

BANKING AND FINANCE

INDUSTRY ANALYSIS

INPUT

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BANKING AND FINANCE  
INDUSTRY ANALYSIS

Prepared For:  
XEROX COMPUTER SERVICES

MARCH 1979

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# BANKING AND FINANCE INDUSTRY ANALYSIS

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## I INTRODUCTION



## I INTRODUCTION

### A. PURPOSE AND SCOPE

- This study is the result of custom research for Xerox Computer Services (XCS).
- The research focused on computer services usage in the banking and finance industry.
- INPUT has:
  - Forecasted market segment sizes and growth rates for this industry.
  - Analyzed application areas in each market segment that have potential for an XCS entry into that segment.
  - Identified the primary competitors in each potential XCS market segment.
  - Identified XCS acquisition candidates within each segment.

## B. RESEARCH AND METHODOLOGY

- INPUT used published data and industry expertise to develop the forecasts, analyze computer applications and identify the competitors in each segment.
- The Company Analysis and Monitoring Program (CAMP) data base was used to identify potential acquisition candidates based on parameters provided by XCS.
- The following INPUT reports are related to this study:
  - Computer Services Markets in Correspondent Banking, March 1978.
  - Computer Services Markets in the Savings and Loan Industry, July 1977.
  - Remote Computing Services Markets For Economic and Financial Data Bases, January 1977.
  - Financial Management and Planning Services and Software Markets, February 1979.
- The forecast period is for the next five years, with all values in current dollars.

## II EXECUTIVE SUMMARY





## II EXECUTIVE SUMMARY

### A. MAJOR CONCLUSIONS

#### I. OVERALL ASSESSMENT

- Twenty percent of all computer service revenues are generated in the banking and finance industry.
- The average annual growth rate for computer services revenues is 17% in the banking and finance industry compared with 16% for all industries.
- Nearly all market segments have excellent growth rates. One-half of the segments have growth rates in excess of 20% a year.
- The delivery mode with the highest growth rate is remote computing services (RCS). The growth rate for RCS is 25% a year.

#### 2. MARKET POTENTIAL

- The banking and finance industry includes SIC codes 60, 61, 62, and 67 which contain the following businesses:
  - Commercial banks.

- Federal reserve banks.
  - Mutual savings banks.
  - Credit agencies.
  - Security and commodity brokers.
  - Holding and investment companies.
- The services offered (or delivery modes used) in the industry include:
    - Remote computing services (RCS).
    - Facilities management (FM).
    - Batch services (Batch).
    - Software products (Software).
    - Professional services.
  - A summary of the EDP expenditures for computer services in the banking and finance industry sector is shown in Exhibit II-1. The forecasted growth rates for these expenditures is shown in Exhibit II-2.
  - The largest computer services market segment is in correspondent banking, with a market potential of \$733 million. This segment is growing at an average annual growth rate (AAGR) of 16%.
  - The second largest market segment is in financial management and planning systems (FMPS), at \$222 million. This figure includes all FMPS in the banking and finance industry. The FMPS market is growing at an AAGR of 24%.

EXHIBIT II-1  
1978 EDP EXPENDITURES FOR COMPUTER SERVICES IN THE BANKING AND  
FINANCE INDUSTRY SECTOR

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	COMPUTER SERVICES EXPENDITURES \$ MILLION							
			RCS	FM	BATCH	SOFTWARE	PROFES- SIONAL SERVICES	SUB TOTAL	TOTAL	
60	COMMERICAL BANKS FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	118	152	318	97	48	733		
		TRUST	30	10	8	8	3	59		
		AUTOMATED CUSTOMER SERVICES	20	30	80	15	10	155		
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	72	0	0	10	4	86	1,033	
61	CREDIT AGENCIES	SAVINGS & LOANS	124	4	11	12	4	155		
		CREDIT UNIONS	20	5	35	10	7	77		
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	58	0	0	10	7	75	307	
		STOCK QUOTATION	80	0	0	0	8	88		
62	SECURITY AND COMMODITY BROKERS	FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	25	0	0	5	2	32		
		BACK OFFICE PROCESSING	15	25	40	12	10	102	222	
		FINANCIAL AND ECONOMIC DATA BASE	35	0	0	8	4	47		
67	HOLDING AND INVESTMENT COMPANIES	FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	20	0	0	6	3	29	76	
		TOTALS	617	226	492	193	110		1,638	

