g., solar, geothermal, wind, biomass, hydrogen).

Economie Generale (ECODOC)--contains some 17,900 citations to literature on economics, with an emphasis on economic theory. Covers general economy, theory, history, systems; growth and fluctuations, economic development and planning; monetary economics; data and quantitative methods; business economics; industrial economics; international economics; economics of natural resources; labor, employment, and demography; regional and urban economy; and welfare, education, and consumption.

Emploiet Formation--contains more than 10,000 citations to French literature on employment and professional training. Covers general aspects of employment, training, and social improvement; relationships between training and employment; education; employment qualifications; the job market; and employees' living conditions.

Ethnologie--contains more than 68,000 citations to literature on ethnology and social anthropology. Covers social structures and relations; religion, magic, and witchcraft; cognitive issues, arts and sciences, and folk literature; and acculturation and social change. Also covers articles on the practice of anthropology (e.g., history, theory, sources, and methods).

Gestion des Entreprises (DOGE)--contains more than 16,983 citations

to French and English language literature on business management, including finance, accounting, marketing, production management, management of human resources, information and decision systems, international affairs, public management, quantitative techniques, education, and research. Covers seminars in the collections of French and Canadian centers of management education.

Histoire des Sciences et des Techniques--contains more than 94,600 citations to literature on the history of science and technology. Covers the exact sciences, earth sciences, life sciences, medicine, and pharmacology.

Histoire et Sciences la Littérature--contains more than 118,258 citations to published articles and other literature relating to the history and sciences of all types of literature. Covers poetics, comparative literature, theory, classical literature, West Indian literature, African literature, and western European literature (Anglo-Saxon, Celtic, Slavic languages).

Histoire et Sciences des Religions--contains more than 188,400 citations to literature on the history and philosophy of religions. Covers religions of antiquity in Europe, Mediterranean regions, and the Near East; Ornosticism; Judaism; Christianity; Exegesis and Biblical studies; Islam; and religions of Africa, America, Asia, and Oceania.

Informatique et Sciences Juridiques--contains some 10,400 citations to literature on relationships between computerization and law. Covers legal, political, sociological, and economic problems related to computerization; computer experience in law applications; and logic and jurisprudence.

Philosophie--contains nearly 110,000 citations to literature dealing with Western philosophy. Covers history of philosophy, history of ideas, metaphysics, theory of value, social and political philosophy, religion, aesthetics, logic, language, epistemology, and philosophy of science.

Préhistoire et Protohistoire--contains more than 78,600 citations to literature on prehistoric and protohistoric archaeology, from the emergence of man until the appearance of writing. Covers methodology, human paleontology, and the studies of the prehistoric environment.

RESHUS (Réseau Documentaire en Sciences Humaines la Santé)--contains more than 37,700 citations to literature in health sciences. Covers research and teaching, illness, childbirth, mortality, health and society, health organizations and politics, financing, and evaluation of health records.

Sciences l'Éducation--contains more than 111,800 citations to literature on education. Covers history and philosophy of education, education and psychology, sociology of education, planning and economics, educational research, teaching methods, testing and guidance, school life, vocational training, and adult education and

employment.

Sciences du Langage--contains more than 81,600 citations to literature on linguistics. Covers biology and pathology of language, psycholinguistics, sociolinguistics, ethno-linguistics, historical linguistics, descriptive studies, linguistics and mathematics, semiotics and communications, discursive semiotics, and applied linguistics.

Sociologie--contains more than 96,100 citations to literature on sociology. Covers social psychology, social organization and structure, social problems, human ecology, demography, rural and urban sociology, economic and political sociology, social work, and sociology of knowledge, religion, education, art, communication, leisure, organizations, health, law, and work.

SUBJECT COVERAGE: The human, social, and economic sciences, including

art and archeology, administrative science, Latin America, business administration, data processing and legal sciences, general economics, energy economics, educational science, employment and training, ethnology, international geography, history of science and technology, history of literature, linguistics, philosophy, prehistory and protohistory, history and science of religions, human and health sciences, and sociology.

Social-science; Humanities; Latin-America; Archeology; Art-and-art-history; Asia; Middle-East; Religion-and-theology; Bible; Public-administration; Municipal-government; Ethnology; Folklore; History; Science-and-technology; Literature; Law; Philosophy; Education; Language-and-languages; Linguistics; Sociology; Labor-and-employment;

Management; Personnel-administration; Energy-policy; Archeology; Computers; Economics; Energy-resources; Geography; Health-care; History; Human-resources-management; Law; Literature; Philosophy; Religion-and-theology; Science-and-technology; Social-science; Sociology; City-planning.

Geographic coverage: International

Time span: 1972 to date (coverage varies among subfiles)

Update frequency: Quarterly.

QUESTEL ORBIT

Rates: \$90/connect hour, 90 cents/full record online, 90 cents/full record offline

EA ROM: FRANCIS ROM.

Global Scan.
Global Scan.
Godmersham Park
Godmersham

Centerbury, Kent CT4 7DT, England.

Phone: 1227 813000

Fax: 1227 813100

Full text (FUL)

Numeric (NUM).

English (EN), original language of document. Interface available in 10 languages.

Contains descriptive, financial, and credit data for more than 8 million public and private companies worldwide. Reports include following countries and information:

- Austria--500 credit reports. Belgium--120,000 balance sheets.
 - Canada--1.5 million credit reports. Denmark--50,000 balance sheets.
 - Germany--1.9 million credit reports and 6000 balance sheets.
 - Holland--200,000 credit reports. Finland--130,000 credit reports.
 - France--2 million. India--1500 credit reports. Ireland--50,000 credit reports.
 - Italy--400,000 credit reports of which 15,000 contain balance sheets. Mexico. Norway--50,000 credit and financial reports.
 - Portugal--50,000 credit reports. Sweden--100,000 credit reports.
 - Switzerland--500 balance sheets. Taiwan--40,000 credit reports.
 - United Ar Emirates--30,000 marketing reports. United Kingdom--420,000 credit reports, 3200 balance sheets, and daily financial news. United States--6000 public company financial reports.
- Also provides more than 130 country reports, more than 85 currency reports, 30 U.K. industry reports, and detailed filing requirements reports. Information varies by country, but can include 3 years of balance sheet data; financial ratios; credit reports, opinions, or limits; and company profiles. Sources include reports filed with companies houses and chambers of commerce or compiled by business information specialists.
- Coverage of companies in Spain, Greece, Japan, Hong Kong, Singapore, Argentina, Peru, Venezuela, and Chile is expected to be added in the future.

SUBJECT COVERAGE: Financial and credit data for public and private companies in the following countries: Austria, Belgium, Canada, Denmark, Germany, Holland, Finland, France, India, Ireland, Italy, Mexico, Norway, Portugal, Sweden, Switzerland, Taiwan, United Arab Emirates, United Kingdom, and the United States.

Austria; Belgium; Canada; Denmark; Finland; Germany; Netherlands; Italy; France; Sweden; Switzerland; Norway; United Arab Emirates; United States; Great Britain; Portugal; Business international; Credit-rating; Corporations; Corporate-finances; International; Credit; Commercial.

Geographic coverage: International
Time span: 1985 to date
Update frequency: Daily.
Global Scan

QUESTEL ORBIT

FT PROFILE

Gesellschaft für Betriebswirtschaftliche Information mbH ((GBI))

Database label: dropped

GENIOS Wirtschaftsdatenbanken

Database label: dropped

BT Telecom Gold

Country Report Services

Former name: F & S Political Risk Country Reports.

IBC USA Licensing Inc.

Political Risk Services ((PRS)).

6320 Fly Rd., Suite 102

P.O. Box 248

East Syracuse, NY 13057-0248 USA.

Phone: (315)431-0511

Fax: (315)431-0200

MM Mary Lou Walsh, Managing Director.

Full text (FUL).

English (EN).

Contains the complete text of reports covering economic and political conditions for more than 130 countries worldwide. Basic data for countries include name of capital, population, area, official languages, names and positions of leading government officials, government structure (e.g., administrative subdivisions, type of legislature, frequency of elections), currency exchange rate against the U.S. dollar, and currency exchange system (e.g., ties to currencies of trading partners). Socio-demographic data include population growth rates and urban-rural distribution, percentage of population under age 15, labor force distribution by major industrial sector, and percentage of population in each major ethnic group. Also provides data on principal exports and imports, trading partners and, for the previous five years, the following annual economic indicators: gross domestic product (GDP) in billions of U.S. dollars, per capita income, real growth rate, inflation rate, capital investment, unemployment rate, debt service ratio to exports, national accounts, imports and exports in billions of U.S. dollars, and percentage change in value of currency. For 100 countries, in-depth reports include an Economic Performance Profile, which

indicates each country's position by quartile relative to all 100 countries. The profile is based on five year averages for a variety of indicators.

Also provides 18 month and five year forecasts for likely political scenarios, plus risk ratings in the areas of political turmoil, financial transfers, investments, and export markets. Probabilities are given in qualitative terms (e.g., same, more, much more) for risk factors (e.g., taxation discrimination on foreign businesses) under various political scenarios (e.g., a reformist military regime). Includes an assessment by at least three independent experts on the likelihood of specific political scenarios. Also provides brief commentary on the current political and economic situation, including a five-year forecast of GDP growth and the inflation rate.

Also provides the complete text of the monthly International Country Risk Gui (described in a separate entry), as well as Background Notes from the U.S. Department of State and Foreign Economic Trends from the U.S. Department of Commerce, Chiefs of State and Cabinet Ministers of Foreign Governments and The World Factbook from the U.S. Central Intelligence Agency (CIA), and International Tax Digest and International Tax Report from IBC Publishing Ltd., London. Corresponds to Country and Executive Reports produced by PRS and available individually or as part of the World Service; to European Community: Annual Five-Year Forecast for International Business; and to Country Forecasts (tables).

NOTE: Monthly updates are included in PRS' Political Risk Letter (described in a separate entry).

SUBJECT COVERAGE: Analysis of the political and economic conditions

of countries worldwide, presenting three alternative scenarios and covering current and expected regime stability, political turmoil, international investment restrictions, trade restrictions, and economic policies.

Political-science; Economics; Africa; South-Africa; Algeria; Arab-countries; Southeast-Asia; Asia; Australia; Austria; Belgium; Bolivia; Brazil; Great-Britain; Bulgaria; Caribbean-area; Latin-America; Canada; Argentina; Chile; Colombia; People's-Republic-of-China; Costa-Rica; Czech-Republic; Denmark; Dominican-Republic; Eastern-Europe; Ecuador; Egypt; El-Salvador; Europe; Finland; France; Germany; Greece; Guatemala; Honduras; Hong-Kong; Hungary; India; Indonesia; Iran; Iraq; Ireland; Northern-Ireland; Israel; Italy; Jamaica; Japan; Korea; Kuwait; Libya; Malaysia; Mediterranean-countries; Mexico; Morocco; Netherlands; New-Zealand; Nicaragua; Norway; Oman; Panama; Peru; Philippines; Poland; Portugal; Puerto-Rico; Romania; Saudi-Arabia; Singapore; Commonwealth-of-

Independent-States; Yugoslavia; Taiwan; Thailand; United-Arab-Emirates; Tunisia;

Syria; United States; Uruguay; Venezuela; Sweden; Turkey; Spain; Zimbabwe; Sudan; Zaire; Zambia; Kenya; Nigeria; Pakistan.

Geographic coverage: International

Time span: Current information, with 18-month and 5-year forecasts
Update frequency: Monthly, with 6-9 countries updated each month, plus updates as needed.

DataStar

Database label: FSRI

Rates: \$49.80/connect hour for subscribers to the print publication, \$109.80/connect hour for nonsubscribers, 80 cents/text paragraph for subscribers, \$5.30/text paragraph for nonsubscribers
NewsNet, Inc.

Database label: IT54-60, Political Risk Services Forecasts

Rates: \$192/connect hour for subscribers to the print publication, \$192/connect hour for nonsubscribers

NEXIS

Database label: RPTIBC

Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details

International Country Risk Guide.

IBC USA Licensing Inc.

Political Risk Services ((PRS).

6320 Fly Rd., Suite 102

P.O. Box 248

East Syracuse, NY 13057-0248 USA.

Phone: (315)431-0511

Fax: (315)431-0200

Full text (FUL).

English (EN).

Contains the complete text of International Country Risk Guide, a monthly publication providing analyses of economic, financial, and political risks that may affect business opportunities in more than 130 countries. Each in-depth analysis provides both current information and forecasts.

Coverage is provided in separate files arranged by region: The Americas. Europe. Middle East and North Africa. Sub-Saharan Africa. Asia and the Pacific.

SUBJECT COVERAGE: Political and economic analysis of 130 countries worldwide.

Business-international; Business-forecasting; Country-assessment;

United-States; Argentina; Caribbean-area; Bolivia; Brazil; Canada;

Chile; Colombia; Costa-Rica; Cuba; Dominican-Republic; Ecuador; El-

Salvador; Guatemala; Guyana; Honduras; Jamaica; Mexico; Nicaragua; Panama; Paraguay; Peru; Surinam; Trinidad and Tobago; Uruguay; Venezuela; Austria; Belgium; Bulgaria; Cyprus; Denmark; Finland; France; Germany; Great Britain; Greece; Hungary; Ireland; Northern Ireland; Italy; Luxembourg; Netherlands; Norway; Poland; Portugal; Romania; Spain; Sweden; Switzerland; Commonwealth-of-Independent States; Yugoslavia; Algeria; Bahrain; Egypt; Iran; Iraq; Kenya; Madagascar; Kuwait; Lebanon; Libya; Morocco; Oman; Qatar; Saudi Arabia; Syria; Tunisia; Turkey; United-Arab-Emirates; Yemen; Europe; Africa; Middle-East; Asia; Southeast-Asia; Ethiopia; Israel; Jordan; Nigeria; Somalia; South-Africa; Latin-America; Sudan; Zaire; Zambia; Zimbabwe; Australia; Brunei; Hong-Kong; India; Indonesia; Japan; Korea; Malaysia; Burma; New-Zealand; Pakistan; Papua-New-Guinea; Philippines; Singapore; Taiwan; Thailand.

Geographic coverage: International

Time span: 1991 to date

Update frequency: Monthly

Year first available: 1991.

NewsNet, Inc.

Database label: FT11 FT14, FT16

Rates: \$168/connect hour for subscribers to the print publication;

\$168/connect hour for nonsubscribers

Political Risk Letter

Acronym: PRL

Alternate name: PRS' Political Risk Letter.

IBC USA Licensing Inc.

Political Risk Services ((PRS)

Formerly produced by: Frost & Sullivan, Inc. (F & S).

6320 Fly Rd., Suite 102

P.O. Box 248

East Syracuse, NY 13057-0248 USA.

Phone: (315)431-0511

Fax: (315)431-0200

E-Mail: Mary Lou Walsh or FSRI (DataMail); FSI (MCI Mail); IPA6082 (NewsNet); 72202,267 (CompuServe)

MM Mary Lou Walsh, Managing Director.

Full text (FUL).

English (EN).

Contains the complete text of Political Risk Letter, a monthly newsletter covering political and economic conditions in 100 countries. Provides risk ratings for export, financial transfer, and direct investment based on estimated probabilities for political,

economic, and social stability. Analyses are revised for at least 20 countries each month. Corresponds to the online Political Risk Letter database.

SUBJECT COVERAGE: Political and economic conditions worldwide. Political-science; Economics; Africa; South-Africa; Algeria; Arab-countries; Southeast-Asia; Asia; Australia; Austria; Belgium; Bolivia; Brazil; Great-Britain; Bulgaria; Caribbean-area; Latin-America; Canada; Argentina; Chile; Colombia; People-s-Republic-of-China; Costa-Rica; Czech-Republic; Denmark; Dominican-Republic; Eastern-Europe; Ecuador; Egypt; El-Salvador; Europe; Finland; France; Germany; Greece; Guatemala; Honduras; Hong-Kong; Hungary; India; Indonesia; Iran; Iraq; Ireland; Northern-Ireland; Israel; Italy; Jamaica; Japan; Korea; Kuwait; Libya; Malaysia; Mediterranean-countries; Mexico; Morocco; Netherlands; New-Zealand; Nicaragua; Norway; Oman; Panama; Peru; Philippines; Poland; Portugal; Puerto-Rico; Romania; Saudi-Arabia; Singapore; Commonwealth-of-Independent-

States; Yugoslavia; Taiwan; Thailand; United-Arab-Emirates; Tunisia; Syria; United-States; Uruguay; Venezuela; Sweden; Turkey; Spain; Zimbabwe; Sudan; Zaire; Zambia; Kenya; Nigeria; Pakistan; Country-assessment.

Geographic coverage: International

Time span: Current year

Update frequency: Monthly.

IBC USA Licensing Inc.

Political Risk Services ((PRS)

Price: \$435 for an annual subscription

IBM PC or compatible.

Political Risk Services on ROM.

IBC USA Licensing Inc.

Political Risk Services ((PRS).

6320 Fly Rd., Suite 102

P.O. Box 248

East Syracuse, NY 13057-0248 USA.

Phone: (315)431-0511

Fax: (315)431-0200

MM Mary Lou Walsh, Managing Director.

Full text (FUL).

English (EN).

Contains the complete text of international business forecasts for 100 strategic countries. Covers economic and political conditions. Basic data include name of capital, population, area, official

languages, names and positions of leading government officials, government structure (e.g., administrative subdivisions, type of legislature, frequency of elections), currency exchange rate against the U.S. dollar, and currency exchange system (e.g., ties to currencies of trading partners). Socio-demographic data include population growth rates and urban/rural distribution, percentage of population under age 15, labor force distribution by major industrial sector, and percentage of population in each major ethnic group. Also provides data on principal exports and imports, trading part and, for the previous five years, the following annual economic indicators: gross domestic product (GDP) in billions of U.S. dollars, per capita income, real growth rate, inflation rate, capital investment, unemployment rate, debt service ratio to exports, national accounts, imports and exports in billions of U.S. dollars, and percentage change in value of currency. Includes an Economic Performance Profile, which indicates each country's position by quartile relative to all 100 countries covered in the database. The profile is based on five-year averages for a variety of indicators.

Also provides 18-month and five-year forecasts for likely political scenarios, plus risk ratings in the areas of political turmoil, financial transfers, investments, and export markets. Probabilities are given in qualitative terms (e.g., same, more, much more) for risk factors (e.g., taxation discrimination on foreign businesses) under various political scenarios (e.g., a reformist military regime). Includes an assessment by at least three independent experts on the likelihood of specific political scenarios. Also provides brief commentary on the current political and economic situation, including a five-year forecast of GDP growth and the inflation rate.

Corresponds to Country and Executive Reports produced by Political Risk Services and available individually or as part of the World Service and to the online Country Report Services database.

SUBJECT COVERAGE: Analysis of the political and economic conditions

of countries worldwide, presenting three alternative scenarios and covering current and expected regime stability, political turmoil, international investment restrictions, trade restrictions, and economic policies.

Political-science; Economics; Africa; South-Africa; Algeria; Arab-countries; Southeast-Asia; Asia; Australia; Austria; Belgium; Bolivia; Brazil; Great-Britain; Bulgaria; Caribbean-area; Latin-America; Canada; Argentina; Chile; Colombia; People's-Republic-of-China; Costa-Rica; Czech-Republic; Denmark; Dominican-Republic; Eastern-Europe; Ecuador; Egypt; El-Salvador; Europe; Finland; France; Germany; Greece; Guatemala; Honduras; Hong-Kong; Hungary; India; Indonesia; Iran; Iraq; Ireland; Israel; Italy; Jamaica; Japan; Korea; Kuwait; Libya; Malaysia; Mediterranean-countries; Mexico; Morocco;

Netherlands; New-Zealand; Nicaragua; Norway; Oman; Panama; Peru; Philippines; Poland; Portugal; Puerto-Rico; Romania; Saudi-Arabia; Singapore; Commonwealth-of-Independent-States; Taiwan; Thailand; United-Arab-Emirates; Tunisia; Syria; United-States; Uruguay; Venezuela; Sweden; Turkey; Spain; Zimbabwe; Sudan; Zaire; Zambia; Kenya; Nigeria; Pakistan; Burma; Cuba; Yemen; Qatar; Switzerland; Trinidad-and-Tobago; Surinam; Paraguay; Guyana.

Geographic coverage: International

Time span: Current information

Update frequency: Annual

Year first available: 1994.

IBC USA Licensing Inc.

Political Risk Services ((PRS)

Price: \$1000; \$750 (standing order); \$1500 when purchased with the Political Risk Yearbook. Network license available.

HyperWriter from NTERGAID, Inc.

IBM PC or compatible; DOS 3.1 or higher or Microsoft Windows 3.1 or higher; Microsoft MS-DOS ROM Extensions; 2MB memory (4MB recommended); ROM drive.

North American Free Trade Agreement

Acronym: NAFTA.

Innotech Inc.

2005 Sheppard Ave., E., Ste. 200

North York, ON, Canada M2J 5B4.

Phone: (416)492-3838

Fax: (416)492-3843

MM Stevan Jovanovich, Contact.

Full text (FUL)

Audio (AUD).

English (EN).

Contains the complete text of the North American Free Trade Agreement (NAFTA). Includes the complete text of the three agreements, The Accord on Environmental Cooperation, The Accord on Labour Cooperation, and The Emergency Measures, and their summaries. Provides a voice-assisted help system offering guidelines for the agreements and explanations of their articles. Enables the user to conduct boolean and keyword searches.

SUBJECT COVERAGE: The North American Free Trade Agreement and its three agreements and summaries.

Treaties; Trade; Canada; Trade; International; Trade; Mexico; Trade; United-States.

Geographic coverage: International.

Year first available: 1995.
 Imotech Inc.
 Price: \$99.
 IBM PC or compatible; Microsoft Windows.
 ED Status: New (N).

MexTraand Law Reporter.
 International Transformation Corp.
 945 G St., NW, Suite 203
 Washington, DC 20001-4531 USA
 Phone: (202)783-4100
 Fax: (202)783-4102
 Full text (FUL).
 English (EN).

Provides practical advice on the utilization of the new opportunities of the Mexican market and how to avoid bad business decisions. Covers the essentials of cross-border trade and investment.
SUBJECT COVERAGE: United States and Mexican trade investment; Business-and-industry-news; Mexico; Trade; Mexico; Investments; Foreign-trade.
Geographic coverage: United States and Mexico
Time span: November 1991 to date
Update frequency: Monthly
Year first available: 1992.

NewsNet, Inc.
Database label: IT40
Rates: \$168/connect hour for subscribers to the print publication, \$168/connect hour for nonsubscribers
LEXIS
Database label: MTLR
Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details
NEXIS
Database label: MTLR
Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details

Lagniappe Letter.
 Latin American Information Services, Inc.
 159 W. 53rd St., 28th Floor

New York, NY 10019 USA.
 Phone: (212)765-5520
 Fax: (212)765-2927
 MM Rosemary Werrett, Editor/Publisher.
 Full text (FUL).
 English (EN).

Contains the complete text of Lagniappe Letter, a biweekly newsletter reporting developments that may financially impact on businesses in Latin America. Markets covered include Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela. Also includes supplemental coverage of Ecuador, Bolivia, Central America, Cuba, and the Caribbean.
SUBJECT COVERAGE: Events affecting Latin American businesses, including specific economic, financial, trade, policy, and political developments of prime interest to businesses.
Latin-America; Business-and-industry-news; Latin-America; News; Latin-America.

Geographic coverage: Latin America
Time span: 1991 to date
Update frequency: Biweekly.
NEXIS
Database label: LAGLTR
Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details
 OA Also online as part of: Newsletter Database.

Lagniappe Quarterly Monitor
 Acronym: LQM.
 Latin American Information Services, Inc.
 159 W. 53rd St., 28th Floor
 New York, NY 10019 USA.
 Phone: (212)765-5520
 Fax: (212)765-2927
 MM Rosemary Werrett, Editor/Publisher.
 Full text (FUL)
 Numeric (NUM).
 English (EN).

Contains the complete text of Lagniappe Letter, a newsletter that tracks financial and production trends in the nine large Latin American markets: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Venezuela. Features short-term forecasts and Company Monitor, which tracks company expansion, acquisitions, and sell-outs.

SUBJECT COVERAGE Financial and production activities in Latin America.

Latin America; Argentina; Business and industry news; Latin America; Bolivia; Brazil; Chile; Colombia; Ecuador; Mexico; Peru; Venezuela.

Geographic coverage: Latin America

Time span: 1991 to date

Update frequency: Quarterly.

NEXIS

Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details

OA Also online as part of: Newsletter Database.

Latin American Newsletters

Acronym: LAN.

Letres ((UK) Ltd.

61 Old St.

London EC1V 9HX, England.

Phone: 171 2510012

Fax: 171 2538193

Full text (FUL).

English (EN).

Contains the complete text of 7 newsletters covering economic and political events in Latin America. Includes Latin American Weekly Report, and 5 Latin American regional reports: Andean, Brazil, Caribbean and Central America, Mexiand NAFTA, and Southern Cone (Argentina, Chile, Uruguay, and Paraguay).

SUBJECT COVERAGE: Economic, political, and social developments in Brazil, Mexico, Central America, and the Andean and Southern Cone regions.

Latin-America; Brazil; Mexico; Economics; Political-science; El-Salvador; Caribbean-area; Puerto-Rico; Commodity-futures; Argentina; Bolivia; Costa-Rica; Cuba; Dominican-Republic; Colombia; Ecuador; Guyana; Guatemala; Honduras; Paraguay; Peru; Nicaragua; Surinam; Uruguay; Venezuela; Trinidad-and-Tobago; Jamaica; Panama; Chile; Area-studies; Commodities; Latin-America; Economics; Latin-America.

Geographic coverage: Latin America

Time span: April 28, 1967 to date

Update frequency: Weekly.

LEXIS

LEXIS Country Information Service.

LEXIS-NEXIS.

9443 Springboro Pike

P.O. Box 933

Dayton, OH 45401-0933 USA.

Phone: (513)865-6800

Toll-free: (800)227-4908

Fax: (513)865-6909

Full text (FUL).

English (EN).

Contains international business and country assessment information.

Comprises the following 4 files:

Current News Alert (ALERT)--contains current international business, political, and economic news items selected by Comtext Scientific Corporation from newswires worldwide. Updated every 3 hours.

Country Analysis Reports Library (REPORT)--contains profiles of 64 countries, covering politics, economics, international trade, industrial development, business conditions, and corporate finances. Examples inclu Australia Country Reports, Poland Country Reports, and Spain Country Reports. Updated periodically, as new data become available.

European News Library (EUROPE)--contains news, financial data, analysis, and legal/regulatory information. In addition to in-depth coverage of European topics, it offers particualr value in its coverage of the European Community and 1992.

International News (INTNEW)--contains the complete text of articles on international relations and foreign affairs from more than 40 periodicals.

SUBJECT COVERAGE: Economic and political analysis of the following countries/regions: Algeria, Argentina, Asia/Pacific, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Columbia, Denmark, Ecuador, Egypt, Europe, Finland, France, East Germany, West Germany, Greece, Hong Kong, India, Indonesia, Ireland, Israel, Italy, Japan, Kuwait, South Korea, Libya, Malaysia, Mexico, Middle East/Africa, Netherlands, New Zealand, Nigeria, North/South America, Norway, Pakistan, Panama, Peru, Philippines, Portugal, Saudi Arabia, Singapore, South Africa, Soviet Union, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Ar Emirates. United Kingdom, United States, Venezuela, and Yugoslavia; worldwibusiness and financial news.

Banking-and-finance; Corporations; Industry; Business-and-business-administration; Business-international; Foreign-trade; Asia; Pacific-Islands; Australia; People-s-Republic-of-China; Hong-Kong; India; Indonesia; Japan; Korea; Malaysia; Philippines; Singapore; Taiwan; Thailand; Europe; Belgium; Denmark; Finland; France; Germany; Greece; Ireland; Italy; Netherlands; Norway; Portugal; Spain; Sweden;

Switzerland; Turkey; Great Britain; Commonwealth of Independent States; Yugoslavia; Africa; Middle East; Egypt; Israel; Saudi Arabia; South Africa; Latin America; Argentina; Brazil; Canada; Chile; Colombia; Mexico; United States; Venezuela; Algeria; Austria; Kuwait; Libya; New Zealand; Panama; Peru; United Arab Emirates; Ecuador; Business and industry news; International; Country assessment.

Geographic coverage: International

Time span: Varies by source

Update frequency: Varies by file.

LEXIS

Database label: ALERT, REPORT, EUROPE, INTNEW

Latin American Studies - Volume 1: Multidisciplinary.

National Information Services Corporation (NISC).

Wyman Towers, Suite 6

3100 St. Paul St.

Baltimore, MD 21218 USA.

Phone: (410)243-0797

Fax: (410)243-0982

MM Georgia Riddle.

Bibliographic (BIB).

English (EN).

Contains more than 620,000 citations to published materials covering all subjects relating to Latin America. Comprises the following 3 files:

Nettie Lee Benson Latin American Collection--contains full bibliographic descriptions of the Collection's holdings of materials, both print and nonprint, by or about Latin Americans, with special emphasis on early and modern Mexican Argentina. Produced by the University of Texas, Austin.

Hispanic American Periodicals Index (HAPI)--contains citations to periodical articles and other published materials appearing in scholarly journals that cover issues of interest to Latin Americanists. Also provides coverage of U.S.-Mexiborder issues and Spanish-speaking Americans. Corresponds to Hispanic American Periodicals Index and the HAPI Online database. Produced by the Latin American Center at the University of California, Los Angeles.

Handbook of Latin American Studies (HLAS)--an annotated guide to recent publications in art, music, the humanities, and social sciences; covers Volume 50 onward. Produced by the U.S. Library of Congress.

SUBJECT COVERAGE: Latin America, including art and archeology, economics, ecology and agriculture, education, anthropology, music,

culture, folklore, indigenous affairs, business and marketing, politics and government, public administration, literature and language, international relations, philosophy and religion, geography and demography, history and ethnohistory, refugees and human rights, sociology, and women's rights.

Latin-America; Economics; Politics; Law; Business-international;

Social-science; Demographics-and-population; News; Latin-America;

Laws-and-regulations; Mexico; Caribbean-area.

Geographic coverage: Latin America

Time span: 1970 to date

Update frequency: Semiannual

Year first available: 1992.

National Information Services Corporation (NISC)

NISC DISC

Price: \$1195 for an annual subscription. Network prices available.

ROMWright from National Information Services Corporation.

IBM PC, PS/2, or compatible; 512K memory; Microsoft ROM

Extensions; monochrome or color monitor; ROM drive.

Notimex Mexican News Service.

Notimex, S.A.

Morena 110, No. 6

Col. del Valle

03100 Mexico D.F., Mexico.

Phone: 525 6870500

Fax: 525 6874324

Full text (FUL).

English (EN).

Contains the complete text of English-language newswire items covering political, business, financial, and economic news relating to North and South American countries.

SUBJECT COVERAGE: News and business information.

Geographic coverage: North and South America

Time span: January 9, 1992 to date.

NEXIS

Database label: NOTIMX

NOTIMEX on ROM.

Notimex, S.A.

Morena 110, No. 6

Col del Valle
03100 Mex City D F, Mexico
Phone: 525 6870500
Fax: 525 6874324

Full text (FUL).
Spanish (SP).

Contains the complete text of news stories transmitted over the Notimex, the Mexican News Agency news services. All items are written by and from the perspective of Latin Americans or others of Spanish-speaking or Latin American descent. Includes such features as Today in History.

SUBJECT COVERAGE: National and world coverage of business, financial, economic, and general news.

Geographic coverage: North, Central, and South America

Time span: 1992 to date

Update frequency: Semiannual

Year first available: 1992.

National Information Services Corporation ((NISC)

NISC DISC

Price: \$895 for an annual subscription; \$495 single-issue purchase.

Network prices available.

ROMWright from National Information Services Corporation.

IBM PC, PS/2, or compatible; 512K memory; MS-DOS ROM extensions; monochrome or color monitor; ROM drive.

OAG TravelDisc--North American Edition.
Official Airline Guides ((OAG).
2000 Clearwater Dr.

Oak Brook, IL 60521 USA.
Phone: (708)574-6000
Toll-free: (800)323-4000
Fax: (708)574-6699

Directory (DIR).
English (EN).