EXHIBIT II-2  
GROWTH IN EDP EXPENDITURES FOR COMPUTER SERVICES IN THE BANKING  
AND FINANCE INDUSTRY SECTOR

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	AVERAGE ANNUAL GROWTH RATES							
			RCS	FM	BATCH	SOFT-WARE	PROFES-SIONAL SERVICES	SUB TOTAL	TOTAL	
60	COMMERICAL BANKS FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	34%	17%	7%	14%	14%	16%		
		TRUST	36	20	10	15	20	28		
		AUTOMATED CUSTOMER SERVICES	20	17	10	14	14	14		
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	26	-	-	18	15	25	17	
		SAVINGS & LOANS	16	10	6	10	16	15		
61	CREDIT AGENCIES	CREDIT UNIONS	30	20	9	15	16	17		
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	26	-	-	18	15	24	18	
		STOCK QUOTATION	8	-	-	-	10	8		
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	26	-	-	18	15	24		
62	SECURITY AND COMMODITY BROKERS	BACK OFFICE PROCESSING	16	15	10	12	10	12	12	
		FINANCIAL AND ECONOMIC DATA BASE	30	-	-	12	14	26		
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	26	-	-	18	15	24	25	
67	HOLDING AND INVESTMENT COMPANIES	TOTALS	25%	17%	8%	14%	14%		17%	

- A market segment similar to FMPS in processing modes and buyer characteristics is financial and economic data bases. This market is currently only \$47 million, but is growing at an AAGR of 26%.
- The Savings and Loan and Automated Customer Services market segments are the third largest in the industry, with each being \$155 million. The AAGRs are 15% and 14% respectively.
- The RCS processing mode is the largest, accounting for nearly 38% of total 1978 computer services expenditures, or a market size of \$617 million. RCS has the highest processing mode AAGR, 25%.
- The batch processing mode is the second largest, at \$492 million, but is the slowest growing at an 8% AAGR.
- 85% of FM services are utilized by commercial banks. This \$192 million market segment is growing at an AAGR of 17%.
- The software product delivery mode accounts for 12% of total computer services expenditures. This delivery mode accounts for 14% of computer services expenditures in the correspondent banking and FMPS market segments.
- Software products are offered on an individual application basis. This means that a prospective user can select the best application from available software product vendors. "Best" is determined from the user's evaluation methodology. In the correspondent banking area, for example, several software product vendors may serve the same bank. One vendor may sell a financial management system while another vendor may sell a demand deposit system.
- RCS are generally offered on an integrated basis. This means that the user will obtain all application servicing from one vendor. An RCS vendor serving correspondent banks would offer financial management and demand deposit, as well as savings, loan and administrative processing capabilities. This type of

service in RCS is quite different from that offered by software product vendors.

### 3. APPLICATIONS USAGE

- Applications usage was examined in the following five market segments:
  - Correspondent Banking.
  - Savings and Loans.
  - Financial Management and Planning Systems.
  - Financial and Economic Data Bases.
  - Funds Transfer.
- Most of the correspondent banking functions are highly computerized. This is particularly true of the demand deposit function, but increasingly the case in the savings, loans, and administration functions as well. Exhibits IV-1 through IV-4 show the degree of EDP usage in each of these functions.
- Savings and loan functions are highly computerized. The trend in these applications is to focus attention on the consumer rather than on individual savings or loan functions. In this way the savings and loan functions expect to expand the services offered to each consumer. Exhibits IV-5 through IV-15 show the degree of EDP usage in the S & L application areas.
- Financial management and planning systems applications are a relatively new, but rapidly growing, area.
  - FMPS has developed as MBAs and other financially oriented people have transplanted modeling techniques used in educational institutions to industry.

- The increasing use of interactive RCS has further stimulated FMPS development by providing a convenient and rapid response-oriented approach to problem solving. Interactive RCS facilitates the answering of "what-if" questions that are typically asked in a modeling environment.
- The customer expects to utilize a vendor's model(s), as well as to construct his own using the vendor's model building language.
- Many new applications (models) will be developed in the next one to three years. These new models will enable managers to better understand their business environment and the effects that change can have on their business.
- The statements on FMPS (above) also apply to financial and economic data bases. However, the customer expects that the vendor will maintain historical and forecasted data that the customer can access for his own model(s).
- Funds transfer applications development is are still in relative infancy. The current, most popular, application is for handling automatic teller machine transactions. Corporate funds transfer is an important application, and one that will continue to grow in importance to all companies as they track and manage their cash position.

#### 4. COMPETITIVE ENVIRONMENT

- The competitive environment was examined in the following four market segments:
  - Correspondent Banking.
  - Savings and Loans.
  - Financial Management and Planning Systems.