Provides schedule information for more than 71,000 direct and 180,000 connecting flights to some 1200 destinations in North America, and hotel information for 26,000 properties in North America. For each flight, provides airline, flight number, type of aircraft, stops en route, dates of operation, departures and arrivals, meals, and service classes. For each hotel, provides name, address, telephone number, FAX number, rates, description, and Mobil ratings for hotels in the United States, Canada, Mexico, and the Caribbean. Corresponds

to the Official Airline Guide, North American Edition and in part to the online OAG Electronic Edition Travel Service.

SUBJECT COVERAGE: North American flight schedules and hotel accommodations.

Geographic coverage: International

Time span: Current information

Year first available: 1991.

Sony Electronic Publishing Company

Sony Data Discman

Price: \$49.94

Electronic Book software from Sony Electronic Publishing.

Sony Data Discman Electronic Book player; battery pack.

SICE: Foreign TraInformation System

Alternate name: Sistema Informacion al Comercio Exterior (SICE).

Organization of American States ((OAS)

General Secretariat.

1889 P St., N.W.

Washington, DC 20006-4413 USA.

Phone: (202)458-3725

Fax: (202)458-3907

Full text (FUL)

Directory (DIR)

Numeric (NUM)

Statistical (STA).

English (EN), Spanish (SP), Portuguese (PT).

Provides tra data from Brazil, Canada, Chile, Mexico, and the United States.

Comprises the following 11 subfiles:

Harmonized Tariff Schedule--provides the official Harmonized Tariff Schedules for Brazil, Canada, and the United States.

Import Statistics--covers import statistics for Brazil, Canada, and the United States.

Exports Statistics--covers export statistics for Brazil, Canada, and the United States.

Directory of Importers--contains information on importers in Brazil, Chile, Mexico, and the United States.

Directory of Exporters--contains information on exporters in Brazil, Chile, Mexico, and the United States.

Import/Export Maritime Bills of Lading for the United States--each bill of lading provides country of origin or destination of the merchandise, name of exporter/shipper, arrival date, shipping line, port of origin and of discharge, commodity description, units of

measurement, weight in metric tons, and name of U.S. consignee/Importer.

U.S. Markets Primary Wholesale Selling Prices--provides wholesale prices on the following commodities traded on U.S. markets and/or exchanges: cotton, grain, dairy products, livestock, poultry, fruits, vegetables, nuts, ornamentals and honey, tobacco, fresh and frozen fish and shellfish, spices, some frozen and canned foods and juices, and crop production forecasts; prices are updated daily.

Tra Rules and Regulations--provides the complete text of trade rules and regulations in the United States.

WorldwiGovernment Tenders and WorldwiPrivate TraLeads--cover goods and services, representation, and joint-ventures at an international level.

Online consultation and electronic mail capabilities are also available.

SUBJECT COVERAGE: Import and export markets of Brazil, Canada, Chile,

Mexico, and the United States.

Geographic coverage: International

Time span: Current information and up to five years of statistical data.

Update frequency: Varies by file

Year first available: 1988.

Organization of American States ((OAS)

General Secretariat

Rates: \$40/connect hour minimum monthly fee, includes 1 hour of access, 67 cents each additional minute; or \$1,200 Annual fee with unlimited access to most databases.

ED Status: Revised (R).

Latin American and Caribbean Health Sciences Literature.

Pan American Health Organization ((PAHO)

BIREME - Centro Latino-Americano e do Caribe Informacao em Ciencias da Saude.

Rua Botucatu 862

04023-901 Sao Paulo, Brazil.

Phone: 011 5492611

Fax: 011 5711919

E-Mail: bireme@brfapesp (BITNET)

MM Elenice Castro, Head of Educational Programs and LILACS

Methodology.

Bibliographic (BIB).

Portuguese (PT), Spanish (SP), English (EN).

SUBJECT COVERAGE: Health sciences and health-related environmental and legal issues, with emphasis on Latin American and Caribbean countries.

Health-law; Health-care; Health-care-planning; Environmental-health; Caribbean-area; Latin-America; Argentina; Bolivia; Brazil; Chile; Colombia; Costa-Rica; Dominican-Republic; Ecuador; El-Salvador; Guatemala; Guyana; Honduras; Nicaragua; Mexico; Panama; Paraguay; Peru; Uruguay; Venezuela; Biomedical-sciences.

Geographic coverage: Latin America and the Caribbean

Time span: 1982 to date

Update frequency: Quarterly; 20,000 records a year.

Pan American Health Organization ((PAHO)

BIREME - Centro Latino-Americano e do Caribe Informacao em Ciencias da Saude

EA ROM: LILACS/ROM.

The North American Facsimile

Acronym: FAX.

Quanta Press, Inc.

1313 Fifth St. S.E., Suite 223A

Minneapolis, MN 55414 USA.

Phone: (612)379-3956

Fax: (612)623-4570

Directory (DIR).

English (EN).

Contains more than 150,000 mailing addresses and facsimile (FAX) numbers for business establishments in Canada, Mexico, and the United States. The file is searchable by company name, street address, city, state or province, telephone area code, and ZIP Code. Data are presented in dBase format.

SUBJECT COVERAGE: North American business establishments. Corporations; Canada; Mexico; United-States; Mailing-lists-and-labels; International; FAX-and-telex-directories; International.

Geographic coverage: United States, Canada, and Mexico

Time span: Current information

Update frequency: Annual.

Quanta Press, Inc.

Price: \$299.95

TextWare from TextWare Corporation.

IBM PC, PS/2, or compatible; hard disk with 20MB free; 640K memory; MS-DOS 2.0 or higher; monochrome or color monitor; Microsoft ROM Extensions; ROM drive.

Apple Macintosh Plus, SE, or II series; hard disk recommended; 1MB

memory; System 6.03 or higher; AppleCD SC or compatible ROM drive.

TripMaker with Rand McNally Road Atlas.

Rand McNally New Media
8255 N. Central Park Ave.
Skokie, IL 60076 USA.
Toll-free: (800)333-0136
Fax: (708)674-4496

Software (SOF)

Image (IMA).

English (EN), French (FR).

Provides more than 640,900 miles of roads, more than 125,000 cities and towns, maps and atlases for travel planning in the United States, Canada, and Mexico. Includes 88 pre-planned scenic tours, recreational activities and attractions, scenic routes, alternate destinations and route suggestions, and budget estimates for hotel, gas, meals, and entertainment.

SUBJECT COVERAGE: Road trip planning.

Maps-and-map-data; United States; Maps-and-map-data; Canada; Travel-and-travel-industry.

Geographic coverage: United States, Canada, and Mexico.

Rand McNally New Media

Price: \$79.95

IBM PC or compatible 386 or better; Microsoft Windows 3.1 or higher; MS-DOS 3.3 or higher; EGA or VGA card and monitor or higher; Windows compatible mouse recommended; 4MB RAM; 11MB hard disk space;

double-

speed ROM drive.

ED Status: New (N).

MileMaker PC.

Rand McNally-TDM, Inc.
8255 N. Central Park Ave.
Skokie, IL 60076-2970 USA.
Phone: (708)673-0470
Fax: (708)673-8995

MM Diana Ragsdell, Vice President of Sales.

Directory (DIR).

English (EN).

Contains highway mileages and routes used by the transportation industry for motor freight rating and motor fuel tax reporting, based on the Household Goods Carriers' Bureau Mileage Guide. Covers 150,000 geographic points and roadway in the United States, Canada, and Mexico for a potential 10 billion mileage/kilometer combinations. Enables users to retrieve mileages and routing by city and state names or Standard Point Location Codes. Corresponds to the online MileMaker database.

SUBJECT COVERAGE: Motor freight mileages and routing in the contiguous United States, Alaska, Canada, and Mexico.

Maps-and-map-data; Freight-transportation; Transportation.

Geographic coverage: Contiguous United States, Alaska, Canada, and Mexico

Time span: Current information

Update frequency: Periodically.

Rand McNally-TDM, Inc.

Price: Contact Rand McNally-TDM, Inc. for pricing information.

From Rand McNally-TDM, Inc.

IBM PC or compatible; Floppy drive; hard disk with 16MB free; 580K memory; MS-DOS 3.0 or higher.

Reuter Country Reports.

Reuters Ltd.

85 Fleet St.

London EC4P 4AJ, England.

Phone: 171 2501122

Toll-free: 800365-7674

Fax: 171 6968761

Full text (FUL)

Numeric (NUM).

English (EN).

Contains news and analyses of economic and political conditions worldwide. Includes the complete text of items from Reuters global newswire service covering 190 countries and territories. Also contains detailed reports on 100 countries, covering demographics, politics, membership in international organizations, geography and climate, banking and finance, local stock exchange activity, industry, agriculture, raw materials, armed forces, labor unions, communications, social welfare, and local customs. Reports also include biographies of leading political and business leaders, economic indicators (e.g., trade balance, net external debt), names and titles of leading government officials, and summaries of recent key news events.

SUBJECT COVERAGE: Country profiles, including demographics, local customs, public holidays, geography and climate, power structure, politics, banking and finance, international financial data, national economic and financial data, companies and stock exchanges, industry, energy, raw materials, agriculture, transportation, communications and the media, armed forces, unions, social security and welfare, membership in international organizations, government officials, and news.

News: International; Demographics and population; Australia; People's-Republic-of-China; Hong-Kong; India; Indonesia; Japan; Korea; Malaysia; Philippines; Singapore; Taiwan; Thailand; Belgium; Denmark; Finland; France; Germany; Greece; Ireland; Italy; Netherlands; Norway; Portugal; Spain; Sweden; Switzerland; Turkey; Great-Britain; Commonwealth-of-Independent-States; Yugoslavia; Egypt; Israel; Saudi-Arabia; South-Africa; Argentina; Brazil; Canada; Chile; Colombia; Mexico; Venezuela; Algeria; Austria; Bahrain; Bolivia; Brunei; Bulgaria; Burma; Costa-Rica; Cuba; Cyprus; Czech-Republic; Dominican-Republic; Ecuador; El-Salvador; Ethiopia; Greenland; Guatemala; Guyana; Honduras; Hungary; Iran; Iraq; Jamaica; Jordan; Kuwait; Lebanon; Libya; Luxembourg; Macao; Madagascar; Morocco; New-Zealand;

Nicaragua; Oman; Panama; Papua-New-Guinea; Paraguay; Peru; Poland; Puerto-Rico; Qatar; Romania; Seychelles; Somalia; Sudan; Surinam; Syria; Tunisia; United-Arab-Emirates; United-States; Uruguay; Zimbabwe; Country-assessment.

Geographic coverage: International

Time span: Current 90 days

Update frequency: Continuous.

Reuters Ltd.

ZIP SOURCE

Former name : Geographic Data File (GDF).

Source Software, Inc.

Formerly produced by: LPC, Inc.

9944 S. Roberts Rd., Suite 210

Palos Hills, IL 60465 USA.

Phone: (708)430-0215

Fax: (708)430-0216

MM Mindy Lennon, Sales Representative.

Numeric (NUM).

English (EN).

Contains geographic locations and place names for City/State/Zip validation, dealer locator, distance studies, site selection,

territory assignment, tax calculation, transportation management, and demographic analysis. Geographic descriptors including city names, states, latitude/longitude, picadad coordinates, county/parish names, FIPS city/state/country codes, MSA codes and population levels are cross-referenced to 5-digit ZIP codes. National, regional, and state versions are available.

SUBJECT COVERAGE: United States, Canadian, and Mexican geographic

location data.

Geography: ZIP-Code; Maps-and-map-data; United-States; Postal-codes; United-States.

Geographic coverage: United States

Time span: Current information

Update frequency: Quarterly

Year first available: 1985.

Source Software, Inc.

Price: Contact Source Software for pricing information.

Contact Source Software for details.

ED Status: Revised (R).

Economist Intelligence Unit International Statistics

Former name : Country Credit Risk Service.

The Economist Intelligence Unit Ltd.

15 Regent St.

London SW1Y 4LR, England.

Phone: 171 8301000

Fax: 171 8399386

Time series (TIM)

Full text (FUL).

English (EN).

Contains more than 200 time series of macroeconomic data on non-OECD (Organization for Economic Cooperation and Development) countries.

Includes monthly data for 66 developing countries and annual time series for 7 Eastern-bloc countries. Covers national accounts (e.g., gross domestic product), population, trade, and national debt.

Provides assessments of the creditworthiness of country economies by comprising data on political risk factors, economic and financial status, and short-term foreign exchange risk. Corresponds in part to Country Credit Risk Service Handbook and Economic Data Reference Guide.

SUBJECT COVERAGE: Credit risk assessment of 66 developing countries.

Algeria; Argentina; Bolivia; Brazil; Chile; People's-Republic-of-China; Colombia; Costa-Rica; Dominican-Republic; Ecuador; Egypt; El-

Salvador; Greece; Guatemala, Honduras, Hong Kong, India, Indonesia; Iran; Iraq; Israel; Jamaica, Jordan, Kuwait, Libya, Malaysia; Mexico; Morocco; Nicaragua; Panama, Papua New Guinea; Paraguay; Peru; Philippines; Portugal, Saudi Arabia; Singapore; South Africa; Sudan; Syria; Taiwan; Tunisia; Turkey; United Arab Emirates; Uruguay; Venezuela; Yugoslavia; Zimbabwe; Developing nations; Africa; Credit-rating; Banking and finance; Economics; International.

Geographic coverage: International

Time span: 1978 to date

Update frequency: Monthly.

Reuters Information Services ((Canada) Ltd.

Latin American Business Intelligence.

The Economist Intelligence Unit.

215 Park Ave. S.

New York, NY 10003 USA.

Phone: (212)460-0600

Full text (FUL).

English (EN).

Contains the complete text of Business Latin America and Crossborder Monitor, which provide complete country reports and profiles, practical information for the top economies in each region from Financing Foreign Operations & Investing and Licencing & Trading Conditions Abroad, and the research report Responding to Change in Mexico.

Business-and-industry; International; Business-and-industry-news; International; Argentina; Brazil; Costa-Rica; Panama; Chile; Colombia; Mexico; Venezuela.

Geographic coverage: Argentina, Brazil, Costa Rica, Panama, Chile, Columbia, Mexico, Venezuela, and Central America

Time span: 1993 to date

Update frequency: Quarterly

Year first available: 1994.

Knight-Ridder Information, Inc.

KR Information OnDisc

Price: \$4495 for an annual subscription, \$3375 for an annual subscription for public, academic, and qualified print subscribers

ED Status: Revised (R).

INTLINE.

The WEFA Group.

401 City Line Ave., Suite 300

Bala Cynwyd, 19004-1780 USA.

Phone: (215)667-6000

Fax: (215)660-6477

Time series (TIM).

English (EN).

Contains approximately 7000 daily, weekly, monthly, quarterly, and annual time series providing coverage of principal macroeconomic data for more than 40 countries worldwide, including Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Finland, France, Germany, Greece, Hong Kong, India, Indonesia, Ireland, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, New Zealand, Norway, the Philippines, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, the United Kingdom, and the United States. Corresponds to the online INTLINE database.

SUBJECT COVERAGE: International macroeconomic data for 40 countries,

covering national accounts; government finance; cyclical indicators and business surveys; industrial production and producer price indexes; orders, stocks, and deliveries; wholesale and retail sales and consumer and wholesale prices; construction and housing starts; population; labor, wages, and unemployment rates; money and banking; interest bearing, charged, and interbank (LIBOR) rates; foreign exchange rates, forward rates, and Eurocurrency (ECU) rates; foreign trade, exports, imports, and balance; balance of payments; and official reserves.

Economics; Australia; Belgium; Great-Britain; Canada; Denmark; France; Germany; Malaysia; Mexico; Netherlands; Norway; Singapore; Southeast-Asia; Spain; Sweden; Switzerland; United-States; Philippines; Hong-Kong; South-Africa; Taiwan; Thailand; Korea; Austria; Brazil; Finland; India; Italy; Japan; Argentina; People-s-Republic-of-China; Greece; Ireland; Chile; Colombia; Indonesia; New-Zealand; Economics; International.

Geographic coverage: International

Time span: 1901 to date.

The WEFA Group

Price: Contact The WEFA Group for pricing information.

Latin America Forecast

Former name : Monthly Latin America.

The WEFA Group.

401 City Line Ave., Suite 300

Bala Cynwyd, 19004 1780 USA.

Phone: (215)667 6000

Fax: (215)660 6477

Time series (TIM).

English (EN).

Contains more than 1500 time series of economic data and forecasts for nine countries in Latin America. Macroeconomics forecasts available for Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, and Venezuela. Includes annual data and five-year forecasts. Covers inflation and exchange rates; balance of payments; imports, exports, and trade balances; major commodity exports and prices; financial indicators; industrial production; employment indicators; and national accounts.

SUBJECT COVERAGE: Macroeconomic forecasts for Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, and Venezuela, including national income accounts (supply, demand, and factor income); balance of payments accounts; exports and imports by major categories; petroleum sector; financial and inflation indicators; and external debt and debt servicing.

Economic-forecasting: Latin-America; Brazil; Mexico; Argentina; Bolivia; Chile; Colombia; Ecuador; Peru; Uruguay; Venezuela; Economics; Latin-America.

Geographic coverage: Latin America

Time span: 1970 to date, with 5-year forecasts

Update frequency: Quarterly.

The WEFA Group

Database label: LADB, LATIN

EA Diskette: Latin America Forecast

Magnetic tape: Latin America Forecast.

The New Orleans Times-Picayune.

Times-Picayune Publishing Corporation.

3800 Howard Ave.

New Orleans, LA 70140 USA.

Phone: (504)826-3279

Fax: (504)826-3369

Full text (FUL).

English (EN).

Contains the complete text of news items and feature stories from The Times-Picayune (New Orleans) newspaper. Regional coverage emphasizes the oil, marine, aerospace, nuclear, shipping, agriculture, seafood, tourism, and music industries. Also covers Mexican and Central American political events and relations with the U.S., national issues of interest to the southern states, and sporting events held

in the Superdome.

SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on the local and state industry and business with coverage of specific companies such as Martin-Marietta Manned Space Systems, Avondale Ship Yards, South Central Bell Telephone, Dillard's, and Winn Dixie; Mexi and Central America political events and relations with the United States; major sporting events, including the Super Bowl, Sugar Bowl, and NCAA Final Four games and the USG&F Golf Classic.

Louisiana; Latin-America; Mexico; News; United-States.

Geographic coverage: New Orleans, Louisiana with some national and international coverage

Time span: 1989 to date

Update frequency: Daily.

DIALOG

Database label: 706, a PAPERS file

Rates: \$60/connect hour, 65 cents/full record online, 65 cents/full record offline

DataTimes Corporation

Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud), 40 cents/Information Unit (Option A), \$105/connect hour (1200 baud), \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)

CompuSerKnowledge Index

Database label: NEWS37

Rates: \$24/connect hour

National TraData Bank

Acronym: NTDB.

U.S. Department of Commerce

Economics and Statistics Administration

STATUSA.

Herbert C. Hoover Bldg., Room 4885

Washington, DC 20230 USA.

Phone: (202)482-1986

Fax: (202)482-2164

MM STATUSA Helpline.

Full text (FUL)

Directory (DIR)

Statistical (STA)

Time series (TIM)

Numeric (NUM).

English (EN).

Contains some 150,000 time series, tables, or documents, as well as analyses and commentary, on U.S. and international trade and trade promotion. Covers balance of payments; U.S. exports by state and industry; international investment in the U.S. and U.S. investment abroad; operations of U.S. affiliates of foreign companies; national and international labor, economic, demographic, and energy statistics; international price indexes; world agricultural production and commodity status reports; import and export statistics by country of origin and destination; trade projections and barriers; stock price indexes for O-10 countries; currency exchange rates; export manuals for U.S. exporters; and international trade services. Includes a list of U.S. exporters and foreign trade contacts, foreign market research reports, and country commercial guides. Sources include the Census Bureau; Bureau of Economic Analysis (BEA); International Trade Administration; National Institute of Standards and Technology (NIST); U.S. and Foreign Commercial Service (US&FCS) of the Department of Commerce; Department of Labor, Bureau of Labor Statistics; Federal Reserve System, Board of Governors; Central Intelligence Agency (CIA); Department of Agriculture; Department of Energy, U.S. Export-Import Bank; International Trade Commission; Office of the U.S. Trade Representative; Overseas Private Investment Corporation (OPIC); and Small Business Administration. Also includes MISER data covering exports by state, country and industry from the University of Massachusetts.

SUBJECT COVERAGE: U.S. import and export information.

Foreign-trade; United-States; Finance; United-States; Trade; United-States.

Geographic coverage: United States, with some international coverage

Time span: 1929 to current month

Update frequency: Monthly

Year first available: 1990.

U.S. Department of Commerce

Economics and Statistics Administration

STATUSA

Price: Annual subscription, \$360; single issue, \$35 (U.S., Canada, and Mexico). Annual subscription, \$500; single issue, \$50 (shipped to other international locations).

NTDB BROWSE from U.S. Department of Commerce, Economics and Statistics Administration, and ROMWARE.

IBM PC, PS/2, or compatible; hard disk recommended; 640K memory; EGA or VGA card and monitor recommended; mouse recommended; Microsoft ROM Extensions 2.0; ISO 9660; ROM drive. For Apple Macintosh, requires a DOS emulator.

ED Status: Revised (R).

San Diego Union-Tribune.

Union-Tribune Publishing Company.

P.O. Box 191

San Diego, CA 92112 USA.

Phone: (619)299-3131

Fax: (619)293-2333

Full text (FUL).

English (EN).

Contains the complete text of news items and feature articles from

The San Diego Union and The Tribune newspapers, reporting local, state (California), and international news. Regional coverage emphasizes the U.S. Navy and U.S./Mexican border issues. Corresponds to the online San Diego Union/The Tribune database.

SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on Southern California, the U.S. Navy, the international border, and Latin America.

California; Latin-America; News; United-States.

Geographic coverage: San Diego, California area, with some national and international coverage

Time span: 1984 to date

Update frequency: Monthly.

NewsBank, Inc.

CD News

Price: Contact NewsBank, Inc. for pricing information.

From NewsBank, Inc.

IBM PC or compatible; 20MB hard drive; floppy drive; 640K memory; MS-DOS 3.0 or higher; monochrome monitor; MS-DOS ROM extensions; printer recommended; ROM drive.

MexiService.

United Communications Group

International Reports Service.

PO Box 90608

Washington, DC 20090-0608 USA.

Phone: (301)816-8950

Fax: (301)816-8945

Full text (FUL).

English (EN).

Contains the complete text of Mexi Service, a newsletter on investment opportunities and risks in Mexico. Provides interpretations of economic and political issues affecting domestic

and foreign investment decisions. Includes analyses of investment strategies.
SUBJECT COVERAGE: Financial, economic, and political climate in Mexico.
Business forecasting: Investments; Mexico; Business and trade opportunities; Country assessment
Geographic coverage: Mexico
Time span: January 2, 1991 to date
Update frequency: Biweekly
Year first available: 1991.
 NewsNet, Inc.
Database label: IT10
Rates: \$168/connect hour for nonsubscribers
OA Also online as part of: Newsletter Database.

Regional Centre for Higher Education in Latin America and the Caribbean ((CRESALC)
Servicio Informacion y Documentacion
Price: Contact UNESRegional Centre for Higher Education in Latin America and the Caribbean for pricing information
Mini-Micro CDS/ISIS.
IBM PC or compatible.
ED Status: New (N).

Database label: IT10

Rates: \$168/connect hour for nonsubscribers
 OA Also online as part of: Newsletter Database.

Bancos bibliograficos Latinoamericanos y El Caribe II
Universidad
Collma

Acronym: Mexico.
United Nations Educational, Scientific and Cultural Organization ((UNESCO)
Regional Centre for Higher Education in Latin America and the Caribbean ((CRESALC)
Servicio Informacion y Documentacion.

Apdo Postal 68394
 Caracas 1062-A, Venezuela.
Phone: 582 2845075
Fax: 582 2831411

E-Mail: mrivera@dino.conicil(Internet); whcar@frunes21.bitnet
MM Monica Rothganger Rivera.
Bibliographic (BIB).
Spanish (SP).

Contains 7500 references to journal articles, reports, monographs, UNES documents, and publications on higher education published worldwide and particularly in Latin America and the Caribbean.
SUBJECT COVERAGE: Higher education.
Education-higher.

Geographic coverage: International
Time span: 1979 to date
Year first available: 1987.

United Nations Educational, Scientific and Cultural Organization ((UNESCO)

BIBLAT Bibliografia Sobre America Latina e Informacion.
Universidad Nacional Autonoma Mexi((UNAM)
Centro Informacion Cientifica y Humanistica ((CICH).

Apartado Postal 70-392
 04510 MexiCity DF, Mexico.

Phone: 525 6223958
Fax: 525 6162557
Bibliographic (BIB).
Spanish (SP).

Contains more than 280,000 citations to articles published in more than 2100 Latin American periodicals in all subject areas. Also covers articles written by Latin American authors and published in non-Latin American periodicals as well as articles about Latin America published in non-Latin American periodicals. Sources include more than 3000 periodicals published outside the Latin American region. Corresponds to the online Bibliografia Latinoamericana, CLASE, CIIN, and PERIODICA databases.

SUBJECT COVERAGE: Social sciences, economics, humanities, library and information science, life sciences, science and technology, and related subjects.

Economics; Social-science; Latin-America; Humanities; Science-and-technology; General-interest; Library-science; Art-and-art-history; Linguistics; History; Psychology; Sociology; Accounting; Agriculture; Education; Political-science; Demographics-and-population; Latin-America; Philosophy; Religion-and-theology; Literature; Law; Architecture; Astronomy; Biology; Chemistry; Computer-science; Ecology; Forestry; Earth-sciences; Engineering; Mathematics; Medicine; Oceanography; Physics; City-planning; Veterinary-medicine.

Geographic coverage: Latin America

Time span: 1978 to date
Update frequency: Annual.

Universidad Nacional Autonoma Mexi((UNAM)
Centro Informacion Cientifica y Humanistica ((CICH)

Price: Contact the Universidad Nacional Autonoma Mexico, Centro Informacion Cientifica y Humanistica for pricing information UNAM from the Universidad Nacional Autonoma Mexico. Contact UNAM/CICIH for details.

Biblioteca Latinoamericana

Acronym: BLAT

Alternate name: BIBLAT.

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICIH).

Apartado Postal 70-392

04510 MexiCity DF, Mexico.

Phone: 525 6223958

Fax: 525 6162557

Bibliographic (BIB).

Spanish (SP).

Contains more than 80,000 citations to articles published by Latin American authors in non Latin American periodicals. Also covers articles about Latin America published in non-Latin American periodicals. Sources include more than 3000 periodicals published outside Latin American region.

SUBJECT COVERAGE: Published articles written by Latin American authors and appearing in periodicals published outside the Latin American region in the subject areas of science, technology, social science, arts, and humanities.

Science-and-technology: Social-science; Latin-America; Humanities; Art-and-art-history.

Geographic coverage: Latin America

Time span: 1980 to date

Update frequency: Semiannual.

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICIH)

CLASE.

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICIH).

Apartado Postal 70-392

04510 MexiCity DF, Mexico.

Phone: 525 6223958

Fax: 525 6162557

Bibliographic (BIB).

Spanish (SP).

Contains more than 100,000 citations to articles on social science and economics published in more than 1000 Latin American periodicals. Corresponds to CLASE--Citas Latinoamericanas en Ciencias Sociales y Humanidades/Latin American Citations in Social Sciences and Humanities and online CLASE database.

SUBJECT COVERAGE: Social sciences and humanities, including agricultural science, education, management, law, communication science, economics, linguistics, anthropology, political science, international relations, demography, information science, philosophy, religion, literature, art, history, psychology, sociology, and library science.

Economics; Social-science; Latin-America; Linguistics; Art-and-art-history; History; Psychology; Sociology; Library-science; Accounting; Agriculture; Education; Political-science; Demographics-and-population; Latin-America; Philosophy; Religion-and-theology; Literature; Law.

Geographic coverage: Latin America

Time span: 1976 to date

Update frequency: Annual.

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICIH)

Price: Contact the Universidad Nacional Autonoma Mexico, Centro

Informacion Cientifica y Humanistica for pricing information

UNAM from Universidad Nacional Autonoma Mexico.

Contact UNAM/CICIH for details.

PERIODICA.

Universidad Nacional Autonoma Mexi((UNAM)

Centro Informacion Cientifica y Humanistica ((CICIH).

Apartado Postal 70-392

04510 MexiCity DF, Mexico.

Phone: 525 6223958

Fax: 525 6162557

Bibliographic (BIB).

Spanish (SP).

Contains more than 100,000 citations to scientific articles published in more than 1200 Latin American periodicals. Corresponds to PERIODICA--Indice Revistas Latinoamericanas en Ciencias/Index of Latin American Journals in Science and to the online PERIODICA database.

SUBJECT COVERAGE: Science, including agriculture, architecture,

astronomy, biology, chemistry, computer science, ecology, forestry, earth sciences, engineering, mathematics, medicine, oceanography, physics, technology, city planning, and veterinary science.
Science and technology; Latin America; Agriculture; Architecture; Astronomy; Biology; Chemistry; Computer science; Ecology; Forestry; Earth sciences; Engineering; Mathematics; Medicine; Oceanography; Physics; City planning; Veterinary medicine.
Geographic coverage: Latin America
Time span: 1978 to date
Update frequency: Annual
Universidad Nacional Autonoma Mexi((UNAM)
Centro Informacion Cientifica y Humanistica ((CICH)
Price: Contact Universidad Nacional Autonoma Mexico, Centro de Informacion Cientifica y Humanistica for pricing information.
UNAM from Universidad Nacional Autonoma Mexico.
Contact UNAM/CICH for details.

Business America on CD-ROM.

American Business Information, Inc ((ABI))

5711 S 86th Circle

P O Box 27347

Omaha, NE 68127 USA

Phone: (402)593-4500

Fax: (402)331-1505

Directory (DIR)

English (EN)

Contains names, addresses, and telephone numbers for more than 11 million businesses in the United States and Canada, including retailers, wholesalers, service companies, and professionals. Covers businesses in all yellow-page categories for every state. Also provides key names, addresses, telephone numbers, number of employees, and sales volumes for manufacturers. Enables the user to search by business type, state, county, 3- and 5-digit ZIP codes, and area code. Sources include current telephone directories and U.S. Bureau of the Census. Corresponds to the online American Business Directory, American Business 20 Plus Directory, and BizFile databases.

SUBJECT COVERAGE: U.S. businesses.

Corporations; United States; Business-and-industry-directories;

United States; Business-and-industry-directories; Canada.

Geographic coverage: United States and Canada

Time span: Current information

Update frequency: Semiannual.

American Business Information, Inc. ((ABI))

Price: Annual license fee, \$7500

CD Answer from Dataware Technologies Inc.

IBM PC, PS/2, or compatible; hard disk with at least 1MB free; 640K memory; MS-DOS 3.0 or higher; monochrome or color monitor; CD-

ROM drive.

Business Dateline Ondisc.

UMI

620 S. Third St.

Louisville, KY 40202-2475 USA

Phone: (502)583-4111

Toll-free: (800)626-2823

Fax: (502)589-5572

UMI Help Line. Toll-free: 800-626-2823.

Full text (FUL).

English (EN).

Contains the complete text of more than 450,000 articles from some 400 U.S. and Canadian regional business publications. Covers news on local business leaders, companies, and products, as well as regional business trends. Includes company name, D-U-N-S number, Standard Industrial Classification (SIC) code, and stock symbol. For some source publications, includes tables containing statistical information such as corporate rankings, itemized fiscal reports, and economic indicators for cities, states, and regions. Most publications can be searched individually. Corresponds to the online Business Dateline database.

SUBJECT COVERAGE: Regional, state, or local business activities in the United States and Canada. Covers the following industries: electronics and instrumentation; retailing; real estate; service industries; hotels and restaurants; transportation; banks and financial services; and other industries. Also covers business environment; management; marketing; and profiles of CEOs, boards of directors, entrepreneurs, and managers.

Business-and-business-administration; Corporations; Executives; Advertising-and-marketing; Management; Electronics; Retail-trade; Real-estate; Service-industries; Transportation; Hotels-and-motels; Restaurants; Banking-and-finance; Mergers-and-acquisitions; Business-and-industry-news; Canada; Business-and-industry-news; United States.

Geographic coverage: United States and Canada

Time span: 1985 to date

Update frequency: Monthly.

UMI

UMI Ondisc

Price: \$3150 for an annual subscription

UMI Search/Retrieval Software from University Microfilms International.

IBM PC, PS/2, or compatible; hard disk; 640K memory; MS-DOS 3.1 or higher; Microsoft CD-ROM Extensions; CD-ROM drive.

Canada Phone.

Pro CD, Inc.
222 Rosewood Dr.
Danvers, MA 01923-4510 USA.
Phone: (508)750 0000
Fax: (508)750 0070
Directory (DIR).
English (EN).

Contains the nearly 10 million residential and business listings from all the published white pages and yellow pages directories in Canada. Enables user to search for listings using wildcards or by field including name, street address, city, province, postal code, area code, telephone number, business heading, and SIC code. Also offers reverse search by address, phone number or business type to display desired listings. Permits unrestricted access and unlimited downloading of information into any database, word processor, spreadsheet or contact management software. Includes autodial capability.

SUBJECT COVERAGE: Listings from the white pages and yellow pages in

Canada.
Canada.

Geographic coverage: Canada
Year first available: 1994.

Pro CD, Inc.

Price: Contact Pro CD for pricing information.
Contact Pro CD for details.

Canadian Business and Current Affairs

Acronym: CBCA.
Micromedia Ltd.
20 Victoria St.
Toronto, ON, Canada M5C 2N8.
Phone: (416)362-5211
Toll-free: (800)387-2689
Fax: (416)362-6161
Bibliographic (BIB).
English (EN).

Contains more than 1.65 million citations to articles in more than 200 English-language business periodicals, 300 popular periodicals, and 10 daily newspapers published in Canada. Articles cover product, company, and industry information; national, provincial, and local news; editorials and selected letters to the editor; government

activities; labor news; crime; sports; obituaries; biographies; reviews; art; children's literature; cooking; education; health; history; hobbies; music; nature; recreation; science; social issues; and travel. Corresponds to the Canadian Index.

SUBJECT COVERAGE: Canadian business, current affairs, and news, covering crime, education, performing arts, literature, personalities, politics, sports, travel, leisure, entertainment, and company news such as acquisitions and mergers, bankruptcies, company activities, industry news, technological trends, and business personalities.

Canada; Business-and-business-administration; Periodicals; Corporations; Mergers-and-acquisitions; Business-and-industry-news; Canada.

Geographic coverage: Canada

Time span: 1981 to date

Update frequency: Quarterly.

Knight-Ridder Information, Inc.

KR Information OnDisc

Price: \$1450 for an annual subscription; \$800 for an annual subscription to academic institutions.

KR Information OnDisc Manager from Knight-Ridder Information Services, Inc., DIALOG.

IBM PC, PS/2, or compatible; hard disk with at least 3MB free (5MB recommended); 512K memory (640K recommended); MS-DOS 3.1 or higher;

Microsoft CD-ROM Extensions 2.0 or higher; CD-ROM drive.

Status: Revised (R).

Canadian Business Disc

Alternate name: CD Affaires.

CEDROM-SNI Inc.

825, avenue Querbes, bureau 200

Montreal, PQ, Canada H2V 3X1.

Phone: (514)278-6060

Fax: (514)278-5415

Full text (FUL).

English (EN), French (FR).

Contains the complete text of Les Affaires, Financial Post, Commerce, Affaires, PME, and a selection of financial sections from major Canadian newspapers.

SUBJECT COVERAGE: Financial and business news.

Newspapers.

Time span: 1993 to date

Update frequency Quarterly

Year first available 1993

CEDROM SNI Inc.

Price: CAN\$1995; contact CEDROM SNI for network license pricing information.

IBM PC or compatible; 386; 640K memory; hard disk; CD ROM drive; Microsoft Windows 3.1; 2MB memory; mouse; CD-ROM drive.

Apple Macintosh 6.07 or higher; 800K memory.

Status: New (N).

CCINFOdisc: Core Series A1

Acronym: MSDS DISC.

Canadian Centre for Occupational Health and Safety ((CCOHS).

250 Main St. E.

Hamilton, ON, Canada L8N 1H6.

Phone: (905)570-8094

Toll-free: (800)668-4284

Fax: (905)572-2206

Full text (FUL)

Properties (PRO)

Directory (DIR).

English (EN), French (FR).

Contains the complete text of more than 80,000 Material Safety Data Sheets and related technical information on chemicals. Comprises the following 3 files:

Material Safety Data Sheets (MSDS)—contains Material Safety Data Sheets for more than 80,000 commercially available chemical substances used in a variety of workplace settings. For each chemical, provides trade name, manufacturer name and address, distributor name and address, telephone numbers, description, physical properties, reactivity, health hazards, and information on spill and leak procedures, storage and handling, personal protection, cleanup and disposal, and emergency first aid. Sources are chemical manufacturers and distributors. Corresponds to the online MSDS database.

Fiches Techniques sur la Sécurité des Substances (FTSS)—contains the French-language equivalent of Material Safety Data Sheets. Corresponds to the online FTSS database.

CHEMINFO—contains descriptive, health, and precautionary data on pure chemicals, natural substances, and chemical mixtures resulting from or used in industrial processes. For each chemical, provides substance identification, including name, synonyms, CAS Registry Number, and molecular and structural formula, as well as information

about its uses and occurrences, physical properties, appearance, reactivity, warning properties (e.g., odors, imitation), animal toxicity data, proposed Workplace Hazardous Materials Information System (WHMIS) classification, fire and explosion hazards, and human health effects from short-term acute or chronic exposure. Also provides information on occupational control measures, including airborne exposure limits, ventilation, personnel protective equipment and clothing, respiratory protection guidelines, and recommendations on storage and handling, spill and leak procedures, cleanup, disposal, and emergency first aid. Sources include periodicals, monographs, government documents, and Material Safety Data Sheets from chemical manufacturers. Corresponds to the online CHEMINFO database.

SUBJECT COVERAGE: Chemical products, including chemical and physical

properties, health hazards, personal protection and first aid, handling, storage, cleanup, and disposal.

Industrial-hygiene; Industrial-safety; Chemicals; Chemical-properties; Hazardous-substances.

Geographic coverage: International

Time span: Current information

Update frequency: Quarterly.

Canadian Centre for Occupational Health and Safety ((CCOHS)

CCINFOdisc

Price: \$300 for an annual subscription (Canada and U.S.); \$350 for an annual subscription (elsewhere).

CCFind from CCOHS.

IBM PC or compatible; two floppy drives or hard disk; 512K memory; MS-DOS 3.1 or higher; Microsoft CD-ROM Extensions 2.0 or higher;

CD-

ROM drive.

Apple Macintosh, System 6.5.0 or higher; CD-ROM drive.

CCINFOdisc: Core Series B2

Acronym: OSH InterData.

Canadian Centre for Occupational Health and Safety ((CCOHS).

250 Main St. E.

Hamilton, ON, Canada L8N 1H6.

Phone: (905)570-8094

Toll-free: (800)668-4284

Fax: (905)572-2206

Bibliographic (BIB)

Directory (DIR).

English (EN), French (FR)

Contains occupational safety and health information and educational materials on a variety of related topics. Comprises the 7 following files:

CISILO—contains citations, with abstracts, to the worldwide literature on occupational safety and health. Covers pathology and medicine of work in many industries and professions, education, ergonomics, statistics, and the organization, inspection, and risks of safety systems. Produced by the International Occupational Safety and Health Information Centre (CIS), International Labour Office. Corresponds to the online CIS Abstracts database.

CISDOC—contains the French-language equivalent of CISILO.

INOR-Organizations—contains information on more than 420 organizations conducting occupational safety research. For each organization, provides name, address, incorporation date and type, financial sources, names of management personnel, number of researchers and other employees, organization's objectives, sector of activity, unusual equipment, and publications. Produced by the Institut National de Recherche et de Sécurité, Service de Documentation. Corresponds in part to Répertoire International des Recherches Appliquées à la Protection de l'Homme au Travail (1974-1980), Bulletin des Recherches Appliquées à la Protection de l'Homme au Travail (1981-86), and to the online INRS-Recherche database.

INRS-Bibliographique—contains more than 18,000 citations, with abstracts, to the worldwide literature on job risk prevention and the improvement of work conditions. Covers chemical, physical, mechanical, and noise risks; explosion and fire hazards; protection techniques and materials; job-related illness and industrial medicine; workplace improvements; and ergonomics. Covers INRS documents

since 1975 and other documents since 1981. Produced by the Institut National de Recherche et de Sécurité (INRS), Service de Documentation. Corresponds to the online INRS-Bibliographique database.

International Directory of OSH Institutions—contains information on competent authorities, national scientific and research institutes, social security institutions, and national security councils in 93 countries. Provides information on responsibilities and activities of more than 300 key organizations operating in the sphere of occupational health and safety in 93 member states of the International Labour Office (ILO). Corresponds to the online International Directory of OSH Institutions database.

INET Research Projects—contains information on international research projects that are planned or currently underway on the prevention of occupational risks. Corresponds to the online INET

Research Projects database. Produced by Institut de Recherche et de Sécurité.

INET Etudes en Cours—contains the French-language equivalent of the INET Research Projects database. Corresponds to the online INET Etudes en Cours database.

SUBJECT COVERAGE: Occupational safety and health.

Industrial-hygiene; Industrial-safety.

Geographic coverage: International

Time span: Varies by file

Update frequency: Quarterly.

Canadian Centre for Occupational Health and Safety ((CCOHS)

CCINFODisc

Price: \$250 for an annual subscription (Canada and U.S.); \$300 for an annual subscription (elsewhere).

CCFind from CCOHS.

IBM PC or compatible; two floppy drives or hard disk; 512K memory;

MS-DOS 3.1 or higher; Microsoft CD-ROM Extensions 2.0 or higher;

CD-

ROM drive.

Apple Macintosh; System 6.0.5 or higher; CD-ROM drive.

CCINFODisc: Labour Canada Operations Program

Alternate name: Travail Canada Programme des Operations.

Labour Canada

Operations Program.

Ottawa, ON, Canada K1A 0J2.

Phone: (819)994-0199

Fax: (819)953-8883

Mr. Jean Laframboise, Manager Field Operations.

Full text (FUL).

English (EN), French (FR).

Covers Canadian occupational safety and health codes and regulations and related issues. Comprises both publications and databases as follows:

PUBLICATIONS: Occupational Safety and Health: Canada Labour Code Part

II and Regulations, and Related Operations Program Directives, Interpretations, Policies and Guidelines. Labour Standards and Equal Pay: Canada Labour Code Part III and Regulations, and Related Operations Program Directives, Interpretations, Policies and Guidelines. Fire Prevention: Fire Prevention Standards, and Related Operations Program Directives, Interpretations, Policies and Guidelines.

DATABASES Guide to the Evaluation of Airborne Chemical Contaminants contains information on the methods to be used for analysis of chemical contaminants, covering methods used in both laboratories and in the field. Unjust Dismissal provides details of cases of unjust dismissal, including information on the employer, employee, type of industry and occupation, and summaries of decisions made at the various stages of the proceedings. Case Law--contains summaries of cases and decisions related to occupational safety and health matters specific to the Canada Labour Code.

SUBJECT COVERAGE: Canadian federal guidelines concerning occupational

health and safety, labor standards, equal pay, fire prevention, and related court decisions.

Canada; Laws and regulations; Canada; Industrial safety; Industrial hygiene; Labor and employment; Fires and fire prevention; Hazardous substances.

Geographic coverage: Canada

Update frequency: Semiannual

Year first available: 1992.

Canadian Centre for Occupational Health and Safety ((CCOHS)

CCINF0disc

Price: \$400 for an annual subscription.

CCPub and CCFind from CCOHS.

IBM PC or compatible; hard disk with at least 2MB free (4MB recommended); VGA monitor; MS-DOS or PC-DOS 3.1 or higher;

Microsoft

Windows 3.0 or higher; Windows-compatible mouse; Microsoft CD-

ROM

Extensions; CD-ROM drive.

A Macintosh version is planned.

Dun's Business Locator Canada.

Dun & Bradstreet Canada.

5770 Hurontario St.

Mississauga, ON, Canada L5R 3G5.

Phone: (905)568-6000

Toll-free: (800)232-1026

(232)265-3867

Fax: (905)568-6279

Directory (DIR).

English (EN), French (FR).

Contains information on more than 700,000 Canadian businesses. For each business, provides company name, address and telephone number,

Standard Industrial Classification (SIC) code, and a parent company cross reference.

SUBJECT COVERAGE: Business establishments and professionals in Canada.

Corporations; Business-and-business-administration; Business-and-industry; Canada.

Geographic coverage: Canada

Time span: Current information

Update frequency: Daily.

Dun & Bradstreet Canada

Price: Contact Dun and Bradstreet Canada for details.

Contact Dun and Bradstreet for details.

Dun's BusinessLine - Canada.

Strategic Mapping Inc.

70 Seaview Ave.

P.O. Box 10250

Stamford, CT 06904 USA.

Phone: (203)353-7295

Toll-free: (800)866-2255

Fax: (203)353-7276

Directory (DIR)

Full text (FUL)

Numeric (NUM).

English (EN), French (FR).

Contains information on more than 9 million U.S. businesses.

Comprises the following 2 files:

BusinessLINE Registry--contains individual listings and locations of Canadian 625,000 businesses. Includes information on corporate headquarters, branches, and single locations. For each company, the following data are provided, as available: business name, 6-digit Standard Industrial Classification (SIC) codes, D-U-N-S number, Ultimate D-U-N-S number, company size (e.g., number of employees and sales volume), founding date, business status (e.g., headquarters /branch indicator), geocodes, and latitude/longitude. Data are accessible by employee size, company sales volume, SIC codes, all standard areas of geography, and user-defined geometric areas, and can be viewed in a variety of reports, maps, and charts. Data are accessed only through TargetScan (described in a separate entry). Use of these data for direct mail solicitation, sales, or database building is prohibited.

BusinessLINE Basics--contains summary data on business establishments, including number of businesses, number of employees,

and sales volume by geography and SIC code. Also contains key consumer demographic data. Data are accessible by SIC codes. Customized reports can be generated using CONQUEST FileMaster or TargetScan.

A CONQUEST database.

SUBJECT COVERAGE: Geodemographic analysis and mapping of Canadian

business establishments.

Business-and-business-administration; Corporations; Canada; Business-and-industry-directories; Canada; Corporate-finances; Canada. Geographic coverage: Canada.

Strategic Mapping Inc.

Price: Contact Strategic Mapping Inc. for pricing information.

From Strategic Mapping Inc.

IBM PC, PS/2, or compatible; 20MB hard disk; 640K memory; MS-DOS

3.3

or higher; Microsoft CD-ROM Extensions; CD-ROM drive. Access to maps and charts requires math coprocessor 80287 or 80387; EGA or VGA card and monitor; printer; HP plotter; mouse.

The Financial Post.

The Financial Post Datagroup.

333 King St. E.

Toronto, ON, Canada M5A 4N2.

Phone: (416)350-6440

Fax: (416)350-6501

Full text (FUL).

English (EN).

Contains the complete text of news items and feature articles from The Financial Post (Canada) newspaper, covering business and financial news. Does not include stock listings and advertisements. Corresponds to the online Financial Post database.

SUBJECT COVERAGE: Canadian business and investment news. Corporations; Stocks-and-bonds; Canada; Business-and-business-administration; Banking-and-finance; Investments; Business-and-industry-news; Canada; Business-and-industry-news; International; News; Canada; News; International.

Geographic coverage: Canada, with some international coverage

Time span: 1989 to date.

OPTIM Corporation

Price: \$1200 for an annual subscription; \$1200 per backfile year.

CD Answer from Dataware Technologies Inc.

IBM PC or compatible; 640K memory; hard drive; 1.4MB free; floppy drive; MS-DOS 3.0 or higher; Microsoft CD-ROM Extensions 2.0 or higher; CD-ROM drive.

FUND ME! Sources.

IGW Canada Inc.

4500 16 Ave. NW, Ste. 300

Calgary, AB, Canada T3B 0M6.

Phone: (403)247-9506

Toll-free: (800)668-1017

Fax: (403)247-9915

Suzanne Levesque, Manager Products & Services.

Directory (DIR).

English (EN).

Contains information on funding sources available for research and business. Covers more than 2000 programs, grants and subsidies, including business funding programs from a variety of sources ranging from government agencies and departments to private foundations, international associations, banks and venture capital companies. For each source, provides program title, sponsoring organization, address, telephone number, areas of interest, program criteria, program description, funding amount, and funding type.

SUBJECT COVERAGE: Funding sources available for all stages of business development and research.

Grants.

Time span: Current information

Update frequency: Quarterly.

IGW Canada Inc.

Price: \$550

Contact IGW Canada Inc. for details.

FUNDFDI

IGW Canada Inc.
4500 16 Ave. NW, Ste. 300
Calgary, AB, Canada T2B 0M6.
Phone: (403)247 9506
Toll free: (800)668 1017
Fax: (403)247-9915
Suzanne Levesque, Manager Products & Services.
Directory (DIR).
English (EN).
Provides information on funded projects, research, researchers, and businesses in Canada. Contains information on 20,000 researchers, companies, and projects which have been awarded funds by public sector agencies and selected private sector organizations.
SUBJECT COVERAGE: Projects, researchers, and businesses who have received funding.
Funding sources-contracts-and-awards; Grants.
Geographic coverage: Canada
Time span: 1990 to date
Update frequency: Biannual
Year first available: 1993.
IGW Canada Inc.
Price: \$750
Contact IGW Canada Inc. for details.

The Gazette

Acronym: Montreal.
Southern, Inc.
250 St. Antoine St., W.
Montreal, PQ, Canada H2Y 3R7.
Phone: (514)282-2750
Full text (FUL).
English (EN).
Contains the complete text of news items and feature articles from The Gazette (Montreal) newspaper. Covers international, national, regional, political, business, sports, entertainment, and fashion news. Does not include advertisements or tabular data. Corresponds to the online Gazette database.
SUBJECT COVERAGE: General local, national, and international news coverage.
Quebec; Canada; News; Canada.
Geographic coverage: Montreal, Quebec, Canada area
Time span: 1990

Update frequency: Not updated.
OPTIM Corporation

Price: \$1200
CD Answer from Dataware Technologies Inc.
IBM PC or compatible; 640K memory; hard drive; 1.4MB free; MS-DOS 3.0
or higher; Microsoft CD-ROM Extensions 2.0 or higher; CD-ROM drive.

The Globe and Mail and Financial Times of Canada on CD-ROM.

Globe Information Services
Co-Producer: Southam Communications.
444 Front St. W.
Toronto, ON, Canada M5V 2S9.
Phone: (416)585-5250
Toll-free: (800)268-9128
Fax: (416)585-5249
Full text (FUL).
English (EN).
Provides the complete text of The Globe and Mail, the national daily newspaper in Canada, and Financial Times of Canada, as well as articles from The Globe and Mail's associated magazines Report on Business, Report on Business 1000, and Business Week. Corresponds in part to The Globe and Mail Online.

SUBJECT COVERAGE: Canadian news and international news, business, and financial information, including news stories, columns, editorials, business reports, political analyses, financial statements, science and technology features, court reports, letters to the editor, selected advertising, and other nonadvertising matter from the newspaper in 1991.
Canada; News; Canada; News; International; Business-and-industry-news; Canada; Business-and-industry-news; International; Communication-arts; Public-broadcasting.
Geographic coverage: Canada, with some international news
Time span: 1991 to date
Year first available: 1992.
Globe Information Services
Price: \$Can. 595 for the education market
From Dataware Corporation.
IBM PC or compatible; CD-ROM drive.

Infodirect Disc.

Pro CD, Inc.
222 Rosewood Dr.
Danvers, MA 01923-4510 USA
Phone: (508)750-0000
Fax: (508)750-0070

Directory (DIR).

English (EN), software interface available in English and French.
Contains more than 6 million telephone directory listings for businesses and residences served by Bell Canada in Ontario and Quebec. Listings provide name, street, city, province, postal code, and telephone number.

SUBJECT COVERAGE: Ontario and Quebec telephone listings.

Ontario; Quebec; Telephone Directories; Canada.

Geographic coverage: Ontario and Quebec

Time span: Current information

Update frequency: Monthly and semiannual.

Pro CD, Inc.

Price: Available on an annual subscription basis; includes monthly or semiannual updates.

From ProCD, Inc.

IBM PC or compatible or 80386-based machine; 10MB hard disk; 640K memory; MS-DOS 3.1 or higher; Microsoft CD-ROM Extensions 2.1 or higher; CD-ROM drive.

Kompass Canada.

Micromedia Ltd.

Formerly produced by: Kompass Canada Publishers.

20 Victoria St.

Toronto, ON, Canada M5C 2N8.

Phone: (416)362-5211

Toll-free: (800)387-2689

Fax: (416)362-6161

Directory (DIR).

English (EN).

Contains company and product information for more than 30,000 Canadian companies in all lines of business. For each company, provides name, address, telephone number, management names, business descriptions, and industry and product listings. Corresponds to Kompass Canada and the online Kompass Canada database.

SUBJECT COVERAGE: Canadian companies in the manufacturing,

industrial, and associated sectors.

Corporations; Canada; Business-and-industry-directories; Canada.

Geographic coverage: Canada

Time span: Current information.

Micromedia Ltd.

Price: To be announced

The Ottawa Citizen.

Southam, Inc.

1101 Baxter Rd.

P.O. Box 5020

Ottawa, ON, Canada K2C 3M4.

Phone: (613)829-9100

Full text (FUL).

English (EN).

Contains the complete text of news items, feature articles, and editorials from The Ottawa Citizen (Ontario) newspaper. Covers national and international news, federal government activities, and local business. Does not include advertisements or tabular data.

Corresponds to the online Ottawa Citizen database.

SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on local business and government activities.

Canada; Legislative-bodies; Legislation; Ontario; News; Canada.

Geographic coverage: Ottawa, Ontario, Canada area

Time span: 1990.

OPTIM Corporation

Price: \$1200

CD Answer from Dataware Technologies Inc.

IBM PC or compatible; 640K memory; hard drive; 1.4MB free; MS-DOS

3.0

or higher; Microsoft CD-ROM Extensions 3.0 or higher; CD-ROM drive.

World Trade Database

Alternate name: Statistics Canada World Trade Database

La Base de Données sur le Commerce Mondial.

Statistics Canada

International Trade Division.

9 JT, Tunney's Pasture

Ottawa, ON, Canada K1A 0T6.

Phone: (613)951-9647

Fax: (613)951 0117
 E Mail: 74672.1034@CompuServe.com (CompuServe);
 be508@freenet.carleton.ca (Internet)
 Roger Therrien, Database Administrator.
 Statistical (STA).
 English (EN), French (FR).
 Contains 13 years of annual commodity flow statistics for the 160 member countries of the United Nations and 600 commodities. Tracks commodity supply, and enables the user to spot market potential, monitor import/export activity, and calculate trends.
 SUBJECT COVERAGE: Commodity trade flow data.
 Trade; International; Commodities; International; United-Nations; Foreign-trade.
 Geographic coverage: International
 Time span: 1980-1992
 Update frequency: Annual
 Year first available: 1993.
 Statistics Canada
 Geography Division
 Price: \$3500; educational discounts are available
 From Dataware Technologies, Inc.
 IBM PC or compatible; 512K memory; hard disk with at least 1.5MB free; floppy drive; MS-DOS 3.0 or higher; MS-DOS CD-ROM extensions 2.01 or higher; monochrome or color monitor; CD-ROM drive.

Canada Agriculture

Acronym: CANAG.
 The WEFA Group.
 401 City Line Ave., Suite 300
 Bala Cynwyd, PA 19004-1780 USA.
 Phone: (215)667-6000
 Fax: (215)660-6477
 Time series (TIM).
 English (EN).
 Contains quarterly historical regional and national agricultural data for Canada. Major categories covered include crop acreage, yield, production, supply and disposition, and prices; livestock inventories, production and trade, including beef and pork supply and disposition, farm cash receipts, government program outlays, farm income, expenditures, and depreciation changes. Corresponds to the online Canada Agriculture database.
 SUBJECT COVERAGE: Canadian macroeconomic farm crop and related agricultural data.

Agriculture; Field crops; Irrigation; Livestock; Canada.
 Geographic coverage: Canada
 Time span: 1950 to date
 Update frequency: Quarterly.
 The WEFA Group
 Price: Contact The WEFA Group for pricing information.

Canadian Industry Norms and Key Business Ratios.

Dun & Bradstreet Canada.
 5770 Hurontario St.
 Mississauga, ON, Canada L5R 3G5.
 Phone: (905)568-6000
 Toll-free: (800)232-1026
 (232)265-3867
 Fax: (905)568-6279
 Directory (DIR).
 English (EN), French (FR).
 Contains financial figures, business ratios, and model statements for more than 400 lines of business.
 SUBJECT COVERAGE: Canadian business entities.
 Finance; Canada; Business-and-business-administration.
 Geographic coverage: Canada.
 Dun & Bradstreet Canada
 Price: Contact Dun & Bradstreet Canada for pricing information.
 Contact Dun & Bradstreet for details.

CANSIM Cross-Classified Database.

Statistics Canada
 Geography Division.
 Turney's Pasture
 Ottawa, ON, Canada K1A 0T6.
 Phone: (613)951-3889
 Fax: (613)951-0569
 Time series (TIM).
 English (EN).
 Contains Canadian social data that have been organized into 283 tables to facilitate analysis of interrelated data. Each table is composed of the following elements: descriptor, including title and footnotes; data dimension; category, including data value definitions; quantifier, providing numerical representations of the data; and period (i.e., time frame). Data cover health and nutrition, education, consumer income and expenditure, science and technology,

public finance, justice, social welfare, demography and migration, tourism, provincial socio-economic profiles, agriculture and food, manufacturing, small business, international trade, and input and output measures. Enables the user to request specific data dimensions, time period, and geographic coverage for a table. Corresponds in part to the online CANSIM Time Series Data Base. **SUBJECT COVERAGE:** Canadian socioeconomic statistics in such areas as agriculture, census, health and welfare, and justice.

Canada; Statistics; Economic; Census; Economics; Canada.

Geographic coverage: Canada
Time span: 1961 to date
Update frequency: Periodically.

Statistics Canada
Geography Division
Price: Varies by data selected; contact Statistics Canada.
Marketing Division for pricing information.
From Statistics Canada, Marketing Division.

IBM PC or compatible floppy drive 128K memory; MS-DOS.

SUBJECT COVERAGE: Advanced technology products and services, including computer hardware and software, telecommunications, photonics, artificial intelligence, advanced materials, biotechnology, and measurement and control systems. Computers; Artificial-intelligence; Telecommunications; Science-and-technology; Biotechnology; Canada; Corporations.
Geographic coverage: Canada
Time span: Current information
Update frequency: Quarterly.
Hutchison Research
Price: \$Can. 6000 for an annual subscription
Revelation from Cosmos.
IBM PC or compatible; floppy drive; hard disk with 13MB free; 640K memory; MS-DOS.

Data Base on Corporate Taxation and Cross Border Payments in OECD Countries.

IBFD Publications BV,
P.O. Box 20237
NL-1000 HE Amsterdam, Netherlands.
Phone: 020 6267726
Fax: 020 6228658
Alexander Dek, Manager Marketing and Sales.
Full text (FUL).
English (EN).

Contains taxation information for the following Organisation for Economic Cooperation and Development (OECD) countries: Australia, Ireland, Italy, Japan, Liechtenstein (non-OECD), Luxembourg, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and the United States. Provides information on the taxation of resident companies; the taxation of foreign-source income; the taxation of non-resident companies; holding companies; the taxation of patent royalties, dividends, and interest received by non-resident companies; and a withholding tax rates chart.

SUBJECT COVERAGE: Taxation in OECD countries (and Liechtenstein), including the taxable base of resident companies; deductibility of business expenses, corporate income tax rates, withholding taxes and tax credits, net worth tax, VAT and similar taxes, stamp duties, and

Contains information on more than 5500 Canadian public and private corporations and operating units of large corporations that develop or manufacture high-technology products. Covers firms in advanced materials, biotechnology systems, chemicals, computer hardware, computer software, defense/military equipment, energy/environmental equipment, factory automation equipment, manufacturing equipment, medical equipment, pharmaceuticals, services, subsidiaries /subsystems, telecommunications equipment, test/measurement/control equipment, and transportation equipment. Includes company name, address, telephone, and telex numbers; names and titles of executive officers; annual sales; number of employees; ownership (e.g., public, private); trade styles (i.e., alternate business names); parent company; subsidiaries; country of ownership; incorporation date; company description; and product lists classified by the ComTech proprietary classification system. Corresponds to the CANTECH

local taxes for companies not resident in an OECD country; the domestic taxation of foreign patent royalty, dividend, and interest payments received by companies resident in an OECD country, along with details on applicable treaty provisions, tax credits, and unilateral relief; liability, base, and rate of income tax, withholding tax, business tax, net worth tax turnover tax, stamp tax, and local tax on income received in an OECD country by a non-resident company; taxation of international holding companies in OECD countries, including taxes in the country of source, taxes on foreign and accumulated income, taxes levied on income paid to the non-resident parent by the holding company, and the taxes levied by the country where the parent company is a resident; withholding tax rates with reference to relevant treaty provisions, and liabilities for income and other taxes with references to sections which detail these liabilities; and withholding tax rates for patent royalty, dividend, and interest payments from one OECD country to the other OECD countries.

Taxation: Australia; Austria; Belgium; Canada; Denmark; Finland; France; Germany; Greece; Ireland; Italy; Japan; Luxembourg; Netherlands; New Zealand; Norway; Portugal; Spain; Sweden; Switzerland; Turkey; United States; Great Britain.

Geographic coverage: OECD countries

Time span: Current information

Update frequency: 3 times per year.

IBFD Publications BV

Price: Initial fee of 350 Dutch Florins; annual license fee of 480

Dutch Florins

Adapted from Searchmagic by Inmagic Inc.

IBM PC or compatible; hard disk; 512K memory.

Directory of Trade and Professional Associations in the Toronto Region.

The Board of Trade of Metropolitan Toronto Resource Centre.

1 First Canadian Place

P.O. Box 60

Toronto, ON, Canada M5X 1C1.

Phone: (416)366-6811

Fax: (416)366-5620

Mary deReus, Manager, Information and Research Services.

Directory (DIR).

English (EN).

Contains information on more than 1000 trade associations maintaining offices in the metropolitan Toronto, Ontario area. For each association, provides name, address, telephone number, fax number,

contact person, membership size, year established, annual budget, number of employees, mandate, services, and publications. Corresponds to the Directory of Trade and Professional Associations in the Toronto Region.

SUBJECT COVERAGE: Trade associations in the Toronto, Ontario area. Associations; Toronto-Ontario; Ontario; Canada. Geographic coverage: Toronto, Ontario, Canada metropolitan area. Time span: Current information. Update frequency: Biennial.

The Board of Trade of Metropolitan Toronto

Resource Centre

Price: \$Can. 321; discount to Board members; \$U.S. 300 for buyers outside Canada

The Financial Post 500 and the Other 500 Database

Alternate name: FP 500.

The Financial Post Datagroup.

333 King St. E.

Toronto, ON, Canada M5A 4N2.

Phone: (416)350-6440

Fax: (416)350-6501

Full text (FUL)

Numeric (NUM).

English (EN).

Contains information on 1000 Canadian businesses. The Financial Post (FP) 500 covers top industrial companies. The other 500 covers 100 financial, 100 subsidiaries, 100 companies of tomorrow, 100 private firms, and 100 professional service firms. For each company, includes name, head office location, telephone number, ranking by sales /revenue and net income, contact name and title, major shareholders, number of employees, percentage of foreign ownership, five-year profit growth, and return on invested capital before tax. Database is available in three versions, FP 500 and Other 500 and Auditors, FP 500 and Other 500, and FP 500 Plus the 100 Companies of Tomorrow. Corresponds to The Financial Post 500 magazine.

SUBJECT COVERAGE: Canadian business and industry information.

Geographic coverage: Canada

Time span: Current information.

The Financial Post Datagroup

Price: The Financial Post 500 Plus Other 500 and Auditors, \$700;

The Financial Post 500 Plus Other 500, \$575; The Financial Post 500

Plus 100 Companies of Tomorrow, \$375.

IBM PC or compatible; floppy drive; hard disk.

Report on Business Corporate Database.

Globe Information Services.

444 Front St. W.

Toronto, ON, Canada M5V 2S9.

Phone: (416)585-5250

Toll-free: (800)268-9128

Fax: (416)585-5249

Time series (TIM)

Full text (FUL).

English (EN).