- Financial and Economic Data Bases.

- The correspondent banking segment has no dominant vendors and competition is intense. Over 200 vendors offer computer services in this market segment. This figure includes those commercial banks that offer correspondent banking computer services.
- Competition among savings and loan computer services vendors is also intense. There are no dominant vendors from among the 200 companies that offer computer services to this market segment.
- There are three vendors of financial management and planning systems that account for nearly 60% of this segment's RCS revenues. The software sales competitive picture is much different for this segment, as the largest eight vendors account for just under 70% of the market.
- Fifteen vendors account for nearly all of the revenue in the financial and economic data base market segment. No vendor has more than about 15% of the market.

5. ACQUISITION CANDIDATE ANALYSIS

- Based on an ideal acquisition candidate profile provided to INPUT from XCS, INPUT has created a list of potential acquisition candidates for XCS to consider.
- The acquisition candidates are grouped by market segment and can be found in Exhibits II-3 through II-6.
- INPUT has created this list from its CAMP data base.
- No contact has been made between INPUT and any of these companies to discuss acquisition potential.



EXHIBIT II-3

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY /LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
AMERICAN APPRAISAL MILWAUKEE, WI	\$ 22-30	NA	TOTAL U.S. INTERNATIONAL	RCS AND SOFTWARE
BANKING SYSTEMS DALLAS, TX	6-8	100	EAST NO CENTRAL WEST NO CENTRAL EAST SO CENTRAL WEST SO CENTRAL MOUNTAIN	INTERACTIVE RCS, BATCH, FM, & PROFESSIONAL SERVICES
CISCO TULSA, OK	6-10	NA	WEST SO CENTRAL	RCS AND BATCH
COLLATERAL INVESTMENT CO., BIRMINGHAM, AL	11-18	100	EAST SO CENTRAL	SOFTWARE
COLORADO COMPUTER CENTER, DENVER, CO	4-6	100	TOTAL U.S.	INTERACTIVE RCS AND BATCH
COMPUTER POWER JACKSONVILLE, FL	5-10	100	TOTAL U.S.	RCS, BATCH, FM & SOFTWARE

EXHIBIT II-3 (CONTD.)

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
COMPUTER USAGE CORP. SAN FRANCISCO, CA	\$ 9	60%	TOTAL U.S.	INTERACTIVE RCS FM, SOFTWARE & PROFESSIONAL SERVICES
DATA PROCESSING OF THE SOUTH, CHARLOTTE, NC	5-10	NA	MIDDLE ATLANTIC EAST NORTH CENTRAL, SO. ATLANTIC SO. ATLANTIC	INTERACTIVE RCS AND BATCH
DISC OWINGS MILLS, MD	14-20	100		SOFTWARE
FINANCIAL DATA SYSTEMS ST. LOUIS, MO	5-10	100	TOTAL U.S.	INTERACTIVE RCS AND TURNKEY SYSTEMS
FINANCIAL INDUSTRY SYSTEMS, HARTFORD, CT	16-23	90	NEW ENGLAND MIDDLE ATLANTIC E. NO. CENTRAL W. NO. CENTRAL	RCS, FM AND SOFTWARE
FLORIDA SOFTWARE SERVICES, ALTAMONT SPRINGS, FL	7-9	95	TOTAL U.S.	RCS REMOTE BATCH AND SOFTWARE

EXHIBIT II-3 (CONTD.)

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
HAWAII COMPUTER SERVICES HONOLULU, HI	\$ 6-8	100	TOTAL U.S.	INTERACTIVE RCS, BATCH & DATA BASE
HILTMAN ASSOCIATES COLUMBIA, MD	11-15	100	NEW ENGLAND	SOFTWARE
KRANZLEY & COMPANY CHERRY HILL, NJ	4	NA	MIDDLE ATLANTIC	SOFTWARE
METRIDATA COMPUTING LOUISVILLE, KY	12-15	60	MIDDLE ATLANTIC EAST NORTH CENTRAL, EAST SOUTH CENTRAL	INTERACTIVE RCS, BATCH, FM & PROFESSIONAL SERVICES
MID-CONTINENT COMPUTER SERVICES, ENGLEWOOD, CO	4-5	100	MOUNTAIN	INTERACTIVE RCS
SYSTEMATICS LITTLE ROCK, AR	15-17	100	TOTAL U.S.	RCS AND FM

EXHIBIT II-3 (CONTD.)