Contains annual and quarterly time-series data from the corporate reports of more than 2600 publicly held, private, and government-owned (crown) Canadian corporations. Annual data cover more than 200 items, including general information (e.g., address, business description), income statement, balance sheet, statement of retained earnings, changes in financial position and capital, stock prices, and supplementary information relating to specific industries. Quarterly data cover approximately 85 items in the same categories for more than 350 selected corporations. Corresponds to the online Report on Business Corporate Database.

SUBJECT COVERAGE: Financial information on Canadian public, some

private, and crown corporations.

Banking-and-finance; Corporations; Canada; Corporate-finances; Canada.

Geographic coverage: Canada

Time span: 1974 to date

Update frequency: Varies.

The Globe and Mail

Price: Minimum annual lease, \$10,000; updates, \$75.

IBM PC or compatible; floppy drive.

Financial Post Canadian Corporate Database.

The Financial Post Datagroup.

333 King St. E.

Toronto, ON, Canada M5A 4N2.

Phone: (416)350-6440

Fax: (416)350-6501

Time series (TIM)

Numeric (NUM).

English (EN).

Contains annual time series on more than 470 publicly-owned Canadian corporations. More than 100 data items are maintained on each company for each year, including stock prices, volume, industry classification, CUSIP number, and information from balance sheets, income statements, and changes in financial position statements. Sixteen items from company quarterly reports, including revenue, net income, tax, dividend, and per-share information are available for a selected 115 companies. Corresponds to the online Financial Post Canadian Corporate Database.

SUBJECT COVERAGE: Toronto Stock Exchange 300 composite index

corporation financial data, including 50 time series calculated to display trends, 30 adjusted for stock splits, and 9 static facts.

Stocks-and-bonds; Corporations; Canada; Corporate-finances; Canada.

Geographic coverage: Canada

Time span: 1959 to date

Update frequency: Monthly.

The Financial Post Datagroup

Price: Contact The Financial Post Datagroup for pricing Information Up

Business Opportunities Sourcing System

Acronym: BOSS

Alternate name: Réseau d'Approvisionnement et de Débouchés d'Affaires (RADAR).

Industry Canada.

235 Queen St.

Ottawa, ON, Canada K1A 0H5.

Phone: (613)954-5031

Fax: (613)954-1894

Owen Adams, Project Leader.

Directory (DIR)

Statistical (STA).

English (EN), French (FR).

Contains information on more than 25,000 Canadian manufacturing and service firms. Includes the following five files:

BOSS Statistics--provides general statistics on the manufacturing and service companies listed in the system.

Product Sourcing--contains listings of manufacturers or agents of a particular product or products.

Service Sourcing contains listings of service companies defined by service sector.

Company Sourcing provides listings of companies identified by user-defined criteria. Includes product information.

Company Profile provides comprehensive and brief profiles of listed companies.

Corresponds to the online Business Opportunities Sourcing System.

SUBJECT COVERAGE: Canadian manufacturing and service firms, including

architects, agronomists, management consultants, consulting engineers, surveyors and mappers, computer service firms, trading houses, customs brokers, construction companies, freight forwarders, education and training, and environmental consultants.

Canada; Corporations; Industry; Business-and-industry; Canada; Manufacturing; Freight-transportation; Marine-transportation; Ships-and-shipping; Consultants; Architecture; Construction-industry.

Geographic coverage: Canada

Time span: Current information

Update frequency: Annual

Year first available: 1985.

Industry Canada

Price: One-time searches are conducted free of charge, with results provided on computer printouts, mailing labels, diskette, or magnetic tape.

Film/Video Canadiana.

National Film Board of Canada

Information Services.

P.O. Box 6100, Station A

Montreal, PQ, Canada H3C 3H5.

Phone: (514)283-9427

Fax: (514)283-7564

Directory (DIR).

English (EN), French (FR).

Contains English- and French-language descriptions of more than 26,000 films and videos produced (or co-produced) by Canadian production companies and independent producers. For each record, provides title, producer, distributor, subject, year produced, cast, credits, running time, and description. Also contains information on more than 8,000 Canadian film/video production and distribution companies. For each firm, provides name, address, telephone number, fax number and other contact information. Data dealing with National Film Board of Canada productions cover 1939 to date; all other data

cover 1980 to date. Corresponds to Film/Video Canadiana and the Film/Video Canadiana Directory of Canadian Producers and Distributors database (described in a separate entry).

SUBJECT COVERAGE: Canadian-made films and video productions in all subject areas.

Motion-pictures; Video-recordings; Audiovisual-material; Union-catalogs-and-lists; Canada; Films-and-film-industry.

Geographic coverage: Canada

Time span: 1939 to date

Update frequency: Annual.

National Film Board of Canada

Information Services

Price: Contact the nearest National Film Board of Canada regional office for pricing details. Services are free to National Film Board clients.

FIRSTMARK Database of 10,000,000 Businesses.

FIRSTMARK, Inc.

34 Juniper Lane

Newton Center, MA 02159-2861 USA.

Phone: (617)965-7989

Toll-free: (800)729-2600

Fax: (617)965-8510

Directory (DIR).

English (EN).

Provides listings for more than 10 million U.S. and Canadian public and private businesses. Covers approximately 9 million executives and 1.6 professionals. Includes 138,000 businesses with more than 10 employees, 80,000 growing businesses, 8000 publicly traded businesses, and 160,000 new businesses in the United States; and 1.8 million Canadian businesses. Selections may be based on ZIP Code, city, state, SCF, U.S. Standard Industrial Classification (SIC) code, number of employees, and annual revenue and/or sales.

SUBJECT COVERAGE: United States and Canadian businesses in the following industries: agriculture, forestry, and mining; contracting and construction; manufacturing; transportation, communications, and utilities; wholesale trade; retail trade; finance, insurance, and real estate; business and personal services; health services; legal services; education and social services; art and membership organizations; engineering, architecture, and accounting; household and miscellaneous services; government; and nonclassifiable establishments.

Business-and-industry-directories; Canada; Canada; Business-and-

industry directories; United States
 Geographic coverage: United States and Canada
 Time span: Current information
 Update frequency: As needed
 FIRSTMARK, Inc.

Price: 10 cents/label; 25 cents/record for telemarketing cards, printout, and diskette. 2000 records required minimum order; \$200 set up and consultation fees additional; contact FIRSTMARK for details

Industry Canada

Former producer name : Industry, Science and Technology Canada, Industry and Science Canada,
 235 Queen St.
 Ottawa, ON, Canada K1A 0H5.
 Phone: (613)954-5031
 Fax: (613)954-1894

Form name: Industry, Science and Technology Canada, Industry and Science Canada
 Business Opportunities Sourcing System (Batch Access).

American Business Information Canada Business Directory

Acronym: ABICAN.
 American Business Information, Inc. ((ABI).
 5711 S. 86th Circle
 P.O. Box 27347
 Omaha, NE 68127 USA.
 Phone: (402)593-4500
 Fax: (402)331-1505
 Directory (DIR).
 English (EN).

Contains approximately 1.1 million records on Canadian businesses. For each business provides company name, mailing address, telephone number, employment data, key decision maker's name with title, six position SIC codes, modeled sales volume figures, employment size, and Yellow Page ad size.
 SUBJECT COVERAGE: Canadian businesses.
 Business-and-industry; Canada.
 Geographic coverage: Canada
 Time span: Current information

Update frequency: Quarterly.
 NEXIS

Database label: ABICAN

Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details
 Status: New (N).

Alberta Statistical Information System

Acronym: ASIST.
 Alberta Treasury
 Statistics Canada.
 Park Plaza, 6th Floor
 10611 - 98 Ave.
 Edmonton, AB, Canada T5K 2R7.
 Phone: (403)427-3099
 Fax: (403)427-0409
 Wayne Blumstengel, Project Coordinator.
 Time series (TIM).
 English (EN).

Contains more than 50,000 monthly, quarterly, and annual current and historical time series of socio-economic data for the Canadian province of Alberta and its census divisions and municipalities. Covers economic accounts, including provincial gross domestic product, and government, personal, and business income and outlay; population estimates and projections, vital statistics, and migration; building permits, housing starts, and apartment rental and vacancy rates; manufacturing, retail, and agriculture industries; business and commerce, including bankruptcies, foreclosures, and real estate sales; and social welfare caseloads, crime and traffic offenses, and labor force activity. Also covers municipal government finance and exports by commodity and destination.

SUBJECT COVERAGE: Statistics pertaining to Alberta, Canada, including population, business, prices, natural resources, economic accounts, tourism, construction, manufacturing, agriculture, external trade, education, and income; economic, demographic, and financial data for more than 400 Alberta cities, towns, villages, and municipal districts.

Alberta; Statistics; Demographics-and-population; Demographics-and-population; Canada; Economics; Canada-Regional.
 Geographic coverage: Alberta, Canada
 Time span: Varies by series, with earliest data from 1961
 Update frequency: Daily.
 Alberta Treasury

Business Attitudes and Investment Spending Intentions.

The Conference Board of Canada
Applied Economic Research and Information Centre ((AERIC).
255 Smyth Rd.
Ottawa, ON, Canada K1H 8M7.
Phone: (613)526-3280
Fax: (613)526-4857
Time series (TIM).
English (EN).

Contains time series data from quarterly surveys conducted in Canada on investment spending attitudes of more than 4000 businesses. Responses are aggregated at the national level. Covers attitudes and expectations toward factors affecting individual business investment expenditures (e.g., liquidity, profit performance, inventory levels) and the economy (e.g., inflation, unemployment rates). A summary of survey results is also available. Corresponds to Survey of Business Attitudes and Investment Spending Intentions.

SUBJECT COVERAGE: Investment spending in Canada.

Corporations; Canada; Economics; Canada.

Geographic coverage: Canada

Time span: First quarter of 1977 to date for most series

Update frequency: Quarterly.

The Conference Board of Canada
Applied Economic Research and Information Centre ((AERIC)

Business Update.

The Economist Newspaper Group, Inc.
10 Rockefeller Plaza
New York, NY 10020 USA.
Full text (FUL).
English (EN).

Contains a monthly summary of the latests economic performance and forecasts of the ten largest Organization for Economic Cooperation and Development (OECD) countries. For each country, provides investment activity, wages and prices, financial indicators, industrial trends, consumer demand, labor market, and general outlook. Corresponds to Business Update.

SUBJECT COVERAGE: Economic performance and forecasts for the following OECD countries: Australia, Canada, France, Germany, Italy,

Japan, Netherlands, Spain, United Kingdom, and the United States.
Australia; Canada; France; Germany; Great-Britain; Italy; Japan;
Netherlands; Spain; United-States; Labor-and-employment; Investments;
Economics; International.

Geographic coverage: International

Time span: April 1987 to date

Update frequency: Monthly.

NEXIS

Database label: BUSOPD

Status: New (N).

The Canada-U.S. Free Trade Agreement.

External Affairs Canada

International Trade Commissions Group.

125 Sussex Dr.

Ottawa, ON, Canada K1A 062.

Phone: (613)996-9134

Full text (FUL).

English (EN).

Contains the complete text of the 1987 Canada-U.S. Free Trade Agreement, including notes and tariff schedules.

SUBJECT COVERAGE: The Free Trade Agreement between Canada and the

United States.

Canada; Commerce-and-trade; United-States; Foreign-trade.

Geographic coverage: Canada and the United States

Time span: 1987

Update frequency: Not updated.

Infomart Online

Database label: FRTRADE

Rates: \$Can. 205/connect hour (Basic Service), \$Can. 164/connect hour (Frequent User Service)

QL Systems Limited

Database label: FTA

Canadian Dun's Market Identifiers

Acronym: CDMI

Dun & Bradstreet Canada

5770 Hurontario St.

Mississauga, ON, Canada L5R 3G5.

Phone: (905)568-6000

Toll free: (800)232-1026

(232)265-3867

Fax: (905)568-6279

Directory (DIR)

Numeric (NUM).

English (EN).

Contains identifying, descriptive, and sales information on more than 500,000 Canadian companies, including branch offices and subsidiaries with 5 or more employees. For each establishment, provides, as available: company name; address; telephone number; county; Standard Metropolitan Statistical Area (SMSA); line of business description; U.S. Standard Industrial Classification (SIC) codes; Canadian SIC codes; year founded; gross annual sales in Canadian and U.S. dollars for current year, trend year, and base year; employee total; number of employees at this establishment; percent change in sales over a three-year period; percent change in employee size over a three-year period; indication of a manufacturing operation at this location; indication of headquarters, branch, or a single location establishment; indication of being a subsidiary of another company; D-U-N-S Number; parent D-U-N-S Number; city location of parent company; province location of parent company; and name and title of chief executive officer. Data are derived from in-person interviews, phone interviews, and mailings.

SUBJECT COVERAGE: Directory listings, sales volume, and marketing data for Canadian business establishments.

Corporations; Canada; Business-and-industry-directories; Canada;

Corporate-finances; Canada.

Geographic coverage: Canada

Time span: Current information

Update frequency: Quarterly.

DIALOG

Database label: 520: Canadian Dun's Market Identifiers

Rates: \$90/connect hour, \$2.90/full record online, \$2.90/full record offline

NIFTY-Serve

Database label: CDMI

Rates: 60 yen/connect minute

DataStar

Database label: DNCA, Dun & Bradstreet Canada

Rates: \$U.S. 117 or SwFr 175/connect hour, \$U.S. 2.99 or SwFr 4.48

/full document online, \$U.S. 3.10 or SwFr 4.65/full document offline

WESTLAW

Database label: CDMI

CompuServe Information Service

AT&T EasyLink

Status: Revised (R).

Canadian Federal Corporations and Directors.

Southam Electronic Publishing.

1450 Don Mills Rd.

Don Mills, ON, Canada M3B 2X7.

Phone: (416)445-6641

Fax: (416)445-3508

Directory (DIR)

Full text (FUL)

Numeric (NUM).

English (EN).

Contains descriptive and financial information on more than 225,000 federally incorporated Canadian companies. Includes company name, registered office mailing address, names of parent or subsidiary companies, reported revenues, assets, and earnings for the most recent 2 years, and the names and home addresses of corporate directors. Searchable by incorporation date, geographic area, or director name. Produced in cooperation with the Canadian Department of Consumer and Corporate Affairs.

SUBJECT COVERAGE: Canadian federally incorporated companies and their directors.

Canada; Corporations; Executives; Business-and-industry-directories;

Canada; Corporate-finances; Canada.

Geographic coverage: Canada

Time span: Current information

Update frequency: 1000 records a month.

Infomart Online

Database label: DCFC

Rates: \$Can. 205/connect hour (Basic Service), \$Can. 164/connect hour (Frequent User Service)

Canadian Forest Industries.

Southam Electronic Publishing.
1450 Don Mills Rd.
Don Mills, ON, Canada M3B 2X7.
Phone: (416)445-6641
Fax: (416)445-3508

Full text (FUL).

English (EN).

Contains the complete text of Canadian Forest Industries, a monthly magazine on the management of logging, sawmilling, and wood processing industries. Covers field and administrative management techniques, new equipment and processes, occupational health and safety issues, and industry news. Also includes annual capital expenditure reports for the harvesting and wood processing sectors.

SUBJECT COVERAGE: Canadian forest and related wood industries.

Canada; Forest products.

Geographic coverage: Canada

Time span: May 1989 to date

Update frequency: Monthly.

Infomart Online

Database label: KCFI

Rates: \$Can. 205/connect hour (Basic Service), \$Can. 164/connect hour (Frequent User Service)

Infomart Assistant

Canadian Import Tribunal

Acronym: CIT.

QL Systems Limited.

901 St. Andrew's Tower

275 Sparks St.

Ottawa, ON, Canada K1R 7X9.

Phone: (613)238-3499

Toll-free: (800)387-0899

Fax: (613)238-7597

Customer Service Department.

Full text (FUL).

English (EN).

Contains the complete text of decisions from the Canadian Import Tribunal and its predecessor, the Anti-Dumping Tribunal.

SUBJECT COVERAGE: Canadian Import Tribunal decisions.

Canada; Foreign-trade; Laws-and-regulations; Canada; Trade; Canada.

Geographic coverage: Canada

Time span: 1969 to 1988

Update frequency: Not updated.

QL Systems Limited

Database label: CIT

Canadian Periodical Index

Acronym: CPI.

Gale Canada

Formerly produced by: Globe Information Services.

444 Front St. W

Toronto, ON, Canada M5V 2S9.

Phone: (416)585-5337

Fax: (416)585-5338

Bibliographic (BIB).

English (EN), French (FR).

Contains more than 300,000 citations to essays, feature articles, short stories, and reviews in more than 400 English- and French-language periodicals published in or providing significant coverage of Canada. Covers current events, news, business, technology, arts and humanities, recreation, and social and health sciences.

Corresponds to Canadian Periodical Index.

SUBJECT COVERAGE: Canadian news and subjects of general interest.

Canada; General-interest; News; Canada.

Geographic coverage: Canada, with some coverage of the United States and United Kingdom

Time span: 1977 to date

Update frequency: Weekly.

Info Globe Online

Database label: CPI

Rates: \$Can. 3/connect minute

CD-ROM: Canadian Periodical Index (CPI)

Canadian Periodical Index.

Status: Revised (R).

Canadian Trade Index.

Southern Electronic Publishing.

1450 Don Mills Rd.

Don Mills, ON, Canada M3B 2X7.

Phone: (416)445-6641

Fax: (416)445-3508

Directory (DIR).

English (EN).

Contains information on more than 16,000 Canadian manufacturers. For

each company, includes name, address, telephone number, TWX and Telex

numbers, number of employees, names and titles of executives.

Locations of plants and non-manufacturing sites, parent company,

subsidiaries, 4-digit Canadian Standard Industrial Classification

code, products produced, brand names, trademarks, and foreign

representatives. Data are supplied by the Canadian Manufacturers'

Association.

SUBJECT COVERAGE: Canadian manufacturers.

Canada; Manufacturing; Corporations; Business-and-industry-

directories; Canada.

Geographic coverage: Canada.

Time span: Current information.

Update frequency: Annual.

Informant Online

Database label: CTD

Rates: \$Can. 205/connect hour (Basic Service), \$Can. 164/connect

hour (Frequent User Service)

Canadian Venture Capital.

Venture Economics, Inc.

1180 Raymond Blvd.

Newark, NJ 07102 USA

Phone: (201)622-4500

Fax: (201)622-1421

Full text (FUL).

English (EN).

Contains the complete text of Canadian Venture Capital, a monthly

newsletter covering venture capital investments in Canada. Also

covers issues and trends in the Canadian venture capital industry.

SUBJECT COVERAGE: Canadian venture capital investments.

Canada; Corporations; Investments; Financial-services-industry-

Geographic coverage: Canada

Time span: February 1990 to December 1991

Update frequency: Not updated.

The Conference Board National Database

Alternate name: AERIC National Database

Former name: AERIC National Database.

The Conference Board of Canada

Applied Economic Research and Information Centre ((AERIC)).

255 Smyth Rd.

Ottawa, ON, Canada K1H 8M7.

Phone: (613)526-3280

Fax: (613)526-4857

Time series (TSM).

English (EN).

Contains 3000 quarterly time series of historical data and 5-year

forecasts on the Canadian economy. Covers aggregated data, in current

and 1971 constant dollars, for key expenditures; output and

employment costs and prices; income distribution; household,

business, and government sources and disposition of income;

transactions of residents with non-residents; sources and disposition

of savings; international trade (in constant dollars only); housing;

personal consumption; implicit price indexes; chartered bank assets

and liabilities; and interest rates and aggregated monetary data.

Corresponds in part to Canadian Outlook.

SUBJECT COVERAGE: Canadian economic forecasts.

Economic-forecasting; Canada; Economics; Canada.

Geographic coverage: Canada

Time span: 1947 to date

Update frequency: Quarterly.

The Conference Board of Canada

Applied Economic Research and Information Centre ((AERIC))

Rates: Available by subscription to members of The Conference Board

of Canada only

The Conference Board Provincial Database

Former name: AERIC Provincial Database.

The Conference Board of Canada

Applied Economic Research and Information Centre ((AERIC)).

255 Smyth Rd.

Ottawa, ON, Canada K1H 8M7.

Phone: (613)526-3280

Fax: (613)526-4857

the previous 5 years. In addition, headlines and the complete text of news items about the companies from The Globe and Mail for the

previous 18 months are also provided.

SUBJECT COVERAGE: Descriptive and financial data on public, private, and government-owned Canadian corporations.

Canada; Corporations; Business-and-industry-news; Canada; Corporate-finance; Canada; Securities; Canada.

Geographic coverage: Canada

Time span: Varies by type of data

Update frequency: Stock prices and news items, daily; other data,

weekly.

Info Globe Online

Database label: CCO

Dow Jones News/Retrieval

Database label: CANADA

Rates: prime-time rates: \$1.56/connect minute (1200 baud), \$2.16

/connect minute (2400 baud), 90 cents/Information Unit; non-prime-

time: \$1.20/connect minute (1200 baud), \$1.35/connect minute (2400

baud), 24 cents/Information Unit

Country Economic Profiles

Acronym: CEP.

Reuters Information Services ((Canada) Ltd.

Data Services Division.

Exchange Tower, Suite 2000, PO Box 418

2 First Canadian Place

Toronto, ON, Canada M5X 1E3.

Phone: (416)364-5361

Toll-free: (800)387-1588

Fax: (416)364-0646

Time series (TSM).

English (EN).

Contains quarterly and annual economic data for 193 countries, including developed, developing, and centrally planned economies.

Coverage includes: demographics; employment; national accounts (i.e.,

gross domestic product measured in terms of consumption, creation,

and distribution of goods and services); production (e.g., major

exports, allocation of industrial capacity); money, finance, and

prices; external sector (e.g., balance of trade); aid flows (i.e.,

the amount of aid given out or taken in); energy (e.g., Organization

of Petroleum Exporting Countries trade balance, oil or natural gas

production and consumption); government (e.g., revenues,

expenditures); and currency exchange rate against the U.S. dollar.

Time series (TSM).

English (EN).

Contains 5000 quarterly time series of historical data and 5 year

forecasts on economic indicators for the 10 provinces of Canada.

Includes data on Canada's Real Domestic Product by industry for all

provinces and covers developments in each of the provinces in these

industrial sectors: agriculture; forestry; fishing; mining;

manufacturing; construction; utilities; transportation,

communication, and storage; wholesale and retail trade; finance,

insurance, and real estate; community, business, and personal

services; and public administration and defense. Corresponds in part

to Provincial Outlook

SUBJECT COVERAGE: Canadian economic forecasts.

Economic-forecasting; Canada; Economics; Canada-Regional.

Geographic coverage: Canada

Time span: 1961 to date

Update frequency: Quarterly.

The Conference Board of Canada

Applied Economic Research and Information Centre ((AERIC)

Rates: available by subscription to members of The Conference Board

of Canada only

Corporate Canada Online.

Globe Information Services.

444 Front St. W.

Toronto, ON, Canada M5V 2S9.

Phone: (416)585-5250

Toll-free: (800)268-9128

Fax: (416)585-5249

Directory (DIR)

Numeric (NUM)

Full text (FUL).

English (EN).

Contains descriptive and financial data on more than 2300 public,

private, and government-owned (crown) Canadian corporations. Includes

the company name, address, telephone number, names of executives on which

the company's stock is traded, description of business activity,

names of officers and directors, balance sheets and income statements

for the last 3 fiscal years and last 3 quarters, financial ratios

(e.g., dividend yield, earnings/share, price/earnings, debt/equity),

and several ratios contrasting company and industry performance. Also

provides stock prices, including daily high, low, close, and volume for

for the previous year, and weekly high, low, close, and volume for

charging options available; contact vendor for details

DRI Canadian Regional Forecast

DRI/McGraw-Hill
Data Products Division
24 Hartwell Ave.
Lexington, MA 02173 USA
Phone: (617)863-5100
Time series (TIM).
English (EN).
Contains more than 300 historical and forecast annual time series covering economic and demographic conditions in Alberta, British Columbia, Manitoba, Ontario, Quebec, Saskatchewan, and the Atlantic provinces. Covers the following categories: regional forecasts for the Canadian economy, covering industry production, including total (nominal and real), and real industrial production by two-digit SIC (Standard Industrial Classification) code; investment, including residential construction and nonresidential construction; population 15 years and older, births and deaths and net migration, employment, unemployment rates, labor force 15 years and older, and participation rates 15 years and older; income and prices, including wages, salaries, and other personal income, personal and disposable income, direct personal taxes, and Consumer Price Index; housing starts and stocks (single, multiple, and total); and retail sales.

SUBJECT COVERAGE: Regional forecasts for the Canadian economy, covering industry production, including total (nominal and real), and real industrial production by two-digit SIC (Standard Industrial Classification) code; investment, including residential construction and nonresidential construction; population 15 years and older, births and deaths and net migration, employment, unemployment rates, labor force 15 years and older, and participation rates 15 years and older; income and prices, including wages, salaries, and other personal income, personal and disposable income, direct personal taxes, and Consumer Price Index; housing starts and stocks (single, multiple, and total); and retail sales.

Canada; Industry; Investments; Labor-and-employment; Demographics-and-population; Taxation; Economic-forecasting; Retail-trade; Prices; Economics; Statistics; Economics; Canada-Regional.
Geographic coverage: Canada
Time span: Earliest series from 1960, with 9- to 12-year forecasts

Also contains average annual growth rates in each category for the last 5 years and for the last 2 years or last 2 comparable quarters. Sources include the International Monetary Fund, Organization for Economic Cooperation and Development, United Nations, World Bank, and such national agencies as the Australian Bureau of Statistics, Statistics Canada, and U.K. Central Statistical Office.

SUBJECT COVERAGE: National economics and economic policies of 193 countries.

Economics; Economics; Economic-development; Economic-forecasting; Economics; International

Geographic coverage: International

Time span: Current 5 years

Update frequency: Monthly.

Routers Information Services ((Canada) Ltd.

Database label: CEF

Rates: \$150/connect hour (300 baud), \$300/connect hour (1200 baud)

Directory of Directors Electronic Edition

Alternate name: Financial Post Directory of Directors.

The Financial Post Datagroup.

333 King St. E.

Toronto, ON, Canada M5A 4N2

Phone: (416)350-6440

Fax: (416)350-6501

Directory (DIR).

English (EN).

Contains information on approximately 16,400 prominent business people from approximately 2200 Canadian corporations. Includes name, title, corporation, and contact information. Corresponds in part to the Directory of Directors.

SUBJECT COVERAGE: Canadian business people.

Business-and-business-administration; Business-and-industry-

directories; Canada.

Geographic coverage: Canada

Time span: Current information

Update frequency: Periodically, as new data become available.

Informant Online

NEXIS

Database label: FPDIR

Rates: Transaction pricing, per-search pricing, and connect hour

Update frequency: Semiannual
 DRI/McGraw Hill
 Database label: @CANREG

Dun & Bradstreet Guide to Canadian Manufacturers

Acronym: DBGCM.
 Dun & Bradstreet Canada.
 5770 Hurontario St.
 Mississauga, ON, Canada L5R 3G5.
 Phone: (905)568-6000
 Toll-free: (800)232-1026
 (232)265-3867
 Fax: (905)568-6279
 Ron Pukowsky, Director of Marketing and Customer Service.
 Directory (DIR).
 English (EN), French (FR).
 Contains information on more than 10,000 Canadian manufacturing companies with either more than 50 employees or \$5 million in sales. For each company, provides name, address, telephone number, names of chief executive officers and managers, number of employees, description of business, D-U-N-S number, Primary and Secondary raw materials. Standard Industrial Classification (SIC) codes, and capital machinery used, manufactured, and physical size of plants and offices. An INSIGHT database. This information is sorted alphabetically, geographically and according to SIC code.
 SUBJECT COVERAGE: Canadian manufacturers.
 Canada; Manufacturing; Corporations; Business-and-industry-directories; Canada.
 Geographic coverage: Canada
 Time span: Current information
 Update frequency: Annual.
 Infomart Online

Econoscope.
 Royal Bank of Canada.
 P.O. Box 6001
 Montreal, PQ, Canada H3C 3A9.
 Phone: (514)874-5206
 Fax: (514)874-5993
 Full text (FUL)

Numeric (NUM).
 English (EN).
 Contains the complete text of Econoscope, a monthly newsletter covering the U.S. and Canadian economies. Covers fiscal and monetary policy, interest and currency exchange rates, and business developments.
 Economics; Canada; Economics; United-States.
 Geographic coverage: United States and Canada
 Time span: September 1989 to March 1991
 Update frequency: Not updated.

The Edmonton Journal.

The Edmonton Journal.
 10006-101st St.
 Edmonton, AB, Canada T5J 2S6.
 Phone: (403)429-5100
 Fax: (403)429-5500
 Full text (FUL).
 English (EN).
 Contains the complete text of The Edmonton Journal (Alberta) newspaper. Regional coverage emphasizes provincial political and business news, the Alberta stock exchange, agriculture, forestry, and oil industries, aboriginal rights, environmental issues, and the local arts. Does not include advertisements or tabular data.
 SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on provincial political issues, resource-based and environmental issues pertaining to northern Alberta and the watersheds of the Great Plains, and covers the oilpatch, petrochemical, forestry, and agriculture industries in Alberta.
 Canada; Alberta; News; Canada.
 Geographic coverage: Canada (Alberta, northern Saskatchewan, northern British Columbia)
 Time span: March 10, 1989 to date
 Update frequency: Quarterly.
 Infomart Online
 Database label: EDMONTON
 Rates: Prime-time rates: \$Can. 205/connect hour (Basic Service), \$164/connect hour (Frequent User Service), 75 cents per page printed offline (\$10 minimum charge)
 Infomart Assistant

Electronic White Pages

Acronym EWP.
 DirectoryNet, Inc.
 600 Morgan Falls Rd., Suite 100
 Atlanta, GA 30350 USA
 Phone: (404)512-5090
 Toll free: (800)733-1212
 Fax: (404)512-5091
 Directory (DIR).
 English (EN).

Provides access to more than 120 million listings for individuals, businesses, and government agencies maintained as the electronic directory assistance databases of the major North American telephone companies. For each listing, provides name, address, and telephone number.

SUBJECT COVERAGE: U.S. individual, business, and government agency listings.

Telephone Directories; Canada; Telephone Directories; United States.
 Geographic coverage: North America
 Time span: Current information
 Update frequency: Daily.
 DirectoryNet, Inc.
 Rates: \$250 software fee, \$25 monthly fee, 48 cents per screen of information before any volume discount

Financial Times of Canada.

Southern Communications.
 440 Front St. W.
 Toronto, ON, Canada M5V 3E6.
 Phone: (416)585-5555
 Full text (FUL).
 English (EN).
 Contains the complete text of news items and feature articles from the weekly Financial Times of Canada newspaper. Includes Insider Reports and Personal Finance supplements. Does not include advertisements, stock listings, or tabular data.
SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on finance and business. Subject areas include industry, investments, technology, travel, oil, stock markets, taxes, energy, and business and financial forecasts.
 Banking-and-finance; Business-and-industry-news; Canada; News;

Canada.

Geographic coverage: Canada
 Time span: 1985 to date
 Update frequency: Weekly.
 Infomart Online
 Database label: FINTIMES
 Rates: \$Can. 205/connect hour (Basic Service), \$Can. 164/connect hour (Frequent User Service)
 Info Globe Online
 Infomart Assistant

The Globe and Mail Online.

Globe Information Services.
 444 Front St. W.
 Toronto, ON, Canada M5V 2S9.
 Phone: (416)585-5250
 Toll-free: (800)268-9128
 Fax: (416)585-5249
 Full text (FUL).
 English (EN).
 Contains the complete text of nearly 1.1 million news stories appearing in all sections of both the early and national editions of The Globe and Mail, the national daily newspaper in Canada. Also includes the Report on Business section.
SUBJECT COVERAGE: Canadian and international news and business information, including news stories, columns, editorials, business reports, political analyses, financial statements, science and technology features, court reports, letters to the editor, selected advertising, and other nonadvertising matter from the newspaper.
 Business-and-business-administration; Canada; Corporations; News; Canada; News; International.
 Geographic coverage: Canada, with some international news
 Time span: November 14, 1977 to date
 Update frequency: Daily, with each day's newspaper available by 5:00 A.M. Toronto time.
 Info Globe Online
 Database label: GAM
 Rates: \$Can. 3/connect minute, 30 cents per article displayed online, 1 cent per line printed offline
 Also online as part of: Reuter TEXTLINE.
 Batch access: The Globe and Mail.

Inter-Corporate Ownership.

Southern Electronic Publishing
1450 Don Mills Rd.
Don Mills, ON, Canada M3B 2X7.
Phone: (416)445-6641
Fax: (416)445-3508

Directory (DIR).
English (EN).

Contains corporate names of 45,000 Canadian and non-Canadian holding and held companies doing business in Canada. Users can display names in hierarchical levels of ownership with percentage of ownership for each company's holdings in other companies. Includes Canadian Standard Industrial Classification codes for each company. Data are collected by Statistics Canada under the Corporations and Labour Unions Returns Act. Corresponds to Inter-Corporate Ownership.

SUBJECT COVERAGE: Ownership of Canadian corporations.

Canada; Corporations; Corporate finances; Canada.

Geographic coverage: Canada
Time span: Current information
Update frequency: Bimonthly.
Infomart Online
Database label: CICO
Rates: \$Can. 205/connect hour (Basic Service), \$Can. 164/connect hour (Frequent User Service)

Provincial-Industry Economics Service.

Royal Bank of Canada.
P.O. Box 6001
Montreal, PQ, Canada H3C 3A9.
Phone: (514)874-5206
Fax: (514)874-5993

Full text (FUL)
Numeric (NUM).
English (EN).

Contains the complete text of Provincial-Industry Economics Service, a newsletter on the economy of each Canadian province. Covers national and international developments affecting provincial economies. Includes short-term forecasts for major economic indicators.

SUBJECT COVERAGE: The economy of each province in Canada.
Canada; Economics; Canada.

Geographic coverage: Canada
Time span: February 1990 to January 1991
Update frequency: Not updated.

Pulp & Paper Canada.

Southern Electronic Publishing.
3300 Cote Vertu, Suite 410
Saint-Laurent, PQ, Canada H4R 2B7.
Phone: (514)339-1399
Fax: (514)339-1396

Graeme Rodden, Editor.
Full text (FUL).
English (EN).

Contains the complete text of Pulp & Paper Canada, a monthly magazine covering developments in the Canadian pulp and paper industry. Covers business news and forecasts, occupational health and safety issues, environmental concerns, and managerial and technical innovations.
SUBJECT COVERAGE: Canadian pulp and paper industry, including companies and their research efforts, technology, management, financing, innovative applications, and forecasts of industry trends.
Canada; Forest-products; Paper-and-paper-technology; Pulp-paper-A-packaging-industries.

Geographic coverage: Canada
Time span: 1989 to date
Update frequency: Monthly.
Infomart Online
Database label: PPC
Rates: \$Can. 205/connect hour (Basic Service), \$Can. 164/connect hour (Frequent User Service)
Infomart Assistant

Quarterly Survey of Consumer Buying Intentions

Former name : AERIC Survey of Consumer Buying Intentions.
The Conference Board of Canada
Applied Economic Research and Information Centre ((AERIC).
255 Smyth Rd.
Ottawa, ON, Canada K1H 8M7.
Phone: (613)526-3280
Fax: (613)526-4857
Time series (TIM).

English (EN).

Contains time series data from quarterly surveys conducted in Canada on investment spending attitudes of more than 4000 businesses. Responses are aggregated at the national level. Covers attitudes and expectations toward factors affecting individual business investment expenditures (e.g., liquidity, profit performance, inventory levels) and the economy (e.g., inflation, unemployment rates). A summary of survey results is also available. Corresponds to Survey of Business Attitudes and Investment Spending Intentions.

SUBJECT COVERAGE: Canadian consumer buying habits.

Economic-forecasting; Canada; Economics; Canada.

Geographic coverage: Canada

Time span: 1960 to date

Update frequency: Quarterly.

The Conference Board of Canada

Applied Economic Research and Information Centre ((AERIC)

Rates: Available by subscription to members of The Conference Board of Canada only

Real-Time Stock Quotes.

LEXIS-NEXIS.

9443 Springboro Pike

P.O. Box 933

Dayton, OH 45401-0933 USA.

Phone: (513)865-6800

Toll-free: (800)227-4908

Fax: (513)865-6909

Numeric (NUM).

English (EN).

Contains real-time data on stocks, equities, bonds, mutual funds, and money market funds traded on the New York, American, U.S. regional, and Canadian stock exchanges, NASDAQ Over-The-Counter market, and NASDAQ National Market System. Includes bid, ask, open, close, daily high and low, and annual high and low prices, last trade, net change, volume, dividend, yield, earnings, and price/earnings ratios. Enables the user to maintain a portfolio of up to 50 quotes.

SUBJECT COVERAGE: Stocks, equities, bonds, mutual funds, and money market funds.

Stocks-and-bonds; Canada; United-States; Securities; Canada;

Securities; United-States.

Geographic coverage: United States and Canada

Time span: Current information

Update frequency: Continuously, throughout the day.

LEXIS

Database label: QUOTE

Tradeline.

IDD Information Services, Inc. ((IDDIS).

2 World Trade Center, 18th Floor

New York, NY 10048 USA.

Phone: (212)432-0045

Fax: (212)321-9617

Numeric (NUM).

English (EN).

Contains historical and current securities market data for more than 150,000 issues traded on the major North American exchanges. Covers corporate stocks, bonds, options, warrants, units (i.e., two or more securities sold as a package), mutual funds, indexes (bond yields, exchange rates, market advances), government securities (Federal National Mortgage Association securities), and government agency issues (Federal Intermediate Credit Banks bonds). Data items include price (high, low, close), volume, status and type of issue, CUSIP number, Standard Industrial Classification (SIC) code, and ticker symbol.

SUBJECT COVERAGE: Stocks and bonds traded on North American exchanges.

Stocks-and-bonds; Securities; Canada; Securities; United-States.

Geographic coverage: United States and Canada

Time span: Current 15 years

Update frequency: Daily.

Dow Jones News/Retrieval

Database label: TRADELINE

Rates: prime-time rates: \$1.56/connect minute (1200 baud), \$2.16 /connect minute (2400 baud), 90 cents/Information Unit; non-prime-time: 15 cents/connect minute (1200 baud), 21 cents/connect minute (2400 baud), 24 cents/Information Unit

National Computer Network Corporation ((NCN)

IDD Plus

United Nations Commodity Trade Statistics.

Reuters Information Services ((Canada) Ltd.

Data Services Division.

Exchange Tower, Suite 2000, PO Box 418

2 First Canadian Place
 Toronto, ON, Canada M5X 1E3
 Phone: (416) 364 5361
 Toll free: (800) 387 1588
 Fax: (416) 364-0646
 Time service (TLM)
 English (EN)

Contains value and quantity statistics of international commodity

trade in 3000 commodities for 31 selected reporting countries.

Includes details on trade with 270 other countries and country

groupings defined according to the Standard International Trade

Classification (SITC) Revision Two. Quantity data available only for

commodities at the four- and five-digit level of classification. (The

SITC is a hierarchical, five-digit classification system in which

each digit describes successive levels of detail.) Data are provided

by the United Nations Statistical Division and used with the

permission of the United Nations.

SUBJECT COVERAGE: International commodity trade statistics.

Commerce and trade; Foreign trade; Business international; United-

Nations; Trade; International; Business and industry; International.

Geographic coverage: International

Time span: 1976 to date

Update frequency: As needed

Reuters Information Services ((Canada) Ltd.

Database label: SITC

The Vancouver Sun.

Pacific Press Ltd.

2250 Granville St.

Vancouver, BC, Canada V6H 3G2.

Phone: (604) 732-2111

Full text (FUL).

English (EN).

Contains the complete text of news items and feature articles from

The Vancouver Sun (British Columbia) newspaper. Regional coverage

emphasizes the fishing, forestry, mining, and shipping industries;

environmental, labor, and political issues; finance; tourism; and

trade between Canada, the western United States, Japan, and other

Pacific Rim countries. Does not include advertisements or labor

SUBJECT COVERAGE: General local, national, and international news

coverage, with emphasis on the Pacific Rim, international trade, and

the forestry industry.

Database label: VASN

Informant Assistant

hour (Frequent User Service)

Rates: \$Can. 20\$/connect hour (Basic Service), \$Can. 16\$/connect

Database label: VASN

Informant Online

Update frequency: Daily, Monday through Saturday.

Time span: 1987 to date

some international coverage

Geographic coverage: Vancouver, British Columbia, Canada area, with

News: International.

Vancouver-British-Columbia; British-Columbia; Canada; News; Canada;

Agriculture Canada

Plant Industry Directorate.

2200 Walkley Rd.

Ottawa, ON, Canada K1A 0C6.

Phone: (613) 993-4544

Regulatory Information on Pesticide Products (Online).

ARIZONA DATABASES

DAMAR Real Estate Information Service.

3610 Central Ave.

Riverside, CA 92506 USA.

Toll-free: (800)345-7334

Directory (DIR)

Full text (FUL)

Numeric (NUM).

English (EN).

Contains tax roll data for 24 counties in California. Includes Thomas Brothers Map page grid, property characteristics, carrier route, flood zone, land use codes, sales history, lender name and title company, and owner telephone numbers. Also contains comparison data for creating sales reports for any property type. Software enables the user to enter address of the subject property and obtain a detailed profile of the property and up to 5 comparable sales. Corresponds in part to the DAMAR Real Estate Information Service Online database.

SUBJECT COVERAGE: Tax roll data for counties in California.

California; Real estate; Arizona; Illinois; Chicago-Illinois; Public records.

Geographic coverage: United States, with emphasis on California

Time span: Current information

Update frequency: Monthly.

DAMAR Real Estate Information Service

Price: Prices range from \$75 to \$600 a month for each county;

includes online access to DAMAR Real Estate Information Service

Online Database.

From DAMAR Real Estate Information Service.

IBM PC, PS/2, or compatible; hard disk with 3MB free; 640K memory;

MS-DOS 2.1 or higher; CD-ROM drive.

Arizona Law on Disc.

The Michie Company.

P.O. Box 7587

Charlottesville, VA 22906-7587 USA.

Phone: (804)972-7600

Toll-free: (800)446-3410

Fax: (804)972-7656

Full text (FUL).

English (EN).

Contains the complete text of statutes and court decisions for the state of Arizona. Covers Arizona Revised Statutes with annotations since 1991, decisions of the state Supreme Court since 1898, and decisions of the state Court of Appeals since 1965.

SUBJECT COVERAGE: Arizona state law.

Laws-and-regulations; United-States-State; Arizona.

Geographic coverage: Arizona

Time span: Varies by file

Update frequency: Quarterly.

The Michie Company

Price: Contact The Michie Company for pricing information.

Folio VIP/CD 2.51.

IBM PC or compatible; 640K memory; MS-DOS 3.0 or higher; CD-ROM

drive

(ISO 9660 High Sierra), hard disk with 3MB available.

Arizona Republic/Phoenix Gazette/Arizona Business Gazette.

Phoenix Newspapers, Inc.

400 E. Van Buren, Suite 900

Phoenix, AZ 85004 USA.

Phone: (602)271-7300

Fax: (602)271-7363

Full text (FUL).

English (EN).

Contains the complete text of news items and feature articles from the Arizona Republic and Phoenix Gazette daily newspapers as well as the weekly Arizona Business Gazette. Regional coverage emphasizes the aerospace industry, high technology, tourism, real estate development, military contracts, and Native American issues.

Corresponds to the online Arizona Republic/Phoenix

Gazette/Arizona

Business Gazette database.

SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on Arizona business and finance.

Arizona; News; United-States.

Geographic coverage: Phoenix, Arizona area and the southwestern

United States

Time span: 1987 to date

Update frequency: Monthly

Year first available: 1992.

NewsBank, Inc.

CD News

Price: Contact NewsBank, Inc. for pricing information.

From NewsBank, Inc.

IBM PC or compatible; 20MB hard drive; floppy drive; 640K memory;

MS.

DOS 3.0 or higher; monochrome monitor; MS-DOS CD-ROM extensions;

printer recommended; CD-ROM drive.

Assessor's Parcel Maps CD-ROM.

DataQuick Information Systems, Inc.

9171 Towne Centre Dr., 6th Fl.

San Diego, CA 92122 USA.

Phone: (619)455-6900

Toll-free: (800)863-INFO

Fax: (619)455-6522

Image (IMA)

Numeric (NUM).

English (EN).

Contains mapping data for residential and commercial property in California and metropolitan Arizona. Each county is covered by a single disc, each covering to 1 million properties. Enables the user to search by site address or Assessor's Parcel Number (APN), generating maps that contain land parcel, parcel number, lot size, and street names.

SUBJECT COVERAGE: Residential and commercial real estate in California and metropolitan Arizona.

Real-estate; California; Arizona.

Geographic coverage: California and metropolitan Arizona

Time span: Current information

Year first available: 1993.

DataQuick Information Systems, Inc.

Price: Contact DataQuick Information Systems, Inc. for pricing information. Specify counties desired.

Contact DataQuick Information Systems, Inc. for details.

Countywide Property Data CD-ROM.

DataQuick Information Systems, Inc.

9171 Towne Centre Dr., 6th Fl.

San Diego, CA 92122 USA.

Phone: (619)455-6900

Toll-free: (800)863-INFO

Fax: (619)455-6522

Directory (DIR)

Numeric (NUM).

English (EN).

Contains information on the ownership, assessment, and sales of residential and commercial property in California and metropolitan Arizona. Each county is covered by a single disc, each covering to 1 million properties. For each property, provides up to 34 fields, including owner name, mailing address, city, ZIP Code, legal description, map, parcel number, lot size in acres, lot size in square feet, year built, assessed value, zoning, square feet, indication of swimming pool, number of bedrooms, number of bathrooms, sale date, lender name, deed transfer date, and more. Enables the user to identify similar properties in the area and determine average sale price, average loan amount, percentage of owner-occupied properties, and other calculations; and create street maps based on latitude and longitude to identify potential market areas or specific properties. Sources include the County Recorders and County Assessors offices each county.

SUBJECT COVERAGE: Residential and commercial real estate in California and metropolitan Arizona.

Real-estate; California; Arizona.

Geographic coverage: California and metropolitan Arizona

Time span: Current information

Update frequency: Monthly

Year first available: 1993.

DataQuick Information Systems, Inc.

Price: Contact DataQuick Information Systems, Inc. for pricing information.

From Dataware Technologies Inc.

Contact DataQuick Information Systems, Inc. for details.

The Arizona Daily Star.

Star Publishing Co.

P.O. Box 26807

Tucson, AZ 85726-6807 USA.

Phone: (602)573-4400

Fax: (602)573-4107

Full text (FUL).

English (EN).

Contains the complete text of news items and features articles from The Arizona Daily Star newspaper. Corresponds to the online Arizona Daily Star database.

SUBJECT COVERAGE: General international, national, and local news. Arizona; News; United States.

Geographic coverage: Tucson, Arizona area.

Southwest Micropublishing Inc.

Price: Contact Southwest Micropublishing Inc. for pricing information.

Contact Southwest Micropublishing Inc. for details.

HAPI Online.

University of California, Los Angeles

Latin American Center.

405 Hilgard Ave.

Los Angeles, CA 90024 USA.

Phone: (310)825-0810

Fax: (310)206-2634

E-Mail: idy5bgv@mvs.oac.ucla.edu (Internet)

Barbara G. Valk, Editor HAPI.

Bibliographic (BIB).

English (EN).

Contains more than 190,000 citations to periodical articles, documents, book reviews, original literary works, and other materials appearing in scholarly journals of interest to Latin Americanists.

Also covers journals treating United States-Mexico border issues and Hispanic groups in the United States. Sources include more than 400 journals published in North and South America and in Europe.

Corresponds to Hispanic American Periodicals Index (HAPI) and the HAPI Online database and in part to the Latin American Studies - Volume I: Multidisciplinary CD-ROM product.

SUBJECT COVERAGE: Topics relating to Latin America in the areas of the humanities and social sciences, including business and industry; the United States and Mexico border region; Hispanic groups in the United States.

Mexico; Hispanic-Americans; California; Texas; Arizona; New-Mexico;

Latin-America.

Geographic coverage: Latin America and the United States

Time span: 1970 to date

Update frequency: Monthly

Year first available: 1991.

University of California, Los Angeles

Latin American Center

Price: \$25 for first 100 citations, 10 cents for each additional citation

Arizona Business Gazette.

Phoenix Newspapers, Inc.

400 E. Van Buren, Suite 900

Phoenix, AZ 85004 USA.

Phone: (602)271-7300

Fax: (602)271-7363

Full text (FUL).

English (EN).

Contains the complete text of news items and feature articles from the Arizona Business Gazette, a weekly newspaper covering commercial, industrial, and agricultural developments in Arizona. Regional coverage emphasizes high-technology industries, resort and real estate financing and development, and water rights in the southwest United States. Includes notices of real estate transactions, bankruptcies, and contracts awarded; and the complete text of Arizona Supreme Court and Court of Appeals judgements.

SUBJECT COVERAGE: Arizona and local legal and business news.

News; United-States; Arizona; Business-and-business-administration.

Geographic coverage: Arizona

Time span: October 1989 to date, DataTimes; 1992 to date, NEXIS.

Update frequency: Weekly.

DataTimes Corporation

Database label: ABG

Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud), 40 cents/Information Unit (Option A), \$105/connect hour (1200 baud)

, \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)

NEXIS

Database label: ARIZ

Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details

Also online as part of: Arizona Republic/Phoenix Gazette/Arizona Business Gazette and Business Dateline.

The Arizona Daily Star.
 Star Publishing Co.
 P.O. Box 26807
 Tucson, AZ 85726 6807 USA.
 Phone: (602)573-4400
 Fax: (602)573-4107
 Full text (FUL).
 English (EN).

Contains the complete text of news items and features articles from The Arizona Daily Star newspaper.
SUBJECT COVERAGE: General international, national, and local news. Arizona; News; United-States.
Geographic coverage: Tucson, Arizona area
Time span: October 1990 to date
Update frequency: Daily, within 72 hours of publication.
 DataTimes Corporation
 Database label: TUCS
 Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud), 40 cents/Information Unit (Option A), \$105/connect hour (1200 baud), \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)

Arizona Republic.
 Phoenix Newspapers, Inc.
 400 E. Van Buren, Suite 900
 Phoenix, AZ 85004 USA.
 Phone: (602)271-7300
 Fax: (602)271-7363
 Full text (FUL).
 English (EN).

Contains the complete text of news items and feature articles from the daily Arizona Republic newspaper. Regional coverage emphasizes the aerospace industry, high technology, tourism, real estate development, military contracts, and Native American issues.
SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on Arizona business and finance. Arizona; News; United-States.
Geographic coverage: Phoenix, Arizona area and the southwestern United States
Time span: DataTimes, September 1989 to date; NEXIS, 1992 to date
Update frequency: Daily, within 24 to 48 hours of publication.
 DataTimes Corporation
 Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud),

40 cents/Information Unit (Option A), \$105/connect hour (1200 baud), \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)

NEXIS

Database label: AZREP

Rates: Transaction pricing, per-search pricing, and connect hour charging options available; contact vendor for details
 Also online as part of: Arizona Republic/Phoenix Gazette/Arizona Business Gazette and Business Dateline.

BusinessLink.

American Business Information, Inc. ((ABI)).
 5711 S. 86th Circle
 P.O. Box 27347
 Omaha, NE 68127 USA.
 Phone: (402)593-4500
 Fax: (402)331-1505
 Directory (DIR).
 English (EN).

Contains information on more than 1 million businesses located in California and Arizona. Enables the user to target specific businesses for telemarketing, direct mail, or field prospects.
SUBJECT COVERAGE: Businesses of all types located in California or Arizona.

Real-estate; California; Arizona.
Geographic coverage: California and Arizona
Time span: Current information
Update frequency: Quarterly.
 DataQuick Information Network
 Rates: available by subscription

Corporate and Limited Partnership Records.
 Information America ((IA)).
 One Georgia Center
 600 West Peachtree St., NW
 Atlanta, GA 30308 USA.
 Phone: (404)892-1800
 Toll-free: (800)235-4008
 Fax: (404)875-8192
 Customer Support.

Contains the complete text of news items and feature articles from the daily Phoenix Gazette (Arizona) newspaper. Regional coverage emphasizes the aerospace, high technology, and tourism industries, and real estate development.

SUBJECT COVERAGE: General local and state news coverage, with emphasis on Arizona business and finance.

Arizona: News; United States.
Geographic coverage: Phoenix, Arizona area and the southwestern United States

Time span: DataTimes, October 1989 to date; NEXIS, 1992 to date
Update frequency: Daily, within 24 to 48 hours of publication.

DataTimes Corporation

Database label: PHX

Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud), 40 cents/Information Unit (Option A), \$105/connect hour (1200 baud)

B), \$156/connect hour (2400 baud), 60 cents/Information Unit (Option

NEXIS

Also online as part of: Arizona Republic/Phoenix Gazette/Arizona Business Gazette and Business Dateline.

Verifacts

DataQuick Information Systems, Inc.

9171 Towne Centre Dr., 6th Fl.

San Diego, CA 92122 USA

Phone: (619)455-6900

Toll-free: (800)863-INFO

Fax: (619)455-6522

Numeric (NUM)

Directory (DIR).

English (EN).

Contains information on the current market value of a specific

property. Provides up-to-date comparisons with comparable properties in the surrounding area and a 5-year sales history. Sources include the County Recorder and County Assessor offices in each county.

SUBJECT COVERAGE: Real property in the state of California and in metropolitan Arizona communities.

Real-estate: California; Arizona.

Geographic coverage: California and metropolitan Arizona

Time span: Current information

Update frequency: Weekly; some data are updated monthly, quarterly,

or annual, depending on the type of data.

DataQuick Information Network

Rates: available by subscription

Directory (DIR)

Transactional (TRA)

English (EN)

Contains public record information from the Secretary of State offices in 31 states. Covers more than 20 million U.S. corporations and limited partnerships in the states of Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, Nevada, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Washington, and Wisconsin. For each company, provides name, registered agent, principal address, corporate type, date of incorporation, corporate status, good standing status, duration, charter ID number, capital stock, officers and partners names, and document filing history. Enables the user to search records in a single state or all states simultaneously, as well as order copies of records online.

SUBJECT COVERAGE: Corporate and limited partnership records for 31

U.S. states.

Corporations: Business and business administration; Arizona;

California; Colorado; Connecticut; Delaware; Florida; Georgia;

Illinois; Maryland; Massachusetts; Michigan; Missouri; Nevada;

Oklahoma; Oregon; Pennsylvania; Texas; Public records; Business and-

Industry-directories: United States; Rhode Island; New York;

Louisiana; Mississippi; Idaho; Indiana; Iowa; Nebraska; North-

Carolina; South Carolina; Tennessee; Utah; Washington-State;

Wisconsin.

Geographic coverage: United States

Time span: Current information

Update frequency: Daily, as new data become available.

Information America (IA)

Rates: \$39/connect hour, \$17/corporate record (single state), \$55

/corporate global search (excluding Delaware), \$75/corporate global search (all 31 states)

Phoenix Gazette.

Phoenix Newspapers, Inc.

400 E. Van Buren, Suite 900

Phoenix, AZ 85004 USA

Phone: (602)271-7300

Fax: (602)271-7363

Full text (FUL).

English (EN).

West Coast Travel
 Acronym: WCT.
 Foster Travel Publishing.
 P.O. Box 5715
 Berkeley, CA 94705-0715 USA.
 Phone: (510)549-2202
 Fax: (510)549-2202
 Lee Foster, Owner.
 Full text (FUL)
 Bulletin board (BUL).
 English (EN).

Contains articles for travelers and tourists on approximately 150 locations in the western United States, Canada, and Mexico. Includes a history of the region, transportation information, a description of the main attractions, suggestions for nearby side-trips, and how to get further information. Enables the user to submit travel-related questions through an electronic bulletin board. One photo is now available for each article online.

SUBJECT COVERAGE: Consumer travel in Alaska, Arizona, California, Colorado, Hawaii, Idaho, Mexico, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, and Canada.
 Travel-and-travel-industry: Alaska; Arizona; California; Colorado; Hawaii; Mexico; Montana; Nevada; Oregon; Utah; Vancouver-British-Columbia; Washington-State; Wyoming; Canada; Idaho; New-Mexico.
 Geographic coverage: Western United States, Canada, and Mexico
 Time span: Current information
 Update frequency: Periodically, as new data become available
 Year first available: 1984.
 CompuServe Information Service
 Database label: WCT, Westcoast
 Rates: \$8.95/month for Basis Service; hourly fees, surcharges, and membership may apply for some databases; contact vendor for details

Tucson Citizen.
 TNI Partners.
 4850 S. Park Ave.
 P.O. Box 26767
 Tucson, AZ 85726 USA.
 Phone: (602)573-4561

Full text (FUL).
 English (EN).
 Contains the complete text of news items and feature articles from the Tucson Citizen (Arizona) newspaper.
 Geographic coverage: Tucson, Arizona area
 Time span: October 1990 to date
 Update frequency: Daily, within 24 hours of publication.
 DataTimes Corporation
 Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud), 40 cents/Information Unit (Option A), \$105/connect hour (1200 baud), \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)

WASHINGTON STATE

The Seattle Times.
 The Seattle Times.
 P.O. Box 70
 Seattle, WA 98111 USA.
 Phone: (206)464-2997
 Catherine Donaldson, News Library Reference Coordinator.
 Full text (FUL).
 English (EN).
 Contains the complete text of news items and feature articles from The Seattle Times (Washington) newspaper. Regional coverage emphasizes the aerospace, high technology and biotechnology, and retail industries, as well as Pacific Rim business, trade, and cultural issues. Corresponds to the online Seattle Times database.
SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on the aerospace industry and international trade.
 Washington-State; News; United-States.
 Geographic coverage: Seattle, Washington area, with some national and international coverage
 Time span: 1985 to date
 Update frequency: Monthly.
 NewsBank, Inc.
 CD News
 Price: Contact NewsBank, Inc. for pricing information.
 From NewsBank, Inc.

IBM PC or compatible; 20MB hard drive; floppy drive; 640K memory; MS-DOS 3.0 or higher; monochrome monitor; MS-DOS CD-ROM extensions; printer recommended; CD-ROM drive.

Washington Law on Disc.
The Michie Company.
P.O. Box 7587
Charlottesville, VA 22906-7587 USA.
Phone: (804)972-7600
Toll-free: (800)446-3410
Fax: (804)972-7656
Full text (FUL).
English (EN).

Contains the complete text of annotated code and selected court decisions for the state of Washington. Includes Annotated Revised Code of Washington, Supreme Court of Washington Decisions since 1897, and Court of Appeals of Washington Decisions since 1969.

SUBJECT COVERAGE: Washington state law.
Laws-and-regulations; United-States-State; Washington-State.
Geographic coverage: Washington
Time span: Varies by file
Update frequency: Quarterly.
The Michie Company
Price: Contact The Michie Company for pricing information.
Folio VIP/CD 2.51.

IBM PC or compatible; 640K memory; MS-DOS 3.0 or higher; CD-ROM drive
(ISO 9660 High Sierra); hard disk with 3MB available.

Seattle PC Travel Guide.
The TravelData Company.
308 S. Catalina Ave.
Redondo Beach, CA 90277-3635 USA
Phone: (805)683-0301
Toll-free: (800)635-9777
Fax: (805)683-7596
Directory (DIR).

English (EN).
Contains information useful to business and professional travelers for Seattle, Washington including the cities of Bellevue, Everett, Olympia, and Lynwood. Provides descriptions of hotels, restaurants, rental cars, museums, parks, historical sites, nightclubs, theaters, and sports facilities, as well as weather reports. Features the Consensus rating system for hotels, resorts, and restaurants. Includes best-buy recommendations, cost comparisons, and detailed, critical evaluations.

SUBJECT COVERAGE: Travel in Washington, D.C. and surrounding cities, including accommodations, transportation, sightseeing destinations, entertainment, and weather.
Travel-and-travel-industry; Hotels-and-motels; Restaurants; Washington-State.
Geographic coverage: Seattle, Washington and surrounding cities
Time span: Current information
Update frequency: Semiannual
The TravelData Company
Price: \$16.95; \$12.95 for each update
From The TravelData Company.

IBM PC or compatible; 640K memory; DOS 2.1 or higher; disk drive.

Legi-Tech.
Legi-Tech.
1029 J St., Suite 450
Sacramento, CA 95814 USA.
Phone: (916)447-1886
Fax: (916)447-1109
Lina Bernal, Marketing Coordinator.
Full text (FUL).
English (EN).

Provides legislative tracking service that contains histories of bills introduced during regular and special legislative sessions of the U.S. Congress, California, New York, and Washington state legislatures. Also covers member voting records, political contributions, and lobbyist activities. Includes bill numbers, authors, titles, summaries, and actions. Enables user to produce several types of reports, including those covering contributions, committee votes, and floor votes for all state and federal elected officials. Sources of data include the Congressional Record, legislative clerks, state printers, and offices of the Secretary of State. Corresponds to the online service Legi-Tech.

SUBJECT COVERAGE: State and Federal legislative information, state regulations, and state political contributions.
California; Legislation; Government; United States Federal; Government; United States State; Laws and regulations; United States-State; New York.
Geographic coverage: United States.
Legi-Tech

Corporate and Limited Partnership Records.

Information America (IA).
One Georgia Center
600 West Peachtree St., NW
Atlanta, GA 30308 USA.
Phone: (404)892-1800
Toll-free: (800)235-4008
Fax: (404)875-8192
Customer Support
Directory (DIR)
Transactional (TRA).
English (EN).

Contains public record information from the Secretary of State offices in 31 states. Covers more than 20 million U.S. corporations and limited partnerships in the states of Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, Nevada, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Washington, and Wisconsin. For each company, provides name, registered agent, principal address, corporate type, date of incorporation, corporate status, good standing status, duration, charter ID number, capital stock, officers and partners names, and document filing history. Enables the user to search records in a single state or all states simultaneously, as well as order copies of records online.

SUBJECT COVERAGE: Corporate and limited partnership records for 31 U.S. states.

Corporations; Business-and-business-administration; Arizona; California; Colorado; Connecticut; Delaware; Florida; Georgia; Illinois; Maryland; Massachusetts; Michigan; Missouri; Nevada; Oklahoma; Oregon; Pennsylvania; Texas; Public-records; Business-and-industry-directories; United-States; Rhode-Island; New-York; Louisiana; Mississippi; Idaho; Indiana; Iowa; Nebraska; North-Carolina; South-Carolina; Tennessee; Utah; Washington-State;

Wisconsin.
Geographic coverage: United States
Time span: Current information
Update frequency: Daily, as new data become available.
Information America (IA)
Rates: \$39/connect hour, \$17/corporate record (single state), \$55 /corporate global search (excluding Delaware), \$75/corporate global search (all 31 states)

The Morning News-Tribune.

Tacoma News, Inc.
P.O. Box 11000
Tacoma, WA 98411 USA.
Phone: (206)597-8742
Fax: (206)597-8266
Full text (FUL).
English (EN).

Contains the complete text from The Morning News (Tacoma, WA) newspaper.

SUBJECT COVERAGE: General local, national, and international news coverage.

News; United-States; Washington-State.

Geographic coverage: Tacoma, Washington area.

DataTimes Corporation

The Seattle Post-Intelligencer.

The Seattle Post-Intelligencer.
101 Elliott Ave., W.
Seattle, WA 98119 USA.
Phone: (206)448-8000
Full text (FUL).
English (EN).

Contains the complete text of news items, feature stories, and editorials from the Seattle Post-Intelligencer newspaper. Regional coverage emphasizes high technology, aviation, maritime and timber industries, and the environment.

SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on the maritime, timber, and aviation industries, as well as nuclear energy, nuclear waste, and environmental issues.

Forest products; Washington State; News; United States; Fisheries.
Geographic coverage: Seattle, Washington area, with some national and international coverage

Time span: 1986 to date, DataTimes; 1990 to date, DIALOG

Update frequency: Daily.

DataTimes Corporation

Database label: SEPI

Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud),
40 cents/Information Unit (Option A), \$105/connect hour (1200 baud)
. \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)

DIALOG

Database label: 736, a PAPERS file

Rates: \$60/connect hour, 65 cents/full record online, 65 cents/full record offline

The Spokesman-Review.

Close Publishing Company

The Spokesman-Review.

999 W. Riverside Ave.

P.O. Box 2160

Spokane, WA 99210 USA.

Phone: (509)459-5000

Fax: (509)459-5234

Full text (FUL).

English (EN).

Contains the complete text from The Spokesman-Review newspaper.

SUBJECT COVERAGE: General local, national, and international news coverage.

News; United-States; Washington-State.

Geographic coverage: Spokane, Washington area.

DataTimes Corporation

IDAHO DATABASES

Idaho Law on Disc.

The Michie Company.

P.O. Box 7587

Charlottesville, VA 22906-7587 USA.

Phone: (804)972-7600

Toll-free: (800)446-3410

Fax: (804)972-7656

Full text (FUL).

English (EN).

Contains the complete text of annotated code, rules, and selected court decisions for the state of Idaho. Includes Idaho Code, Official Edition, Idaho Court Rules, Idaho Supreme Court Decisions since 1944, and Idaho Court of Appeals Decisions since 1982.

SUBJECT COVERAGE: Idaho state law.

Laws-and-regulations; United-States-State; Idaho.

Geographic coverage: Idaho

Time span: varies by file

Update frequency: Quarterly.

The Michie Company

Price: Contact The Michie Company for pricing information.

Folio VIP/CD 2.51.

IBM PC or compatible; 640K memory; MS-DOS 3.0 or higher; CD-ROM drive

(ISO 9660 High Sierra), hard disk with 3MB available.

OREGON DATABASES

The Oregonian

Alternate name: Portland Oregonian.

Advance Publishing.

1320 S.W. Broadway

Portland, OR 97201 USA.

Phone: (503)221-8327

Full text (FUL).

English (EN).

Contains the complete text of news items and feature articles from The Oregonian newspaper. Regional coverage emphasizes the agriculture, commercial fishing, electronics, forestry, manufacturing, shipping and ship building, and tourism industries and environmental issues. Corresponds to the online Oregonian database.

SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on the lumber and natural resources industries of the Pacific Northwest.

News; United-States; Pacific-Northwest; Oregon; Forest-products;

Ships and shipping.
Geographic coverage: Portland, Oregon area, with some national and international coverage.
Time span: 1989 to date.
Update frequency: Monthly.
NewsBank, Inc.
CD News
Price: Contact NewsBank, Inc. for pricing information.
From NewsBank, Inc.
IBM PC or compatible; 20MB hard drive; floppy drive; 640K memory; MS.
DOS 3.0 or higher; monochrome monitor; MS-DOS CD-ROM extensions;
printer recommended; CD-ROM drive.

. \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)
Also online as part of: Utah On-line (dial (801) 237-2069 for direct access).

UTAH DATABASES

The Salt Lake Tribune.
The Salt Lake Tribune.
143 S. Main St.
P.O. Box 867
Salt Lake City, UT 84110 USA.
Phone: (801)237-2083
Fax: (801)521-9418
Full text (FUL).
English (EN).
Contains the complete text of The Salt Lake Tribune (Utah), a general circulation newspaper reporting local, national, and international news. Covers all news stories, features, editorials, arts, and sports.
SUBJECT COVERAGE: General local, national, and international news coverage, with emphasis on Utah.
Utah; News; United-States.
Geographic coverage: Salt Lake City, Utah area, with some intermountain, national, and international coverage.
Time span: September 24, 1990 to date
Update frequency: Daily, within 48 hours of publication.
DataTimes Corporation
Database label: UTAH
Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud), 40 cents/Information Unit (Option A), \$105/connect hour (1200 baud)

Everywhere USA Travel Guide.

Deep River Publishing, Inc.
565 Congress St., Suite 200
PO Box 9715 975
Portland, ME 04104 USA
Phone: (207)871-1684
Toll free: (800)643 5630
Fax: (207)871-1683

Directory (DIR)

Audio (AUD)

Video (VID)

Image (IMA)

Full text (FUL)

English (EN)

Provides up-to-date descriptions, addresses, phone numbers, hours, and locator maps for more than 3,000 attractions such as festivals, theaters, museums, historic sites, and professional sports teams. Contains more than 80 minutes of video clips, sound, and more than 6,000 color photographs.

SUBJECT COVERAGE: Travel information for every state in the United States.

Travel-and-travel industry; United States.

Geographic coverage: United States

Year first available: 1994.

Deep River Publishing, Inc.

Price: \$59.95 for the 2-CD-ROM set
IBM PC or compatible; Microsoft Windows.

Worldwide Brochures.

Travel Companions International, Inc.
1227 Kenneth St.
Detroit Lakes, MN 56501 USA.
Phone: (218)847-1694
Toll-free: (800)852-6752
Fax: (218)847-7090

Directory (DIR).

English (EN).

Contains information on more than 9,500 brochures, maps, and information kits for travellers. Includes a description, address, and phone number for ordering. Corresponds to the online Worldwide Brochures database.

SUBJECT COVERAGE: Travel and accommodations worldwide.

Travel-and-travel industry; Leisure-and-recreation; General-interest.

Geographic coverage: International

Time span: Current information

Year first available: 1993.

Travel Companions International, Inc.

Price: \$19

Contact Travel Companions for details.

The Wall Street Journal Guides to Business Travel: USA & Canada.

Random House, Inc.

201 E. 50th St.

New York, NY 10022 USA.

Phone: (212)751-2600

Toll-free: 800726-0600

Directory (DIR)

Image (IMA)

English (EN).

Contains information on hotels, restaurants, and attractions for major cities throughout North America. For each city, includes interactive maps, graphics, and photographs.

SUBJECT COVERAGE: North American travel.

Travel-and-travel industry; Hotels-and-motels.

Geographic coverage: United States and Canada

Time span: Current information

Year first available: 1993.

Random House, Inc.

Price: \$50

From Random House, Inc.

Sony Multimedia CD-ROM player.

ABC Worldwide Hotel Guide.

Reed Travel Group.

500 Plaza Dr.

Seaucus, NJ 07094-3626 USA.

Phone: (201)902-1600

Toll-free: (800)334-2811

Fax: (201)319-1628

Directory (DIR).

English (EN).

Contains information on approximately 68,000 hotels worldwide.

Includes address and telephone number, rates, credit cards accepted, room features (e.g., air conditioning, telephone), guest services

(e.g., restaurants, handdressers, babysitters, foreign language translators), rules regarding pets, facilities for handicapped persons, leisure activities (e.g., swimming pool, golf course, entertainment), and business accommodations (e.g., conference rooms, convention center). Corresponds in part to the ABC Worldwide Hotel Guide.

SUBJECT COVERAGE: Hotel and motel facilities in the Bahamas, Caribbean, Hawaii, Pacific, United States, and other areas.

Hotels-and-motels; Travel-and-travel-industry.

Geographic coverage: International

Time span: Current information

Update frequency: Quarterly.

CompuServe Information Service

Database label: ABC

Rates: \$8.95/month for Basis Service; hourly fees, surcharges, and membership may apply for some databases; contact vendor for details

Business Travel News.

Miller Freeman Publications

Formerly produced by: CMP Publications, Inc.

600 Harrison St.

San Francisco, CA 94107 USA.

Phone: (415)905-2200

Fax: (415)905-2232

Full text (FUL).

English (EN).

Contains the complete text of Business Travel News, a newspaper covering legal, regulatory, and commercial developments affecting the travel industry, with an emphasis on business-related travel.

SUBJECT COVERAGE: Business travel industry and news.

Business-and-business-administration; Travel-and-travel-industry.

Geographic coverage: International

Time span: May 1991 to date

Update frequency: Continuous.

NewsNet, Inc.

Database label: dropped

DataTimes Corporation

Database label: BTN

Rates: \$67/connect hour (1200 baud), \$99/connect hour (2400 baud), 40 cents/Information Unit (Option A), \$105/connect hour (1200 baud), \$156/connect hour (2400 baud), 60 cents/Information Unit (Option B)

Also online as part of: PROMT.

Status: Revised (R).

Citizens Emergency Travel Advisory Service.

U.S. Department of State

Citizens Emergency Center.

2201 C St., N.W.

Washington, DC 20520 USA.

Phone: (202)647-5225

Full text (FUL).

English (EN).

Contains information on possible hazardous travel conditions in foreign countries. Includes information on warfare, crime, political and civil unrest, outbreaks of communicable diseases, and other conditions.

SUBJECT COVERAGE: Hazardous travel conditions, including information

on warfare, crime, political and civil unrest, outbreaks of communicable diseases, and other conditions.

Travel-and-travel-industry; News; United-States; News; International.

Geographic coverage: International

Time span: Current information

Update frequency: Continuous.

CompuServe Information Service

Database label: STATE: State Department of Travel Briefings

Rates: \$8.95/month for Basis Service; hourly fees, surcharges, and membership may apply for some databases; contact vendor for details

Consular Affairs Bulletin Board

Acronym: CABB.

U.S. Department of State

Bureau of Consular Affairs.

Public Affairs Office

Room 6831

Washington, DC 20520 USA.

Fax: (202)647-6074

Wallis Doerge, Public Affairs Specialist.

Bulletin board (BUL)

Full text (FUL).

English (EN).

Provides information on security and crime problems abroad. Contains

information on emergencies involving American citizens abroad, entry requirements for Americans visiting other countries, and travel warnings. Also includes information about visas for foreigners who want to visit the United States, acquisition and loss of U.S. citizenship, and international adoptions.

SUBJECT COVERAGE: Traveling abroad.

Travel and travel industry; Crime and criminals.

Geographic coverage: International

Time span: Current information

Update frequency: Continuous

Year first available: 1992.

U.S. Department of State

Bureau of Consular Affairs

Rates: available free of charge; the direct access telephone number is (202)647-9225

Medical Advisory Services for Travellers Abroad

Acronym: MASTA.

London School of Hygiene and Tropical Medicine.

Keppel St.

London WC1E 7HT, England.

Phone: 171 6314408

Fax: 171 3234547

Full text (FUL).

English (EN).

Provides information on 84 medical conditions and diseases that pose health risks for travellers in 230 countries. Enables the user to produce briefs tailored to a specific visit or journey. Sources include more than 1100 medical and scientific journals; also World Health Organization reports, Centers for Disease Control reports, embassy reports, London School of Hygiene and Tropical Medicine staff reports, and other sources.

SUBJECT COVERAGE: Health information for travellers.

Travel-and-travel-industry; Infectious-diseases; Biomedical-sciences.

Geographic coverage: International

Time span: Current information

Update frequency: Daily.

London School of Hygiene and Tropical Medicine

Travel Security Guide.

Control Risks Group Ltd.

Control Risks Information Services ((CRIS).

83 Victoria St.

London SW1H 0HW, England.

Phone: 171 2221552

Fax: 171 2222296

Full text (FUL).

English (EN).

Contains information on security and safety risks to the international traveler. Comprises the following 4 files:

Travel Briefings--contains descriptions of country-specific incidents (e.g., political instability, terrorism, hijackings, crime, outbreaks of disease, natural disasters) and analyses of transportation security at airports, train stations, and along surface routes for 81 countries. Also provides profiles of travelers who might be at increased risk because of nationality or employer. Includes general information about major cities, police, language, currency, climate, medical precautions, business hours, and holidays.

Headlines--contains notices of current events or incidents affecting international travel.

International Air Travel--contains assessments of international air travel risks by region and for 32 airlines.

Risk Ratings--covers more than 150 countries.

SUBJECT COVERAGE: Political and security risks worldwide.

Terrorism; Travel-and-travel-industry; Country-assessment.

Geographic coverage: International

Time span: Current information

Update frequency: As needed.

Control Risks Information Services ((CRIS)

Trip Planner.

Travelmation.

P.O. Box 542

Sherman, CT 06784-0542 USA.

Toll-free: (800)753-6661

Fax: (215)977-4025

Numeric (NUM)

Transactional (TRA).

English (EN).

Provides real-time priced available airline fares in accordance with user-defined and airline-imposed parameters. Enables the user to identify available airline fares and times meeting user needs and to place reservations online.

SUBJECT COVERAGE: Airline fares
Travel and travel industry
Geographic coverage: United States
Time span: Current information to 330 days in the future
Update frequency: Continuously.
Travelnation

Worldspan TravelShopper.

WORLDSPAN.

7300 Tiffany Springs Pwky.
Kansas City, MO 64153 USA.
Phone: (816)891-5300
Fax: (816)891-6170

Directory (DIR).
English (EN).

Contains domestic and international flight schedules and fares for commercial airlines. Covers approximately 7 million schedules and more than 8 million fares. Users can request seat assignments, confirm flight reservations, relay orders for automatic ticketing to airlines or any of 10,000 travel agents, and reserve rental cars and hotel rooms.

SUBJECT COVERAGE: Travel information, including 5 million domestic

and international flights for nearly every airline in the world for more than 100,000 city pairs; 3 million domestic and international fares; flight booking and confirmation; travel agents; frequent flyer member's mileage points; other travel data.

Travel-and-travel-industry; Air-transportation; Aviation-industry; Flight-schedules.

Geographic coverage: United States, with some international coverage

Time span: Current information

Update frequency: Continuously, throughout the day.

CompuServe Information Service

Database label: TWA

Rates: \$8.95/month for Basis Service; hourly fees, surcharges, and membership may apply for some databases; contact vendor for details
Delphi Internet Services Corporation

West Coast Travel
Acronym: WCT.
Foster Travel Publishing.

P.O. Box 5715
Berkeley, CA 94705-0715 USA.
Phone: (510)549-2202
Fax: (510)549-2202
Lee Foster, Owner.
Full text (FUL)
Bulletin board (BUL).
English (EN).

Contains articles for travelers and tourists on approximately 150 locations in the western United States, Canada, and Mexico. Includes a history of the region, transportation information, a description of the main attractions, suggestions for nearby side-trips, and how to get further information. Enables the user to submit travel-related questions through an electronic bulletin board. One photo is now available for each article online.

SUBJECT COVERAGE: Consumer travel in Alaska, Arizona, California, Colorado, Hawaii, Idaho, Mexico, Montana, Nevada, New Mexico, Oregon,

Utah, Washington, Wyoming, and Canada.

Travel-and-travel-industry: Alaska; Arizona; California; Colorado; Hawaii; Mexico; Montana; Nevada; Oregon; Utah; Vancouver-British-Columbia; Washington-State; Wyoming; Canada; Idaho; New-Mexico.

Geographic coverage: Western United States, Canada, and Mexico

Time span: Current information

Update frequency: Periodically, as new data become available

Year first available: 1984.

CompuServe Information Service

Database label: WCT, Westcoast

Rates: \$8.95/month for Basis Service; hourly fees, surcharges, and membership may apply for some databases; contact vendor for details

11. APPENDIX—LEGAL OPINION, SANTAMARINA Y STETA

The scanned image of the letter from our Mexican counsel is available on the WWW site, via ftp. It is a very large file, and we have chosen not to include it in the main body of the text so that this document is not so unwieldy.

SANTAMARINA Y STETA

EDIFICIO "ONEGA"
CAMPOS ELISEOS No. 343
COL. CHAPULTEPEC POLANCO
11800 MEXICO, D. F.
TELEFONO 728-03-00
TELEFAX 250-62-88 250-78-14
251-39-99 250-78-66 Y 250-22-14

OFICINA MONTERREY
EDIFICIO TORRE ALTA
POBLE 500 DESP. MOE
65220 GARZA GARCIA, N.L.
TELE. (81) 350-87-23 Y 350-80-42
TELEFAX (81) 350-80-28

AGUSTIN SANTAMARINA V.
JUAN M. STETA
MANUEL VERA V.
ALEJANDRO DELGADO F.
FELIX DE LA PEÑA C.
GERMAN MUGENBURG Y R.V.
EDUARDO MARTINEZ R.
PEDRO VELASCO A.
AGUSTIN GUTIERREZ E.
JOSE ANTONIO NÓGUERA C.
JOSÉ BARRERO S.
FERNANDO TODD A.
LUIS A. CERVANTES M.
JOSE ANTONIO MIRANDA L.
SIDRO ARELLANO A.
AARON LEVEY V.
ALBERTO SAAYEDA O.
LUDWIG SUAYFETA S.

CONSEJERO

September 7, 1995

Mr. William R. Pickard Jr.
PICKARD & MURPHY, INC.
1213 East Alder Street
Seattle, Washington 98122-6314
U.S.A.

Re: Establishment of the DataLink system in Mexico.

Dear Mr. Pickard:

From our legal research on the establishment of the DataLink system in Mexico, following please find the general report we have prepared, considering at all times that it was carried out with a general overview of the service, since, as you have told us, the final decision on how the service will operate has not been made yet.

The research was made with the understanding that the service would be provided in two different ways, according to the operation of the service itself.

The first part of the DataLink service would be provided as an on-line service accessed by users via the Internet (or via a long distance dial-up), through an independent Internet account contracted by the user with a local service provider, where the information/linking server would be physically located in the United States.

The second part of the system would be a telephone/fax-back service in which the users would call a local telephone number.

The first part of the project, which refers to the access via the Internet, is understood as a service rendered in the United States to Mexican users through a local Internet provider, as long as the information or linking server is located within the United States territory. Mexican users of the DataLink service would be contracting the service directly with an American entity in this case, for the access to the DataLink server itself, notwithstanding that this server may link them to other information servers or that this server may provide information belonging to third parties, where any transaction carried out between the information owner and the user would be considered apart from the DataLink service.

Regarding the telephone/fax-back approach, the information service would be considered as rendered in Mexico, if a fax machine is actually established in Mexican territory and therefore must observe Mexican legal provisions established for service providers in general. If this service is provided through a telephone/data network such as the Sprint or Infonet Networks, it would be considered to be rendered in the place where the fax machine providing the information is physically located at.

A) SYSTEM OPERATOR'S LIABILITIES.

With the understanding that the on-line service would be provided through a server located physically in the United States, it would be convenient to make the contractual relation subject to the local jurisdiction of the courts in the United States, wherefore all the relationships would be governed by one legislation. If the server was established in Mexico, please be advised that there are no specific laws or ordinances establishing any specific liabilities of Systems Operators (SysOps) and/or owners of on-line systems as such. We understand that your main concern is the liabilities in which the SysOps may incur due to an infringement committed by a user of the service, and we also understand the practical limitations of monitoring all of the information available and in transit through an on-line system.

Current legislation is still not very specific in this matter. This is extremely important to consider, as there is no certain criteria established until now in this field, and resolutions, ordinances, modifications and opinions are still to come. Some ordinances, such as the criminal law, the press law and the copyright law provide penalties for the authors of infringements. Therefore, it is very important to be able to easily identify the author of a particular message or file, as well as to have the author recorded in some way. It would be a good measure to have a complete detailed registry containing specific information of all the users of the on-line service, and to implement a method of determining the origin of each message and file contained in the system in the event that the liability of a user had to be proven.

However, it is our opinion that the best way SysOps can protect themselves against liabilities from infringements committed in their service is to elaborate a very specific services agreement with each user, in which liabilities are openly disclaimed by the SysOps and all the employees of the service as well and the service itself, and thus warning the users about the legal consequences of incurring in piracy and other unlawful practices.

Users should also be warned that the service is not responsible for copyright or any other kind of violation made on their own material, and thus, users should ideally attach to each and all electronic transmission created by them, the corresponding copyright message, including the name of the author and of the specific authorized users of said document, and the authorized ways of using said material in order to prevent further violations and to further protect the material. It must be the user's responsibility to verify and double check the copyright protection of any file before attempting to sell it, transmit it or use it in any way.

Mention should also be made in the system regarding the use of the information available in the system, in which the SysOps and the system itself is not held liable for any decisions taken based or derived from information available in the system or delivered via fax/telephone. Users should be aware that the information services, both the on-line system and the telephone/fax-back service are rendered on an "as is" basis, and that no responsibility is accepted for the veracity or originality of information contained therein. Please bear in mind that in Mexico, it would be very difficult to consider e-mail or electronic transmissions as proof of contracting. Therefore, it would be advisable to have the signed consent of the users in a written contract accepting these terms.

B) TRADE SECRETS, PORNOGRAPHY AND EXPLICIT LANGUAGE.

Trade secrets are specifically protected by the criminal law and the industrial property law. SysOps should be careful in making trade secrets available to users not entitled to the same.

The availability of pornography and explicit language in the system could be sanctioned by the corresponding authority. It is considered in several ordinances, including the criminal law and the press law. Any user may inform the authorities of the availability of this kind of information at his own criteria. It is important to consider that international treaties may apply if the service is rendered in the United States via the Internet. The authors would be punished in first instance, but if the author is unknown, then the owner or operator of the service may be considered liable.

If the service operators decided to "publish" obscene material in their services, they would be directly considered to be the publishers or distributors. However, if the information server where this information is contained is located outside Mexico, the criteria could be difficult to establish as the Mexican law would then sanction the "importer" or the "carrier" of the information, which in some way may result to be the Internet, which would result as well impossible to sanction and on the other hand, according to the Mexican import law, said electronic transmission would not be considered an import.

Private e-mail may be freely exchanged by the users, but they should be aware that any user may proceed legally against a private mail considered offensive or in some way harmful to his private life.

Monitoring private e-mail may be considered an offense as well according to the Mexican Constitution and to the Criminal Law.

The Federal Law on General Communications prohibits "the transmission of news or messages whose content is contrary to the security of the country, to the good standing of international relations, to public peace and safety, to good manners, to the laws of the country, to the decency of the language or that may be prejudicial to the cultural or economic interests of the nation, which may cause a scandal or may in any way attack the government, the private life or that may be constitutive of the commitment of a crime or that may obstruct the application of justice."

The interpretation of the preceding paragraph should be considered while providing information.

C) GOVERNMENTAL INFORMATION.

The distribution of laws and ordinances is legal, as long as they have been officially published before the date when they are "published" and the original text is followed. Any other governmental information should, according to the copyright law, first be authorized by the issuing bureau. If a Ministry or another governmental bureau is cooperating with you in the supply of information, it would be advisable to establish a services agreement just as it would be with any other party involved in the supply of information. Most governmental entities have a no charge criteria for the information they provide.

D) LICENSING.

There is no limitation set regarding the licensing of information

or intellectual property through any means of transmission. This licensing is understood as a private act carried out by the parties involved in the transaction. Again, since electronic mail or transactions are not yet considered a substantial way of proof in any litigation process, any agreement should be ideally stated in writing, signed and duly documented.

B) IMPORT/EXPORT AND TAX TREATMENTS.

Any type of information transmitted electronically and not physically shipped across a border, recorded in a diskette or CD, is not considered an import in accordance with the Mexican Customs Law and General Import Tax Law. Furthermore, be advised that the Customs Valuation Committee of the General Agreement of Tariffs and Trade (GATT) determined that the software transmitted electronically, via cable or via satellite, is not subject to pay customs duties.

DataLink tax status.

For purposes of this discussion we would assume that a legal entity created under U.S. laws would be the owner of the DataLink telecommunications and computer network and thus such entity would be responsible for rendering the correspondent services. We would identify said entity as DataLink, Inc.

Under Mexican Income Tax Law, DataLink, Inc. would be regarded as a nonresident company since its base is abroad. Nonresident companies are subject to Mexican Income Tax if they have a Source of Income or a Permanent Establishment in the country. The Source of Income is a standard seeking to entail a nonresident to said tax on a case-by-case basis covering different types of incomes. A nonresident company with a Source of Income in the country pays Mexican Income Tax by means of withholdings. Withholding rates vary depending on the type of income obtained and range from 5% to 35%. Such rates could or could not be reduced by the U.S./Mexico Tax Treaty. The Permanent Establishment standard also seeks to entail a nonresident to Mexican Income Tax and it is discussed separately in the following paragraph.

Permanent Establishment liability.

This standard evaluates the nonresident's business presence in the country for determining if the nonresident should or should not be regarded as a regular Mexican Income Tax taxpayer. Such evaluation would consider if the nonresident maintains either a place of business (an office; a warehouse, etc.) or an agent in the country.

These circumstances would be analyzed in view of the current or potential income that the nonresident could obtain in Mexico. If the nonresident activities in Mexico carried out through either a place of business or an agent, or both, are so relevant that it could be concluded that the nonresident has created a Permanent Establishment in the country, then the nonresident would pay Mexican Income Tax as any other Mexican company with the obligation of being registered in the Federal Taxpayers Registry.

Services rendered without equipment in Mexico (Internet access).

In this case, DataLink, Inc. would have no infrastructure of any kind in Mexico, either directly or through a local entity. In such way, a Mexican user would access the Internet through its local Internet supplier which supplier would have no relation whatsoever with DataLink, Inc.; once on the Internet, the Mexican user would contact the DataLink network which, in turn, would connect the Mexican user with the U.S. Content Provider the Mexican user is looking for. The Data Link service could be rendered under centralized or decentralized terms, and a service fee could be charged by DataLink, Inc. to the Mexican user. Naturally, the Mexican user is expected to pay the U.S. Content Provider for the information obtained and delivery would be carried out via the Internet and eventually, via fax, courier or mail. In our opinion, this scheme would mean for DataLink, Inc. to be regarded as a nonresident corporation without a Source of Income in the country and thus without any obligation to pay Mexican Income Tax or comply with Mexican Tax Laws requirements because, from what we have understood, all the DataLink service would have been rendered outside Mexico. We consider that this conclusion is also true when a U.S. user contacts a Mexican Content Provider or when a Mexican user contacts a Mexican Content Provider, all using the DataLink network.

We also consider that the above conclusion is not true if Data Link, Inc., directly or indirectly, would have equipment or infrastructure in the country; or maintains, directly or indirectly, local administrative entities managing its business in Mexico, collecting fees or promoting services. Such circumstances would furnish grounds for a Permanent Establishment liability.

Services rendered with equipment in Mexico (server or fax machine in Mexico).

In this case, DataLink, Inc. would have installed its own equipment in Mexico or would locate such infrastructure in the country through a local entity. Thus, a Mexican user would access the DataLink System through such infrastructure and a fee would be

charged to that Mexican user. Under these circumstances, we consider that enough grounds for concluding that a DataLink, Inc. Permanent Establishment has been created in Mexico either through the equipment installed in the country or through the local entity providing the infrastructure. This conclusions would also be true when a U.S. user contacts a Mexican Content Provider or a Mexican user contacts a Mexican Content Provider, all using the DataLink network. Additionally, the use of a middleman through a centralized service plus the activities of local administrative entities would only evidence and confirm that DataLink, Inc. would have created a Permanent Establishment in Mexico.

Additional Comments.

Please be advised that having a DataLink, Inc. Permanent Establishment in Mexico could possibly furnish grounds to conclude that a U.S. Content Provider also would have a Permanent Establishment in the country through DataLink, Inc. own Permanent Establishment since DataLink, Inc. Permanent Establishment activities could be regarded as acting as an agent for such U.S. Content Provider.

Y) REQUIREMENTS FOR THE OPERATION OF THE SERVICE.

In order for the on-line service to begin operating in Mexico, if a server is installed in Mexico for it's access, the only official requirement is to record the service before the Ministry of Communications. If the access to the on-line service is provided only via the Internet or via long distance calls to a server established in the United States, no permit or recordal is required. The telephone/fax-back service will not require any special authorization to operate in Mexico, as it would be considered as a regular service before mexican legislation.

We sincerely hope the foregoing may be of help to you in the completion of your project. Please let us know should you have any further questions regarding the same.

Very truly yours,



Sergio Legorreta G.

c.c. Mr. Alejandro Delgado

12. APPENDIX—AN INDUSTRY INFORMATION CENTER

As the information age bombards businesses with data, the problem is not lack of information but too much that is of questionable quality. To stay abreast of new developments and to stem the tide of the deluge, it is important to employ both human and electronic filters. Electronic filters are gradually appearing and improving. The human filters constitute one of the world's oldest professions — librarians, also known today during this era of cyberspace as cybrarians.

In the past, good business librarians could be generalists. Today, however, with the burgeoning amount of data becoming available on the Internet, this is no longer the case. Refining one's focus and developing subject specialties are imperative or the cybrarian will only be able to skim the surface of a number of topics and will fall behind in that. Specialists, for example, may concentrate on a particular industry such as trucking, a particular branch of agriculture, or software, or they may specialize in a functional discipline such as finance or marketing. Just as certain types of medical specialists are located where they can serve the most patients with needs for their services, information specialists will be located where large numbers of potential clients with the ability and willingness to pay for their services can gain access to them.

This leads to the conclusion that the ideal information center should be very well staffed with subject specialists, or it should be prepared to work in close collaboration with experts at the relevant international research centers and trade associations. Language fluency comes into play here as well. Currently the relevant languages for the CANAMEX DataLink project are Spanish and English. As the population of British Columbia and parts of the Western U.S. become more Asian, Cantonese and Mandarin may be important as well.

Industry Information Centers (IIC) will require adequate funding to attract the quality staff necessary to make them a success and enable the staff to spend the time necessary to remain current with their fields of expertise and the ever-changing technology needs of the information industry. Budgets must be provided both for ongoing staff training and to enable the information staff to meet face-to-face with their clientele to better understand their customer's needs. Customer interaction cannot be done effectively by a third party. In addition to execution and preparation, a successful IIC will also need a budget to market its services effectively to a usually, initially skeptical group of constituents. Finally, it is also important for the research staff to be able to communicate frequently with their colleagues throughout the CANAMEX region, and indeed the world, thereby enhancing their ability to work jointly with information providers at other institutions.

13. APPENDIX—USER SURVEY DETAILS

13.1 SURVEY STATISTICAL RESULTS & BAR GRAPHS

The graphs displaying the statistics from the user survey can be found at the ftp site at: [ftp.halcyon.com/local/pickard/CANAMEX/Charts.xls](ftp://halcyon.com/local/pickard/CANAMEX/Charts.xls). This is an Excel workbook saved at the 4.0 level, and provides a graphical representation of the data.

13.2 TOP ISSUES FACED IN BUSINESS

Q8. What do you consider are the top three issues you face in business today?

Employee issues

- Locating individuals with specific skill sets
- Locating qualified representatives
- Finding good people
- Employee base - qualified workforce
- Finding qualified technical people
- Labor pool
- Accessibility to highly trained work force
- Employees
- Qualified workforce
- Available talent
- Obtaining and maintaining a qualified work force
- Employee turnover
- Employee education
- Manpower availability in parts of the US in economic slumps
- Lack of availability of qualified help
- Availability of competent labor

All other issues - sampling

- Quality and ISO 9000
- Mexican economy - crippling business
- Freight rates
- Finding new business
- Marketing/sales channel access
- Getting access to contractors
- Decline in defense procurement
- Transition to commercial sector from gov't
- Customer relations
- Financial viability
- Registration requirements in different states
- Problems with gov't regulation of business & lack of understanding
- Looking for export markets
- Decline of Mexican business - peso crisis
- Border restrictions on transport
- Expansion of retailers overseas - creates conflicts with exclusive distributors

Smaller world market, as opposed to segmented regional markets
Changing manufacturing base
New business startup issues
International approvals - telecom industry
Managing rapid growth
Maintaining profitability in a commodity-based industry
Market share
International tariffs
Selling into Mexico - tough process
Allocation of critical IC's to build our products
Access to ISDN
Lack of broad band networks
Pricing
Service - on-time delivery
Increased cost
Market differentiation
Locating potential customers
Moving product into South American countries - trade restrictions
Over-supply of engineers
Globalization of business - higher costs and risks
American companies' lack of sophistication in international operations
Lack in 3rd world countries of middle management layer
US middle management afraid to take risks, responsibilities
Mexican peso crisis
Access to information - legal, financial, shipping
Source of capital - financing

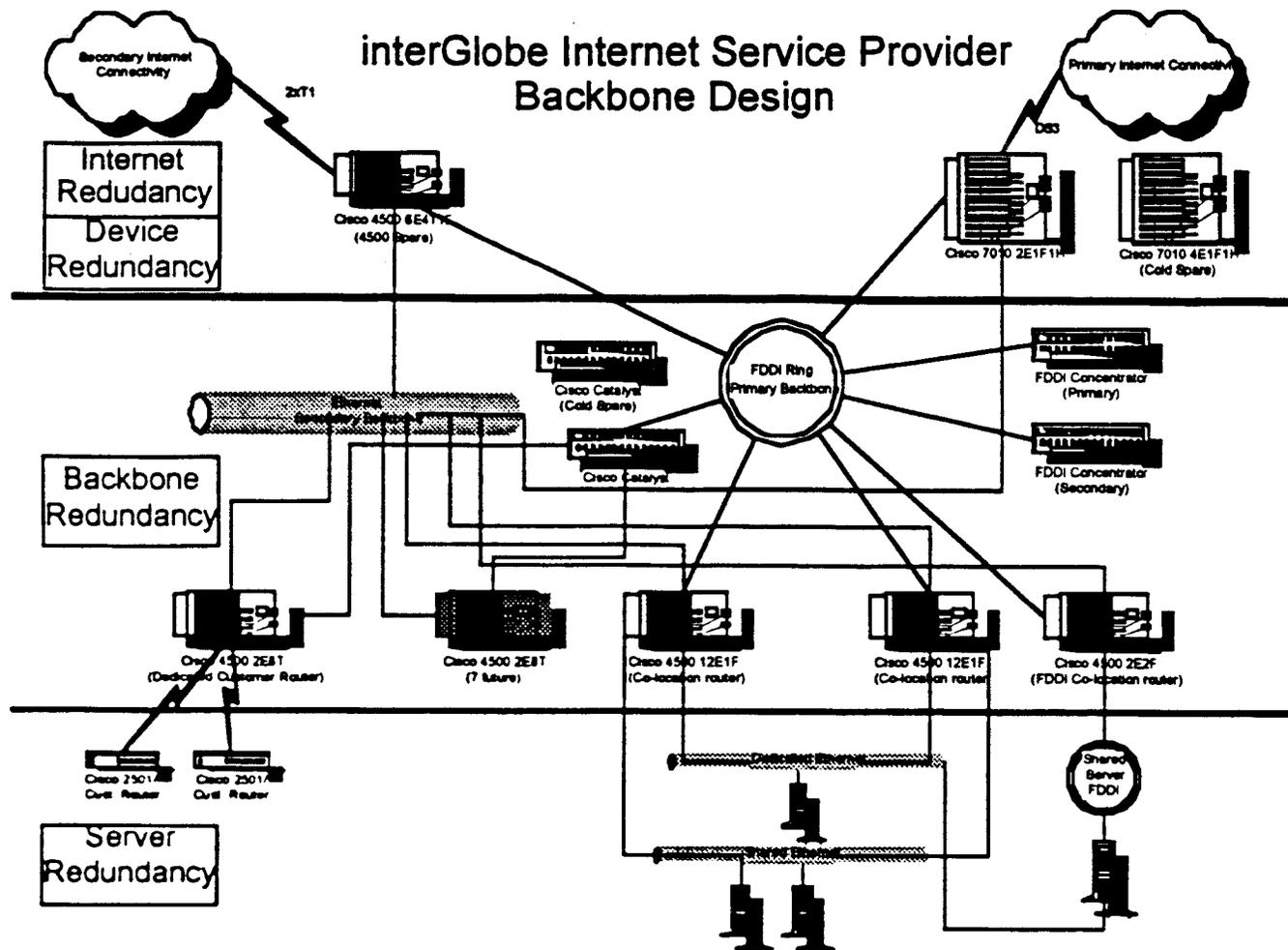
Too many environmental regulations
Access to good, current information
Keeping current with market trends
Keeping current on future opportunities
Regulatory hurdles - tort reform, comp reform
Getting talented people
Getting sufficient capital
Rapidly changing technology
Regulatory burden
Tax burden
Transportation/logistics issues
Choice of service offerings
Competition in deregulated market
How to manage fast growth
Reinventing our software product line
Exit strategy for company owner
Finding new business
Cost containment - automation, staff
Technology explosion
International effect on marketplace

Disclosure issues in real estate marketplace
Creating awareness for certain software solutions
Perception of people moving from mainframe to client-server computer systems
Over-regulation by government
Competition - more severe in last several years
Strong need for interim financing
Problem getting current, accurate, affordable information
Determining where the market is
Looking for reps in other countries
Financing

14. RECOMMENDED SYSTEM ARCHITECTURE

The system architecture is a lengthy and complex document. That document consists of narrative and schematics. The document can be retrieved at:

<ftp://ftp.halcyon.com/local/pickard/CANAMEX/DLARCHB.DOC>



The recommended provider architecture is based on our research into robust, secure, reliable providers and their infrastructure design. This site is optimized for serving content, but it will support dial-up and dedicated access accounts as well. The essence of this design is a very high speed backbone connection to the Internet, redundancy at all levels and for all devices, use of routers between internal links to improve throughput, and the spreading of the load through shared and dedicated Ethernets within the NOC.

15. SAMPLE CONFIGURATION AND COST OF OWNERSHIP MODEL

The cost model that accompanies this narrative is large and is provided as a separate, stand-alone spreadsheet. It can be retrieved on the Internet from:

[ftp.halcyon.com/local/pickard/CANAMEX/COSTMDLB.DOC](ftp://halcyon.com/local/pickard/CANAMEX/COSTMDLB.DOC)

Final Report

DataLink System Architecture Proposal

A Project of the CANAMEX Corridor

Pickard & Murphy, Inc.
William Pickard, Preston Hauck, Susan Golden, Scott Orange

November 15, 1995

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1. SYSTEM ARCHITECTURE PROPOSAL

The proposed system is an electronic information delivery system. Its focus is on providing commercial customers with information necessary to conduct business more efficiently and effectively. Our proposed architecture builds on the existing infrastructure already in place, most notably the telecommunications infrastructure, which - for all the current talk about the Information highway of the future - will serve us well for what we need today to gain a competitive advantage over other regions of the world. Most importantly, this design builds on the elements already constructed by PNWER in the form of its CATALIST system. It is designed to work cooperatively with the other systems described in the final report.

The proposed system is composed of several elements:

- The Network Operations Center (NOC) and the network itself,
- The data and fax servers, and the business applications on them, and
- The remote DataLink partner locations, including the PNWER/CATALIST office in Seattle.

2. BASE ARCHITECTURAL ISSUES

The base design includes a spectrum of technologies designed to enable active communication - not just passive repositories of data. We used a number of guiding principles in developing this design:

- This is a demonstration project. The resulting system must be open, flexible, and scalable so that it can be duplicated and extended elsewhere.
- The main purpose of the system is to proactively send trade leads and other materials to business people within the CANAMEX Corridor.
- This system can be a bridge to non-computerized segments of the business community
- This system must provide both an introduction and a visible example of how electronic commerce can work for businesses in the CANAMEX Corridor.
- Information recipients and other users of the information require flexibility in the way they interact with the system including "best way" transmission (see below)
- Users must be able to customize their product and service profiles and manipulate and search the leads and other information
- The project must be self sustaining
- The project can build on the success of CATALIST, OBS and other related systems. It makes use of the existing infrastructure, such as the Internet - and thus does not reinvent the wheel.
- The proposal assumes that the private sector and governments will adopt some or all of the model technologies and approaches, and thus facilitate their region's participation in the electronic corridor.
- Economic development partners and other commercial customers who will want to use the DataLink system to reach their constituents will want to appear to be the sender of any information from the active mailing or e-mail system. For these customers, DataLink must be transparent to the recipient.

- Proactive information must be carefully targeted (i.e. by 8 digit SIC number or a similar scheme) to prevent information overload and the dismissal of the information as valueless "junk" communications.

3. SYSTEM GOALS

These design guidelines were crystallized in a set of goals at an early meeting of stakeholders:

- Enhance the efficiency and effectiveness of the trade promotion and commercial information distribution process, as measured by sales attributable to information and services supplied by the system.
- Reduce the frustration of buyers and sellers in initiating and completing transactions and in locating information about trade opportunities and how to export.
- Provide a significant competitive advantage to the region
- Be proactive, not just reactive, in promoting and supporting trade
- Achieve goals and objectives while maximizing the involvement of the private sector in the operation of the system

We believe the resulting design will achieve the goals and meets the guidelines.

It is unlikely that the State of Arizona will build this proposed system by itself. What is more likely is that this specification will become the basis for discussion among private sector firms desiring to support the concept of DataLink.

4. DATA LINK PARTNERS

To extend the reach of the system into rural areas and to businesses that do not yet use on-line services, we have budgeted to include the roll-out of ten remote systems to handle Internet and Fax traffic. Successful DataLink partners would pay 50% to 100% of the capital cost of installing an Internet node. It is also assumed that individual businesses will work with local providers, some of whom may be partners in this proposal. All participants - both business users and DataLink partners will acquire their own access accounts - whether they be telephone (for FAX and voice) or one of an array of on-line services ranging from simple e-mail, to EDI, to full Internet Service. Participants will work with their on-line service providers just as they work with the telephone companies now to acquire telephone and fax services. In some cases, particularly in the more rural areas, groups such as the Western Library Network (WLN) will step in and provide on-line access. In other cases private sector firms will be induced to step in with competitive offerings to meet this need.

5. TECHNICAL ASSISTANCE - ADVOCATE & EDUCATE

This project will provide two (2) types of outreach or technical support services. There is a system design, development, implementation and ongoing management component, as well as a non-technical, user and business process component to the plan. The system architecture and the implementation and management plans are designed with the assumption that a high proportion of industry and governmental users will require some level of assistance to

configure their technology if they chose to use any on-line elements. The DataLink system is intended to benefit primarily non-technical, business oriented users.

Because the introduction of any new process takes time, patience, and a willingness to adapt to specific circumstances, we have included as much flexibility as possible in the early specifications. The field "node" designs in particular are flexible so we can meet the needs of participants to interact with the system on their own terms. Each of the four nodes to be installed in year one (for example Phoenix, Tucson, Hermosillo, Edmonton) will be tailored to fit the circumstances of that particular market in terms of existing infrastructure. These markets are urban, and already relatively well served by Internet providers¹. For this reason, we may not need to install all planned hardware. We may be able to take advantage of existing investment, and more rapidly roll out the active lead/information distribution service to businesses in that region.

As the DataLink study stresses, there will also be a need for a significant missionary and education component. The private sector Internet providers will shoulder part of this burden, but first they will need to be brought in and educated as to the benefits of the DataLink concept. Libraries and other public institutions will also play a role, and should be funded to spend the time educating themselves, and preparing materials and programs to serve their constituents.

6. DESIGN COMPONENTS

The system design emphasizes an approach that will enable it to scale up significantly to support very large data repositories and very high server transfer volumes. This is most evident in the specification for the Internet access provider and the location of the network operations center (NOC). Rather than build a NOC from scratch or attempt to provide this type of service from a non-commercial computing environment, we recommend that this function be outsourced, and that DataLink hardware be "co-located" in the NOC of an existing provider that meets the required criteria.

The NOC could be located anywhere within the CANAMEX corridor that has the necessary telecommunications infrastructure. Realistically, the best choices would be areas that have a significant concentration of lower cost, high speed telecommunications lines and existing NOCs that meet this specification. This limits the field to (probably) Phoenix, Seattle, Las Vegas, or Salt Lake.

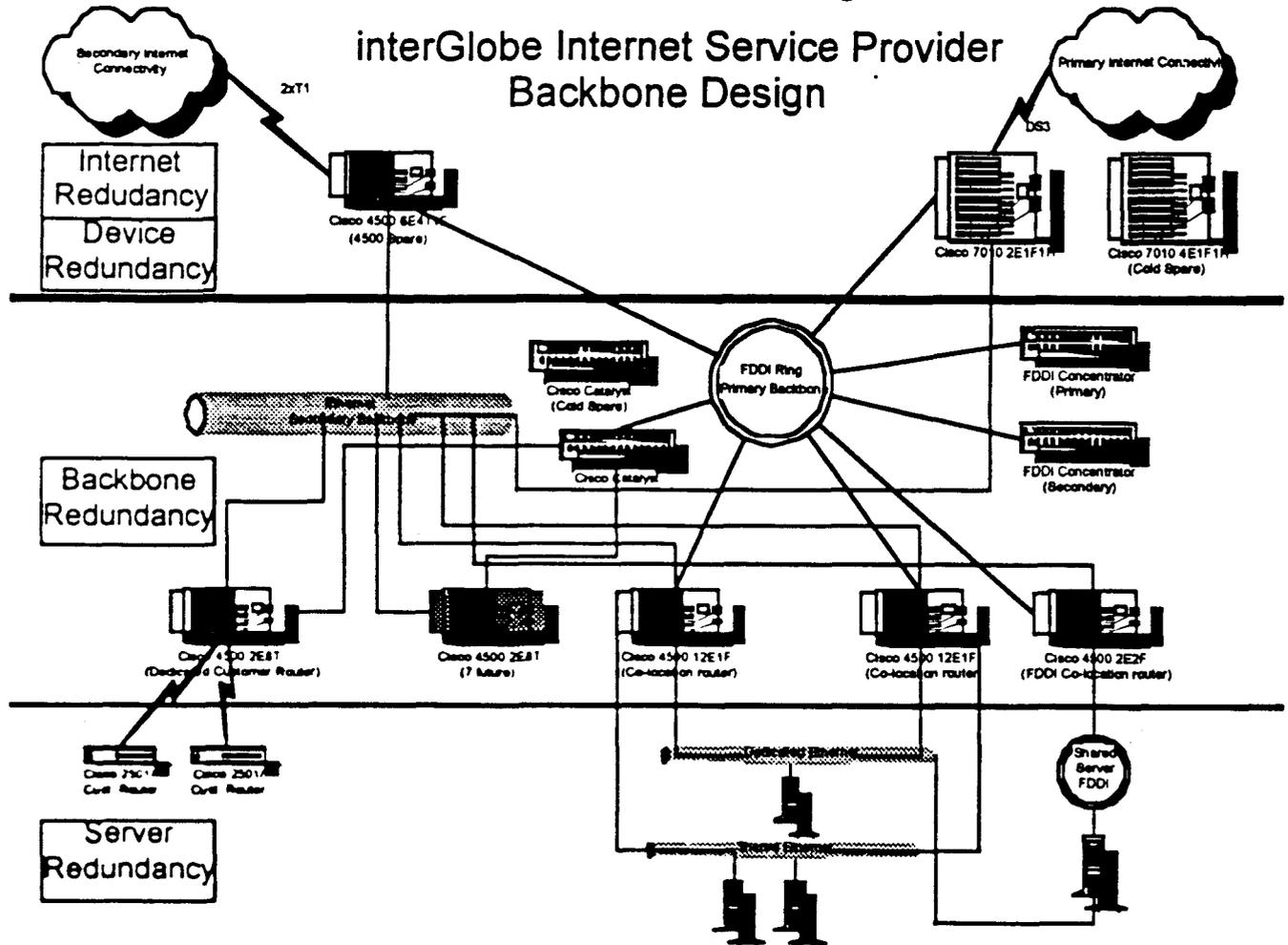
NOC must be designed as a highly reliable computing environment, and should have a demonstrated track record. It should be manned or monitored 24 hours a day, 7 days a week, and maintain an average of better than 99.5% up-time. It should be connected to the Internet via redundant DS3 or other very high speed, dedicated circuits running at 45 Megabits per second (Mbps) or better. These connections should reach the Internet through two different national providers to ensure both reliability and optimal peering at the Network Access Points (NAPs). There are not many NOCs that meet this specification in existence. The infrastructure of most of the Internet service providers in the US is barely adequate today to carry today's

¹ Sonora is expected to be served by the time this project reaches implementation.

traffic. Because of Canada's regulatory climate, few, if any, exist there. The Mexican infrastructure is only now being constructed. With systems like DataLink coming on-line, the volume of transmissions will surely increase. This design bypasses the local infrastructure bottlenecks completely, and puts the servers as close to the "real" Internet as possible.

Inside the NOC the DataLink rack mounted Internet and FAX servers will co-reside with equipment from contractor and other firms desiring this level of access. It will be connected to very high speed routers that are in turn connected to a 100 Mbps Fiber Distributed Data Interface (FDDI) ring. (The DS3 routers are CISCO 7000 devices.) The attached schematic is an example of the proposed configuration.

6.1 Recommended Internet Service Provider Backbone Design



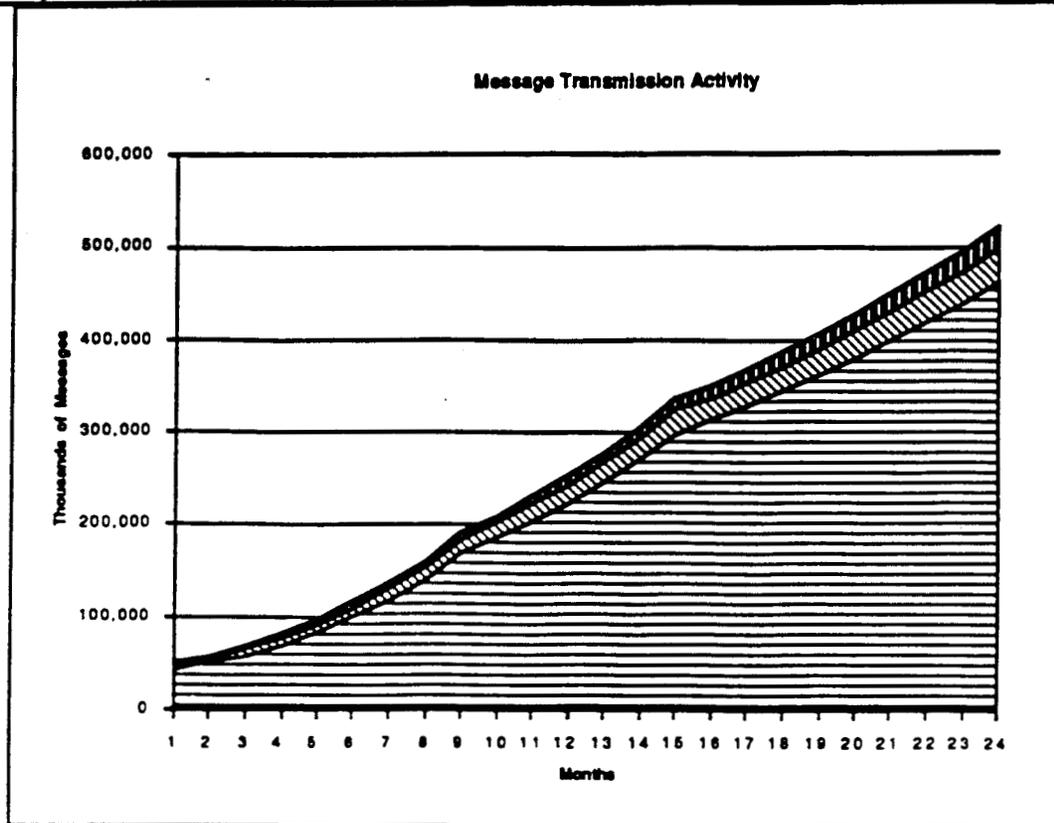
6.2 Hardware

The servers themselves must be equally hardy. Current specifications call for using 64-bit processor based workstations as the servers because of their price/performance advantage as database and Internet servers. Existing 64-bit systems are superior for transaction processing, and represent the best technology available today. Finely tuned 64-bit devices have achieved a

billion instructions per second (BIPS). These are significant technical achievements, but we selected the 64-bit architecture because of its data transfer rate and reliability as database servers - not because of their raw computing power. Along with the 64-bit processing capability of the chips themselves, we also gain a computing architecture that is designed to move data in and out of the computer at very high speeds. This capability will serve us well as the numbers of business users we serve goes up, and "hits" on the servers increase. Looking to the near future, investing in anything less will make no sense. The hardware cost is slightly higher than racks of lower cost PC's, but the operating systems are more robust, and the investment in application and server software will be better preserved. At this time UNIX is the preferred operating system environment because it has been tested in these kinds of environments, and is proven. In particular, UNIX is the only operating system with a history of supporting all aspects of Internet connectivity and server software deployment. To reduce the level of debate, we will point to Microsoft itself who (at the time this report is being written) is running its own e-mail system and list servers on UNIX systems, not Windows NT.

Our Fax server design takes a distributed approach. Here we have chosen to use multiple Intel processors, possibly running Windows NT. Geographically distributed² Fax servers receive a batch feed from the database server, and can manage up to 16 analog ports on multiple voice and fax cards. The Fax cards will handle outbound faxes, and the voice cards will handle incoming voice processing calls that trigger outbound faxes or that interact with the database system. A system at Microsoft that processes over 140,000 fax pages per month is identical to this design, except that it has more fax and voice cards installed in it than our initial configuration. We project a total of between 400,000 and 550,000 messages per month by the end of year two (see following chart)

² Servers are geographically distributed based on estimates of the cost trade-offs between long distance calls and the capital cost of a fax server and its network connection. See Remote-Printing.



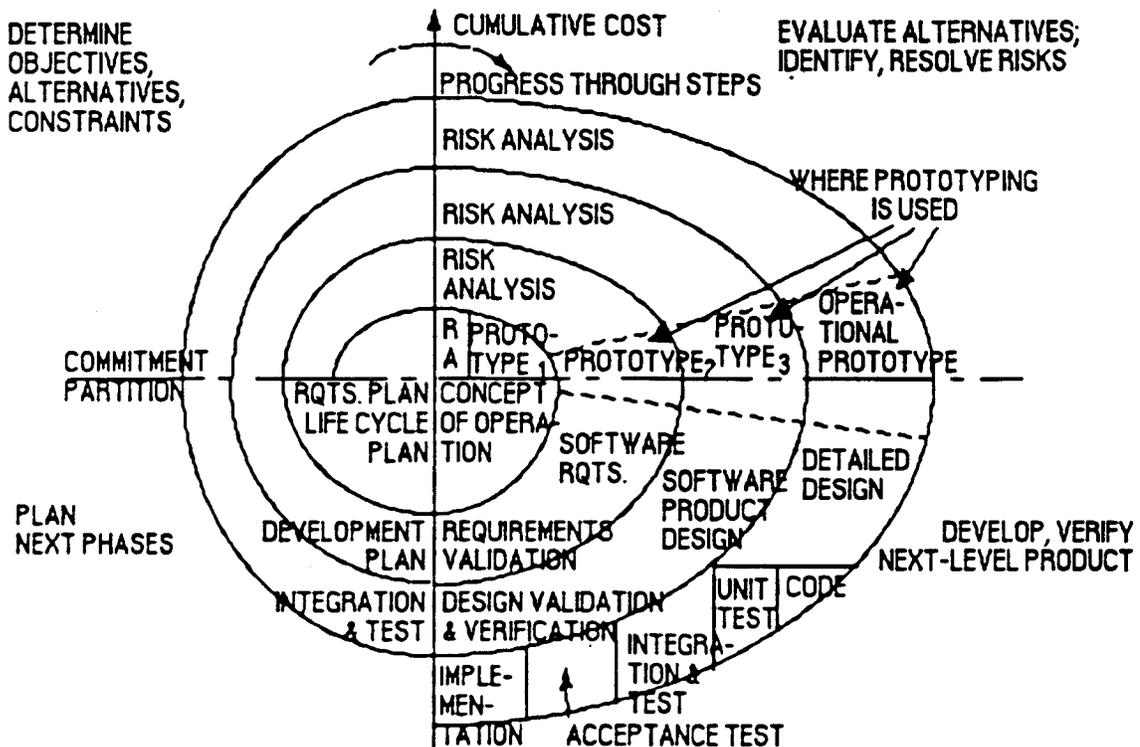
The processing engine of the advanced DataLink system could be an extension of the working prototype currently in existence. The proposed approach builds on the present system in two steps. The current system is bound by the limitations of its database and processor architecture, but it is quite adequate for its current task of serving the needs of the agencies submitting leads and volume of matches and transmissions generated by the 50,000 records in the existing database. It should be noted that the mix of messages being transmitted will shift over time from predominantly fax to predominantly e-mail as more businesses shift from one technology to the other.

6.3 Database & Other Applications

The production implementation of the CANAMEX system will require a much larger database in terms of records, and a much richer database in terms of the amount of data relating to each record. We have evaluated two approaches to meeting our needs. One is a conventional relational architecture relying on a robust client server platform such as Oracle. The second, and currently the leading candidate subject to verification of prototype results, makes use of a hybrid relational/object-oriented database. This approach appears to be superior in that it allows us to create and manage far more complex relationships between object classes such as companies, government agencies, people, products, and the attributes of all these. This rich mix will enable us to rapidly develop enhancements to the basic applications. The key advantage of an object-oriented database is its ability to represent complex business relationships, and to allow future extensions of the db model without obsoleting existing data.

The architecture must be able to support ad hoc "what if" scenarios developed by users based on their own criteria. Users must be able to search the database for leads or other information about products and services, respond to questionnaires by return fax or voice processing in addition to e-mail, and generally make more effective use of the system. In preparing responses to the Phase II RFP, bidders should address both database approaches and specify how they would implement both. Additionally they should enumerate their vision of the pros and cons to each approach.

We recommend the use of a spiral, iterative development process to quickly get a working system up and running. The spiral model begins at the center of the spiral and proceeds out. At this point we have completed a feasibility study of the proposed system, and we have a



prototype in production that is delivering leads and partner announcements to the 50,000 businesses in the database. The project proposed here will take DataLink to version 2.0. At each cycle of the process there should be considerable user involvement. Under this approach users, "domain experts", analysts and developers work closely together, and both users and domain experts are able to offer significant feedback before the project is done. Because we will actually implement prototypes to try them out, businesses will see their WWW pages, DataLink partners will use the "narrowcast" fax and e-mail services, and the system will deliver leads. Non-e-mail users will receive e-mail messages in the form of faxes, etc. This real world test of the capabilities of the system will be going on while the more complex applications are under development, and being integrated into the system.

Bidders should pay particular attention to data modeling and object analysis. Key deliverables should include complete data and object models that the steering committee can review for

completeness, and use in the future to extend the system.

While the heart of the DataLink system is the database, the arms and legs are the Fax and voice tools that will allow active communication with non-on-line users. We recognize, however, that on-line interaction is the direction the world is heading in, so the DataLink system includes a full complement of "passive" information storage, searching, and display tools such as a commerce grade world wide web (WWW) server capable of handling secure financial transactions and encryption, WAIS (Z39.50), FTP, and mail servers including interactive list servers. As a complement to the active fax communication, we also have included the requirement for a robust mailing list server that will enable us to set up both mail reflectors and e-mail-on-demand systems. Specialized database applications will be able to generate WWW pages automatically in some cases based on user requests. Other applications and tools will enable us to create basic WWW pages for all 200,000+ businesses in the database. Each of these simple, primarily text based pages will contain e-mail links so that potential customers browsing the pages can immediately make contact with the company if desired, and the basic system will also include a simple searching engine. Because not all firms have e-mail accounts, we propose that a distributed network of remote-printer servers be established to ensure that businesses can receive messages that will be delivered either directly through e-mail, or by conversion to a fax, or - as a last resort - by transmission to the nearest partner office for mail delivery. The database records on each business must be maintained to show how the business desires to receive communications and at what frequency.

The following table depicts the list of technologies included in the DataLink system, and a listing of features determined to be necessary for it to meet the needs of its public and private sector customers in actively reaching their customer base.

Technology	Features/Requirements
U.S. Mail	Virtual Images (Transparency)
Fax In/Out	"Best Way" Interaction
Fax On Demand	Ubiquitous Interface
Remote Printing	Robust Architecture
Voice Response	Extensible Services
Predictive Dialing	Phased by Partner
X.12/EDIFACT EDI	Flexible
e-mail	Secure
List Servers	Portable
WWW	Interoperable
Gopher	Standards
ftp	
WAIS (Z39.50)	
Other	

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6.4 Best Way

"Best Way" is adapted from the shipping industry. It is the short-hand used on bills-of-lading to indicate to the shipper that they should use good judgment in delivering products to a customer and deliver them in the way the customer wants, when the customer wants them, where the customer wants them, and for a price the customer wants to pay. This flexibility and customer orientation is exactly what we have designed here. The database system includes a customer profile that will allow customers to specify how they would like to receive information, as well as where, and when. Depending on the customer's preferences, he can receive leads via fax or e-mail, and can respond via fax, touch tone telephone, or e-mail. All of these interactions are automated. If the customer wants to talk to a person, that option is available as well. With this approach, small non-computerized offices will have the same timely access to information as those "surfing the net".

At the nodes we have designed for flexibility and guided choice. Some regions are already well served by telephone companies, and Internet providers are rapidly moving in. Some urban and rural communities are still not served however, so we have specified equipment and software configurations, and network arrangements to assist these communities with

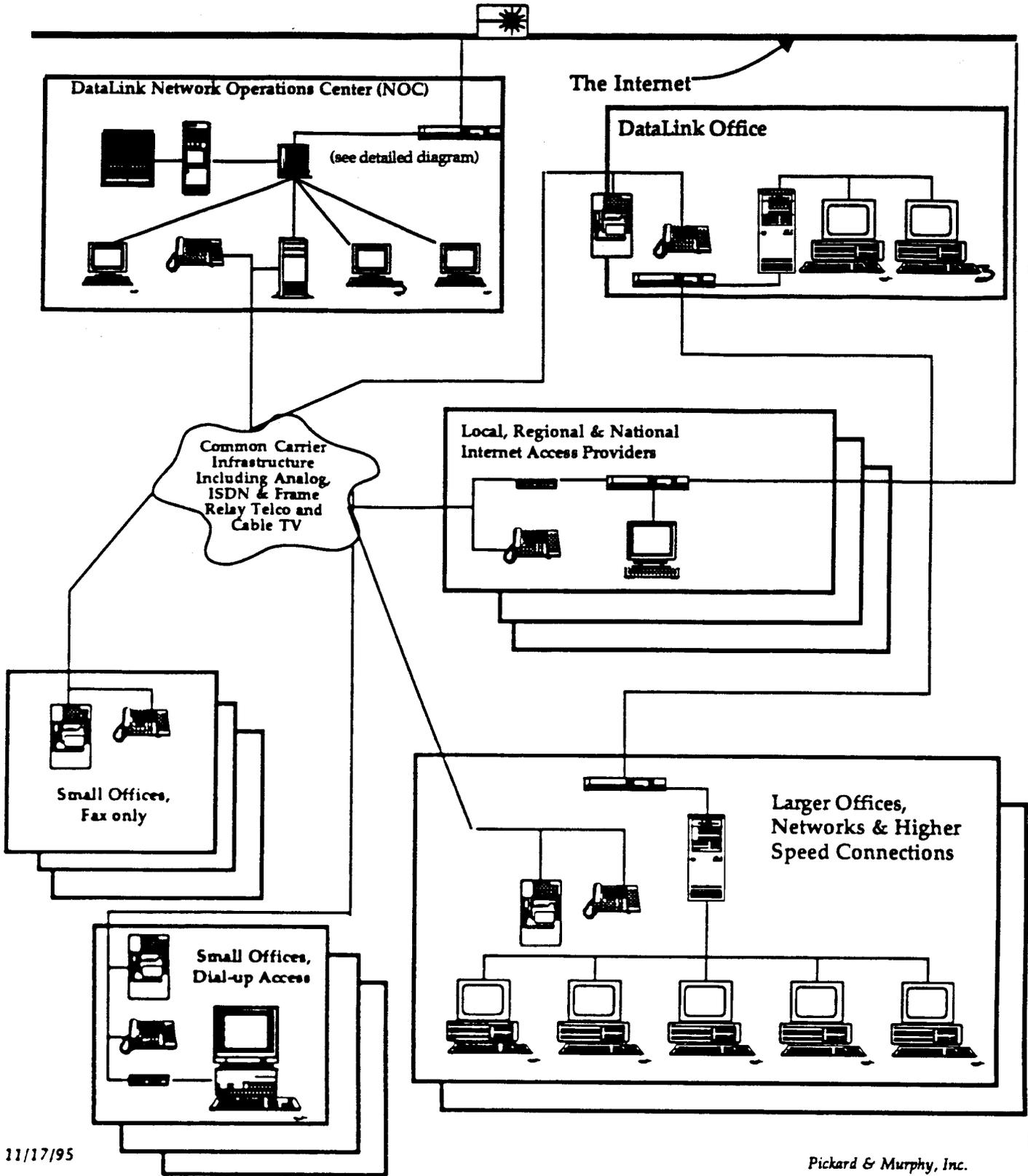
meeting the needs of their businesses customers. We have also identified the requirement for Technical Assistance partners such as WLN, other libraries, and private sector firms who are prepared to work with DataLink to provide service to areas where there are a critical mass of businesses willing to pay for the costs of setting up a shared communication line.

The active communication aspect of our approach is enhanced by an Internet-to-fax capability in these outlying territories. By locating "Remote-Printing" servers in urban centers first, and more rural areas later, we can significantly reduce the cost of fax transmissions. The remote fax server receives e-mail messages sent over the Internet from a broadcast e-mail server, and converts these e-mail messages to faxes that are delivered through the local telephone infrastructure at relatively low cost when compared with the cost of fax transmissions from Seattle to, say Spokane or Boise. In addition, once established, these servers can deliver properly addressed e-mail messages from anywhere in the world to businesses that do not have e-mail. Foreign buyers searching the DataLink database and locating a product or service they like can simply click on an e-mail button and send a fax to a business within the zone served by the remote-printers. Similarly, public and private sector individuals interested in rapidly contacting clients or constituents can use e-mail for nearly all their communication. This speeds delivery of the messages and saves the sender a considerable amount of money.

We believe that the Internet providers serving the Corridor will embrace the notion of providing these servers because their cost will be more than recovered by the advertising value of sending a message to businesses in their areas who are NOT YET using the Internet. The providers will be handed a list of prospects in their areas each day based on the traffic on their remote-printer servers. Providing a brief message on the bottom of the cover page for each fax that informs the recipient that they just received an e-mail as a fax courtesy of [provider name], and providing a fax back number for receiving information on the Internet services of the provider should serve as a powerful incentive to providers to install such systems. For planning purposes, we have included some subsidy budget to jump start the process of installing these servers, but it is our expectation that this seed money will cause a rapid introduction of remote-printers throughout the region. This "pump-priming" process will accelerate the conversion of businesses from fax to e-mail and other on-line services, making it a worthwhile investment of public resources.

The detailed cost of ownership model accompanying to this narrative is the basis of our budget figures, and a key part of the design process. The assumptions underlying much of the model are explicitly stated and drive the transaction based parts of the budget. The budget is constructed to correspond to the DataLink Business Information System diagram in the following figure. There are sections for the NOC, the DataLink office, and remote-printer servers in up to 10 remote offices. The budget also includes details pertaining to the development of the applications that run on the server. As the diagram shows, the target audience, ranging from small, unsophisticated business people up to large networked offices with dedicated Internet connections are all served by the DataLink system.

DataLink Business Information System



11/17/95

Pickard & Murphy, Inc.

Current System

Passive/labor intensive

Low volume

Lead evangelism

Ad hoc marketing

Lead generation: provider does it, non standardized

Lead transmittal: paper mail, fax, etc.

Manual lead receipt

Manual lead processing (basic)

Initial lead delivery by fax

Based on non-optimal lead matching algorithms

Response receipt, fax, call, etc.

Lead processing (advanced) is still manual

Secondary lead delivery by fax

Interim Processes

Short term revisions

Semi passive/labor intensive

Low volume/stress testing

Budgeted marketing

Evangelize & educate

Fax plus basic e-mail

Future Process

Robust system

Enhanced capacity

Active/capital intensive

High volume/scaled up

Professional programs

Better lead matching taxonomy and algorithms

Standards based tools plus same

As automated as possible

Process fully & catalog

"Best way" delivery

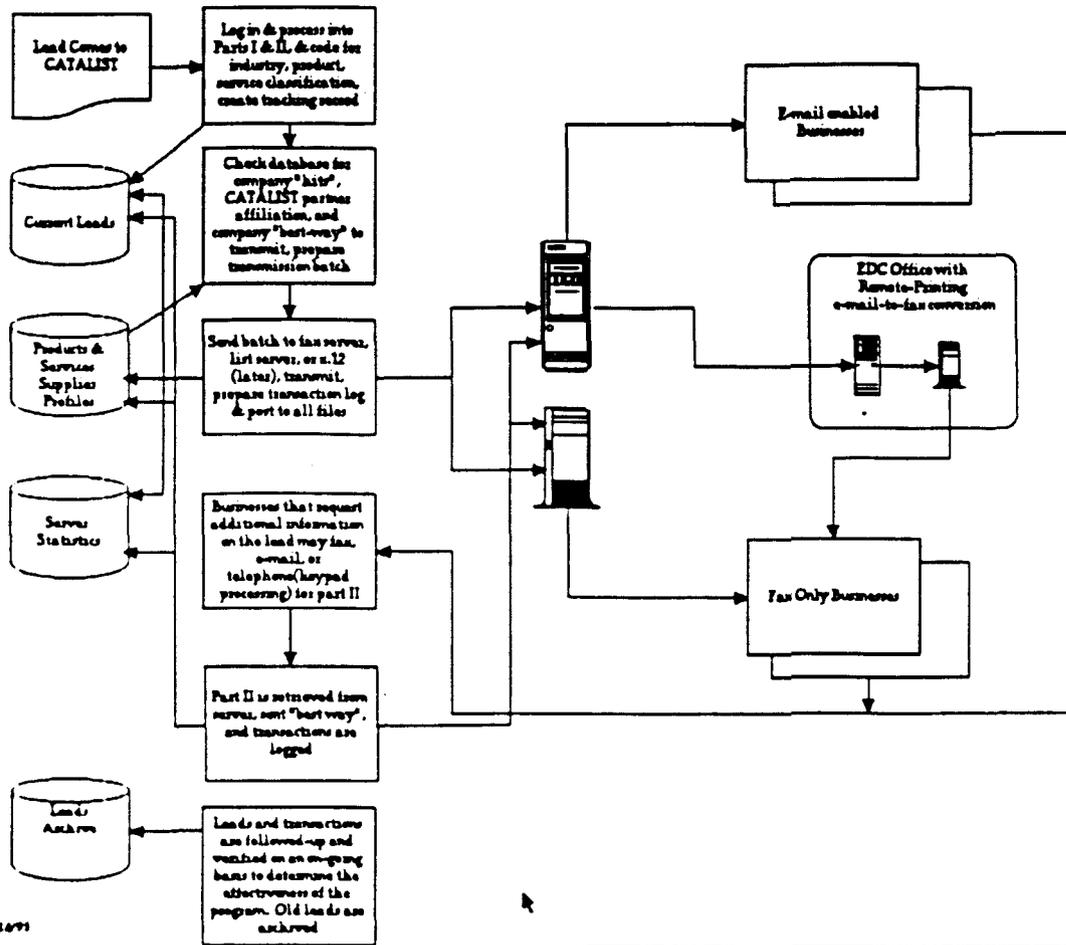
Flexible

Processed fully & cataloged already

User configurable

APPENDIX A - ACTIVE COMMUNICATION PROCESS DIAGRAM

Active Communication Process



01699

Pickard & Murphy, Inc.

APPENDIX B - COST OF OWNERSHIP MODEL

See [ftp.halcyon.com/local/pickard/CANAMEX/COSTMDL.XLS](ftp://halcyon.com/local/pickard/CANAMEX/COSTMDL.XLS)

CANAMCA/Datalink Cost of Ownership Model

Line No.	Item Description	Initial Capital	Year 1 Capital	Year 1 Operating	Total Year 1	Year 2 Capital	Year 2 Operating	Total Year 2	Total 2 Year Operating Cost	Total 2 Year Capital Cost	Total Capital & Operating Costs	Arizona Fanding	Other Government Fanding	Other Sources of Fanding
26	Revenue & Contributions													
27	Subscription Revenue			270,862	270,862		699,108	699,108	969,969		969,969			969,969
28	On-Demand Fees			243,776	243,776		629,197	629,197	872,973		872,973			872,973
29	Broadcast Fax			28,339	28,339		71,363	71,363	99,702	0	99,702			99,702
30	Subsidies and Other Revenues			100,000	100,000		150,000	150,000	250,000	0	250,000			250,000
35	Total	0	0	642,976	642,976	0	1,549,668	1,549,668	2,192,644	0	2,192,644	0	2,192,644	2,192,644
36	Operating Budget													
37	Equipment													
38	Network Operations Center (NOC)													
39	Server Hardware 1	20,000			20,000			0	0	20,000	20,000			20,000
40	Server Hardware 2				0	35,000		35,000	0	35,000	35,000			35,000
41	CSU/DSU & Router	3,500			3,500	3,500		3,500	0	7,000	7,000			7,000
42	RAID Disk Array		15,000		15,000			0	0	15,000	15,000			15,000
43	Printer	800			800			0	0	800	800			800
44	Racks, cabling, small tools, misc.	2,000	1,500		3,500	3,000		3,000	0	6,500	6,500			6,500
45	Total NOC HW	26,300	16,500	0	42,800	41,500	0	41,500	0	84,300	84,300	0	0	84,300
46	Fax & Voice Systems													
47	Rack Mount PCs	8,000			8,000	8,000		8,000	0	16,000	16,000			16,000
48	Voice Cards	3,000			3,000	3,000		3,000	0	6,000	6,000			6,000
49	Fax Cards	1,500			1,500	1,500		1,500	0	3,000	3,000			3,000
50	Total Fax HW	12,500	0	0	12,500	12,500	0	12,500	0	25,000	25,000	0	0	25,000
51	Node HW													
52	Servers	10,000	30,000		40,000	60,000		60,000	0	100,000	100,000	20,000	0	80,000
53														0
54														0
55	Fax Server & hw	10,000	30,000		40,000	60,000		60,000	0	100,000	100,000	20,000	33,333	46,667
56	CSU/DSU & Router	3,500	10,500		14,000	21,000		21,000	0	35,000	35,000	7,000	11,667	16,333
57	Node LAN	2,000	6,000		8,000	12,000		12,000	0	20,000	20,000	4,000	6,667	9,333
58	Total Node HW	25,500	76,500	0	102,000	153,000	0	153,000	0	255,000	255,000	51,000	51,666	152,334
59														
60	Office													
61	Network upgrade	2,000			2,000			0	0	2,000	2,000			2,000

CANAMEX/Datalink Cost of Ownership Model

Line No.	Item Description	Initial Capital	Year 1 Capital	Year 1 Operating	Total Year 1	Year 2 Capital	Year 2 Operating	Total Year 2	Total 2 Year Operating Cost	Total 2 Year Capital Cost	Total Capital & Operating Costs	Arizona Funding	Other Government Funding	Other Sources of Funding
62	Internet gateway server	10,000			10,000	3,000		3,000	0	13,000	13,000			13,000
63	PC Workstations	8,000	8,000		16,000	0		0	0	16,000	16,000			16,000
64	Overhead Projection		2,000		2,000	0		0	0	2,000	2,000			2,000
65	Other	10,000			10,000	5,000		5,000	0	15,000	15,000			15,000
66	Printer		800		800	0		0	0	800	800			800
67	Total Office HW	30,000	10,800	0	40,800	8,000	0	8,000	0	48,800	48,800	0	0	48,800
68														
69	Total Equipment	94,300	103,800	0	198,100	215,000	0	215,000	0	413,100	413,100	51,000	51,666	310,434
70	Supplies & Software													
71	Software Acquired													
72	NOC SW													
73	DBMS	35,000	5,000		40,000	35,000		35,000	0	75,000	75,000			75,000
74	Internet Server SW	35,000	25,000		60,000	0		0	0	60,000	60,000			60,000
75	Other Server Software													
76	Total NOC SW	70,000	30,000	0	100,000	70,000	0	70,000	0	170,000	170,000	0	0	170,000
77	FAX SW													
78	Voice SW	2,680			2,680	2,680		2,680	0	5,360	5,360			5,360
79	Fax SW	2,680			2,680	2,680		2,680	0	5,360	5,360			5,360
80	DID Processing	4,000			4,000	0		0	0	4,000	4,000			4,000
81	Database API	2,500			2,500	0		0	0	2,500	2,500			2,500
82	Fax Server/Fax Gateway	4,000			4,000	0		0	0	4,000	4,000			4,000
83	Total FAX SW	15,860	0	0	15,860	5,360	0	5,360	0	21,220	21,220	0	0	21,220
84	Node SW													
85	Node Fax server sw	1,340	4,020		5,360	8,040		8,040	0	13,400	13,400	2,680	2,677	8,043
86	Remote-Printer SW	800	2,400		3,200	4,800		4,800	0	8,000	8,000	1,600	1,598	4,802
87	Fax Gateway	4,000	12,000		16,000	24,000		24,000	0	40,000	40,000	8,000	7,992	24,008
88	Total Node SW	6,140	18,420	0	24,560	36,840	0	36,840	0	61,400	61,400	12,280	12,268	36,852
89	Office SW													
90	Office Server SW	1,500			1,500	0		0	0	1,500	1,500			1,500
91	Total Office SW	1,500	0	0	1,500	0	0	0	0	1,500	1,500	0	0	1,500
92	Software Maintenance			18,000	18,000	30,600		30,600	48,600	0	48,600			48,600
93	Other	10,000			10,000	5,000		5,000	0	15,000	15,000			15,000
94	Printer Paper			500	500	750		750	1,250	0	1,250			1,250
95	Total Other	10,000	0	18,500	28,500	5,000	31,350	36,350	49,850	15,000	64,850	0	0	64,850
96	Total Supplies & Software	103,500	48,420	18,500	170,420	117,200	31,350	148,550	49,850	269,120	318,970	12,280	12,268	294,422

CANAMELX/DataLink Cost of Ownership Model

Line No.	Item Description	Initial Capital	Year 1 Capital	Year 1 Operating	Total Year 1	Year 2 Capital	Year 2 Operating	Total Year 2	Total 2 Year Operating Cost	Total 2 Year Capital Cost	Total Capital & Operating Costs	Arizona Funding	Other Government Funding	Other Sources of Funding
97														
98	Contractual													
99	Development													
100	Project Management	20,000	55,000		75,000			0	0	75,000	75,000			75,000
101	Analysis & Design		25,000		25,000	15,000		15,000	0	40,000	40,000			40,000
102	System Development		50,000		50,000	25,000		25,000	0	75,000	75,000			75,000
103	DataLink Home pages	3,500			9,500			6,000	12,000	3,500	15,500			15,500
104	Voice Response System		6,000		6,000			0	0	6,000	6,000			6,000
105	Partner Home pages	0		6,000	6,000			6,000	12,000	0	12,000			12,000
106	Product/service catalog database		10,000		10,000			0	0	10,000	10,000			10,000
107	Taxonomy & classification process improvement		15,000		15,000			0	0	15,000	15,000			15,000
108	Automated VISA or billing system	18,000			18,000			0	0	18,000	18,000			18,000
109	Total Development	41,500	161,000	12,000	214,500	40,000	12,000	52,000	24,000	242,500	266,500	0	0	266,500
110	Integration													
111	NOC System Integration		20,000	18,000	38,000			18,000	36,000	20,000	56,000			56,000
112	Fax Integration	15,000			15,000			0	0	15,000	15,000			15,000
113	Voice Integration	15,000			15,000	15,000		15,000	0	30,000	30,000			30,000
114	Fox Pro conversion		1,000		1,000			0	0	1,000	1,000			1,000
115	List Server Integration		3,500		3,500			0	0	3,500	3,500			3,500
116	Integration to office accounting systems & office database	3,500			3,500			0	0	3,500	3,500			3,500
117	Office database system upgrade & integration to e-mail, etc.		5,000		5,000	10,000		10,000	0	15,000	15,000			15,000
118	Node Configuration	400	1,200		1,600	2,400		2,400	0	4,000	4,000	800	800	2,400
119	Field Installation	400	1,200		1,600	2,400		2,400	0	4,000	4,000	800	800	2,400
120	Total Integration	34,300	31,900	18,000	84,200	29,800	18,000	47,800	36,000	96,000	132,000	1,600	1,600	128,800
121	Maintenance & Operations													
122	Fax maint		0	5,000	5,000			5,000	5,000	0	5,000			5,000
123	NOC HW Maint		7,704	7,704	15,174			15,174	22,878	0	22,878			22,878
124	Maintenance - Office		1,200	1,200	2,400			0	1,200	0	1,200			1,200
125	Maintenance - Field		3,600	3,600	7,200			7,200	10,800	0	10,800	1,800	2,400	6,600
126	NOC Operations		18,000	18,000	36,000			24,000	42,000	0	42,000			42,000

CANAMLX/DataLink Cost of Ownership Model

Line No.	Item Description	Initial Capital	Year 1 Operating	Year 1 Total	Year 2 Operating	Year 2 Total	Total 2 Year Operating Cost	Total 2 Year Capital Cost	Total 2 Year & Operating Costs	Arizona Government Funding	Other Government Funding	Other Sources of Funding	
127	Total Maint & Ops	0	0	30,504	51,374	51,374	81,878	0	81,878	1,800	2,400	77,678	
128	Technical Assistance	0	0	0	0	0	0	0	0	0	0	0	
129	Training & Education	0	0	100,000	100,000	100,000	200,000	0	200,000	83,333	33,333	83,334	
130	Miscellaneous Amd	0	0	100,000	100,000	100,000	200,000	0	200,000	83,333	33,333	83,334	
131	Total Tech Amd & Advocacy	0	0	100,000	100,000	100,000	200,000	0	200,000	83,333	33,333	83,334	
132	Other	0	0	0	0	0	0	0	0	0	0	0	
133	Other	0	0	0	0	0	0	0	0	0	0	0	
134	Total Other	0	0	0	0	0	0	0	0	0	0	0	
135	Total Contractual	75,800	192,900	160,504	429,204	181,374	251,174	341,878	338,500	680,378	86,733	37,333	556,312
137	Other	0	0	0	0	0	0	0	0	0	0	0	
138	Office Internet Phone	230	1,800	2,030	1,800	1,800	3,600	230	3,830	0	0	3,830	
139	Office Internet Connection Charges	500	2,700	3,200	2,700	2,700	5,400	500	5,900	0	0	5,900	
140	Office Business Telephone	0	2,400	2,400	3,600	3,600	6,000	0	6,000	0	0	6,000	
141	Telephone lines	0	4,320	4,320	12,960	12,960	17,280	0	17,280	0	0	17,280	
142	800 Telephone lines	0	39,572	39,572	100,240	100,240	139,812	0	139,812	0	0	139,812	
143	Fax Transmission Charges	0	144,834	144,834	420,043	420,043	564,876	0	564,876	0	0	564,876	
144	Total Phone & Telcomm Charges	730	195,626	196,356	541,343	541,343	736,969	730	737,699	0	0	737,699	
145	Office space	0	3,200	3,200	4,800	4,800	8,000	0	8,000	0	0	8,000	
146	Furniture Lease	0	3,000	3,000	4,000	4,000	7,000	0	7,000	0	0	7,000	
147	Shrink wrapped SW	0	5,000	5,000	0	0	5,000	0	5,000	0	0	5,000	
148	Books & periodicals	0	300	300	300	300	600	0	600	0	0	600	
149	VISA charges	0	22,504	22,504	54,238	54,238	76,743	0	76,743	0	0	76,743	
150	Total Other	730	0	229,630	604,681	604,681	834,311	730	835,041	0	0	835,041	
151	Total	274,330	345,120	408,634	1,028,084	402,000	817,405	1,226,039	1,021,450	2,247,489	150,013	101,266	1,996,210
A. Personnel		0	183,500	183,500	216,000	216,000	399,500	0	399,500	0	0	399,500	
B. Benefits		0	38,535	38,535	45,360	45,360	83,895	0	83,895	0	0	83,895	
C. Marketing		0	96,446	96,446	154,967	154,967	251,413	0	251,413	0	0	251,413	
D. Equipment Acquisition (see List)		94,300	103,800	0	198,100	215,000	215,000	0	413,100	51,000	51,666	310,434	
Total		94,300	103,800	0	198,100	215,000	215,000	0	413,100	51,000	51,666	310,434	

CANAMELX/Datalink Cost of Ownership Model

Line No.	Item Description	Initial Capital	Year 1 Capital	Year 1 Operating	Total Year 1	Year 2 Capital	Year 2 Operating	Total Year 2	Total 2 Year Operating Cost	Total 2 Year Capital Cost	Total Capital & Operating Costs	Arizona Funding	Other Government Funding	Other Sources of Funding
E. Supplies & Software														
76	Total NOC SW	70,000	30,000	0	100,000	70,000	0	70,000	0	170,000	170,000	0	0	170,000
83	Total FAX SW	15,860	0	0	15,860	5,360	0	5,360	0	21,220	21,220	0	0	21,220
88	Total Node SW	6,140	18,420	0	24,560	36,840	0	36,840	0	61,400	61,400	12,280	12,268	36,852
91	Total Office SW	1,500	0	0	1,500	0	0	0	0	1,500	1,500	0	0	1,500
95	Total Other	10,000	0	18,500	28,500	5,000	31,350	36,350	49,850	15,000	64,850	0	0	64,850
96	Total	100,500	48,420	18,500	170,420	117,200	31,350	148,550	49,850	269,120	318,970	12,280	12,268	294,422
F. Contractual														
109	Total Development	41,500	161,000	12,000	214,500	40,000	12,000	52,000	24,000	242,500	266,500	0	0	266,500
120	Total Integration	34,300	31,900	18,000	84,200	29,800	18,000	47,800	36,000	96,000	132,000	1,600	1,600	128,800
127	Total Maint & Ops	0	0	30,504	30,504	0	51,374	51,374	81,878	0	81,878	1,800	2,400	77,678
131	Total Tech Asst	0	0	100,000	100,000	0	100,000	100,000	200,000	0	200,000	83,333	33,333	83,334
134	Total Other	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Total	75,800	192,900	160,504	429,204	69,800	181,374	251,174	341,878	338,500	680,378	86,733	37,333	556,312
G. Other														
144	Total Phone & Telcomm Charges	730	0	195,626	196,356	0	541,343	541,343	736,969	730	737,699	0	0	737,699
	Travel	0	0	30,000	30,000	0	35,000	35,000	65,000	0	65,000	10,000	20,000	35,000
	Evaluation			15,000	15,000		15,000	15,000	30,000	0	30,000	15,000	15,000	0
	Other	0	0	34,004	34,004	0	63,338	63,338	97,343	0	97,343	987	400	95,956
	Total	730	0	274,630	275,360	0	654,681	654,681	929,311	730	930,041	25,987	35,400	868,654
Total Expenditures		274,330	345,120	772,116	1,391,566	402,000	1,283,732	1,685,732	2,055,847	1,021,450	3,077,297	176,000	136,666	2,764,631
Revenue Estimates				642,976	642,976		1,549,668	1,549,668	2,192,644		2,192,644			
Cash Flow		-274,330	-345,120	-129,139	-748,589	-402,000	265,936	-136,064	136,797	-1,021,450	-884,653			

16. GLOSSARY OF COMMONLY USED TECHNICAL TERMS

Archie Archie is a method of searching for files on an FTP server.

Client A client is a software application that resides on the personal computer or workstation of an individual user. The client performs work done by the user, often in cooperation with another application on a database server (or multiple servers). An e-mail client is a good example of this. The e-mail client helps the user compose, send, retrieve, read, and file mail. It communicates with a mail server over a network to manage mail.

Client/Server Software A hardware and software architecture in which the server resides on a host computer and provides services to clients making requests from their local computing environment.

Domain Name An alphabetic unique name for a computer on a network.

FAQ A list of frequently asked questions and answers. USENET newsgroups often maintain a FAQ so that list recipients do not have to answer the same questions time and time again on the list. (Pronounced fak.)

File transfer protocol (FTP) FTP is the acronym for file transfer protocol. FTP was developed by Sun Microsystems, and is the dominant method for transferring files. One FTP client is called "Fetch."

Gopher Gopher is a file organization, viewing and transfer system developed at the University of Wisconsin. It makes use of folders, allows users to view documents in the folders, and allows the documents to be transferred to other computers via FTP.

Hypertext Markup Language (HTML) HTML is a "mark-up" language based in part on the text only SGML or "standard generalized mark-up language". HTML acts on plain ASCII text. A properly configured "browser" like Netscape or Mosaic can read the mark-up "tags" on the text and display the information in the way the author intended it to be seen. It is particularly useful for compound documents because it can notify the browser to open "helper" applications that can display pictures, play

movies or sound, change font sizes, etc. It can also call documents on remote servers and display them as if they were part of another document. Standard HTML commands are triggered by users who click on highlighted text. These commands can call other documents on remote servers, thus enabling users to drill down to greater levels of detail, or jump to other topics.

Hypertext Transport Protocol (HTTP) HTTP is the protocol designed to carry HTML commands on the World Wide Web. se

Legacy System A "legacy" system can be loosely defined as an old system built with old technology. Legacy systems are usually large, mainframe based systems that have been developed over a long period of time. They are generally "critical" to the mission of the enterprise that uses them, and are complex. The cost of simply replacing the legacy system is usually significant, and thus business managers hold off on doing so until the negatives associated with using the old system greatly outweigh the costs of developing a new system. Usually, legacy systems are replaced with "client-server" systems that make use of more modern PC and workstation technology, rapid application development tools, networks, etc.

List Server A List Server is an automated mailer. When a list server receives an incoming message, it immediately forwards the message to a list of recipients. Most list servers are set up to allow users to "subscribe" (sign up to receive mailings) or "unsubscribe" by sending messages to a management address on the server. Users can also request that they receive a digest of the servers messages. This command causes the server to collect messages for a 24 hour period (for example) and then forward them to the subscribers as one long message.

Mosaic Mosaic is a "browser" used on the World Wide Web. It enables users to call up and view HTML documents, and it also acts as a Gopher, Telnet, or WAIS client.

Netscape Navigator Netscape is a "browser" used on the World Wide Web. It enables users to call up and view HTML documents, and it also acts as a Gopher, Telnet, or WAIS client. Netscape, the company that makes

Navigator, recently went public at a tremendous valuation.

Point-to-point protocol (PPP) PPP is a protocol that allows a PC or other small computer to establish a dynamic TCP/IP link with a host computer over a dial-up line.

Serial Line Internet Protocol (SLIP) SLIP is a protocol that allows a PC or other small computer to establish a static TCP/IP link with a host computer over a dial-up line.

Telnet Telnet is a method of logging into a remote computer and establishing a terminal host session. It was originally developed by IBM.

TCP/IP Transmission Control Protocol/Internet Protocol (TCP/IP) is the dominant protocol in use on the Internet.

Uniform Resource Locator (URL) A URL is a standard definition for a location on the Internet. URL's are described generally as follows: <server type or command set>://<location>. An example is: <http://www.wsa.com>. This translates into "this is a hypertext protocol based address at The Washington Software Association's World Wide Web server.

USENET USENET is a network that has developed in parallel with the Internet, but is linked to it. Most users access USENET via Internet links. It is used to connect USENET hosts that function like bulletin boards or forums for discussions on topics. A USENET newsgroup is organized as a hierarchical listing of topics, with messages stored under the topics. There are over 7,000 USENET newsgroups currently in existence.

Veronica Veronica is a method of searching for files on a Gopher server.

World Wide Web (WWW). The WWW is a network designed by researcher at a nuclear research institute in Switzerland (CERN) to enable them to share their results more effectively. The WWW is based on HTTP and HTML documents. By using HTML researchers can easily create documents that link the research work of colleagues.

APPENDIX—ANALYSIS OF SPECIFIC NUMBERED RFP TASKS

Item No.	Description	Comment
1.1	General Requirements: Comprehensive analysis & deliver study	Completed, delivered to M. Emmermann
1.1.1	Develop a user interface	Recommended flexible, standards based interfaces based on user's preference
1.1.2	Recommend training manuals & procedures	Recommend readily available computer applications such as Compuserve, Internet clients such as Netscape, etc. and their manuals & procedures. On the server side, recommend outsourcing to providers. Recommend encouraging a private sector developed set of course(s) to explain the benefits of on-line commerce, etc. Possible providers might be Trade Associations working with libraries.
1.1.3	Identify and assess state, federal, and international laws affecting DataLink	In discussions with U.S. attorneys familiar with communications and intellectual property law in the U.S. and Canada, no issues were uncovered that would impede the creation of DataLink. Engaged Mexican counsel to review Mexican law, see report and Appendix. No issues there either.
1.1.4	Define network parameters	Recommend TCP/IP network and use of standards such as html, WAIS Z39.50, telnet, etc. (in other words standard Internet protocols and processes). Offered a phased plan to move toward better acceptance of standards.
1.1.5	transmission infrastructure	This is taken to mean the Wide Area network. The Internet as primary carrier, but accommodate all forms so that any provider can participate, and any user can access via their own definition of best way. This could include: telephone, fax, direct dial up, commercial on-line service, or Internet.
1.1.6	Assess the existing and the design ideal or preferred infrastructure for the system	This is taken to mean the Network Operations Center (NOC) infrastructure. See discussion on high bandwidth, dual-homed (redundant), highly reliable and secure network and diagram in Appendix

- 1.1.7 end user hardware specs Recommend what ever the user wants to use. In general terms, computer hardware should purchases should recognize the need for data transfer and processing speed, large file sizes, and complex objects. This means that an ideal system would be at least a 486 based PC or Power Mac with .5 to 1 GB disk, 16 to 24 Mb memory, large format color display, CD-ROM drive. Communications links should probably be 28.8 modem or ISDN card for PPP dial-up users, or Ethernet network connections
- 1.1.8 billing See business model discussions
- 1.1.8 security, access control, confidentiality Using the Z39.50 approach the policies on server management are in the hands of individual content providers. The DataLink "broker" server would be located in the NOC described above, and successful providers will be forced by the market to provide a similar level of robust operations.
- 1.1.9 "As-is" inventory of existing databases Complete: see report and prototype WWW pages.
- 1.1.9.1 Infrastructure, transmission mode, interfaces, user platforms See report. Best content is behind commercial database providers. Access via dial up or telnet. Internet access is the future. User platforms discussed above.
- 1.1.9.2 Database platform & intelligence See report. Various. Specifics are not really relevant to those that allow remote. Some use terminal-host, some require proprietary client, some (few) require Internet & stds. based clients.
- 1.1.9.x Use Systems, talk with designers: as is inventory of databases & systems Accessed systems & searched for additional materials
- 1.1.10 Study/talk to users Done, see report
- 1.1.11 System Oversight "System" is really many components. Business model discussion addresses funding and management.
- 2 Progress reports Submitted monthly progress reports based on trips taken & progress made per proposal
- 2.4 financial options see business model
- Limits & constraints of existing systems see various appropriate sections of the report
- "To-Be" scenarios see business model
- Identification of revenue generating opportunities see business model

2.5 scope of work

see report. The "scope of work" for a subsequent project will not incorporate the entire project, only parts of it. The parts that Arizona could subcontract out are identified in the business model sections.

Prototype

Although not called for in the RFP, in addition to the above, we proposed to develop and implement a working prototype. This is complete and operational. There are DataLink WWW pages, and a proactive trade lead distribution system operating in Arizona, Sonora, Jalisco, Alberta, Washington, and B.C.

Appendix E

REFERENCE TITLE: appropriation; NAFTA datalink system

State of Arizona
House of Representatives
Forty-second Legislature
Second Regular Session
1996

HB 2150

Introduced By
Representatives Conner: McGibbon

AN ACT

PROVIDING FOR A CONTRACT TO ESTABLISH AND MAINTAIN THE NAFTA DATALINK SYSTEM;
MAKING AN APPROPRIATION.

1 Be it enacted by the Legislature of the State of Arizona:

2 Section 1. NAFTA datalink system

3 The department of commerce shall enter into a contract with a private
4 person or entity pursuant to title 41, chapter 23, Arizona Revised Statutes,
5 to establish, maintain and operate a computer network that is known as the
6 NAFTA datalink system, that will provide for the dissemination of trade leads
7 and investment information and that may link trade and investment related
8 data bases available worldwide.

9 Sec. 2. Appropriation

10 A. The sum of \$80,000 is appropriated from the state general fund to
11 the department of commerce in fiscal year 1996-1997 for the purposes provided
12 in this act.

13 B. The appropriation made pursuant to this section is exempt from the
14 provisions of section 35-190, Arizona Revised Statutes, relating to lapsing
15 of appropriations except that all monies remaining unexpended and
16 unencumbered on July 1, 1999 revert to the state general fund.

State of Arizona
House of Representatives
Forty-second Legislature
Second Regular Session
1996

HJR 2001

Introduced By
Representatives Conner: McGibbon, Richardson E

A JOINT RESOLUTION

ENCOURAGING STATE SUPPORT OF PRIVATE EFFORTS TO ESTABLISH AND MAINTAIN A COMPUTER NETWORK THAT WILL ENABLE BUSINESSES BASED IN THIS STATE TO ACCESS TRADE AND INVESTMENT RELATED INFORMATION THROUGHOUT THE CANAMEX REGION.

1 Whereas, the passage of the federal North American Free Trade Agreement
2 in 1993 created a free trade corridor connecting the United States, Canada
3 and Mexico; and

4 Whereas, the reduction and elimination of trade barriers has led to
5 increased opportunities for businesses that are based in this state to have
6 access to Canadian and Mexican markets for investments, goods and services;
7 and

8 Whereas, these businesses must have timely access to investment and
9 trade related information in order to take advantage of these new business
10 opportunities; and

11 Whereas, the legislature of this state in Laws 1994, chapter 193
12 established the Joint Committee on the NAFTA Datalink System to study the
13 feasibility of establishing a computer network to link existing investment
14 and trade related databases throughout the CANAMEX region; and

15 Whereas, the NAFTA Datalink study committee has awarded a contract for
16 consulting services to analyze the viability and design a prototype of the
17 NAFTA Datalink System.

18 Therefore,

19 Be it resolved by the Legislature of the State of Arizona:

20 1. That this state actively participate and promote private sector
21 efforts to enhance the dissemination of investment and trade leads and
22 investment and trade-related information through the NAFTA Datalink System.