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
TMI SYSTEMS CAMBRIDGE, MA	\$ 7-12	90	TOTAL U.S. INTERNATIONAL	INTERACTIVE RCS, SOFTWARE, PROFESSIONAL SERVICES AND TURNKEY SYSTEMS
THE THOMAS NATIONAL GROUP, NEW YORK, NY	6	60	TOTAL U.S.	DATA BASE, RCS REMOTE BATCH, FM & SOFTWARE

EXHIBIT II-4

SAVINGS AND LOAN

ACQUISITION CANDIDATES

COMPANY /LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
DATA LINE SERVICE CO. CLAREMONT, CA  FINANCIAL DATA SYSTEMS ST. LOUIS, MO  FINANCIAL SERVICES GLEN ROCK, NJ	NA  \$ 5-10  NA	100  100  100	PACIFIC  TOTAL U.S.  MIDDLE ATLANTIC	INTERACTIVE RCS  INTERACTIVE RCS & TURNKEY SYSTEMS  INTERACTIVE RCS AND BATCH

EXHIBIT II-5

FINANCIAL MANAGEMENT AND PLANNING SYSTEMS  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
COMPUTER USAGE CORP. SAN FRANCISCO, CA	\$ 9	60	TOTAL U.S.	INTERACTIVE RCS, FM SOFT- WARE AND PRO- FESSIONAL SVCS INTERACTIVE RCS AND BATCH
FIRST COMPUTER CORP. ST. PAUL, MN	9-12	99	TOTAL U.S.	REMOTE BATCH, BATCH, FM, SOFTWARE AND PROFESSIONAL SERVICES
INFORMATION SCIENCES PROVIDENCE, RI	8-10	64	TOTAL U.S.	INTERACTIVE RCS, FM AND PROFESSIONAL SERVICES
ON-LINE SYSTEMS PITTSBURGH, PA	18-20	18	TOTAL U.S.	INTERACTIVE RCS AND DATA BASE
RAPIDATA FAIRFIELD, NJ	18-20	NA	TOTAL U.S. INTERNATIONAL	INTERACTIVE RCS AND REMOTE BATCH
SCIENTIFIC TIMESHARING BETHESDA, MD	8-10	NA	TOTAL U.S.	

EXHIBIT II-6

FINANCIAL AND ECONOMIC DATA BASE  
ACQUISITION CANDIDATES

COMPANY /LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
QUOTRON SYSTEMS LOS ANGELES, CA	\$ 25-30	95	PACIFIC	RCS, FM AND PROFESSIONAL SERVICES
REMOTE COMPUTING CORP. PALO ALTO, CA	9	35	TOTAL U.S.	REMOTE BATCH, BATCH, FM, SOFTWARE AND PROFESSIONAL SERVICES

## B. RECOMMENDATIONS

### I. MARKET SEGMENTS TO ENTER

- INPUT recommends that XCS enter the following market segments:
  - Financial management and planning systems (FMPS).
  - Financial and economic data bases (FEDB).
- This recommendation is based on:
  - Market size: \$222 million.
  - Market growth: 24% AAGR.
  - Compatibility with XCS' primary service offering: RCS.
  - Ability to employ minicomputers at user site (which follows the industry trend in these two market segments).
  - Ability to offer software products from the same models and data bases that are offered through RCS. These software products can be used on minicomputers without major modifications.
  - Leverage potential from applications developed for the banking and finance industry that could also be sold to users for FMPS and FEDB in other industries.
    - FMPS and FEDB could be sold to existing XCS customers.



- New application development could be cost justified over a larger customer base because many of the models are not industry specific.
- This strategy would allow XCS to start a new customer with RCS and then to allow the customer to migrate to an on-site minicomputer using XCS' software, or to sell a software product that could be used on the customer's own hardware.
  - This migration would be performed at the point when economics indicated that RCS was more expensive than an on-site minicomputer or a software product.
  - The main significance of this strategy is it would allow XCS to retain the customer through additional product sales, rather than lose him when RCS gets too expensive (as is the case for most RCS companies) and in-house processing becomes economically justifiable.
- The alternative recommendation is for XCS to enter the market segments of:
  - Correspondent Banking.
  - Savings and Loans.
- This alternative has the following strengths:
  - Market size
    - Correspondent banking: \$733 million.
    - Savings and Loans: \$155 million.
  - Market AAGR

- Correspondent banking: 16% and 34% in RCS
  - Savings and Loans: 15%.
- Compatibility with XCS' primary service offering: RCS.
- Potential use of on-site minicomputers using XCS' software.
- Potential software products sales that could be made to a migrating RCS customer.
- Many potential acquisition candidates have products for both Commercial Banks and Savings and Loan Associations.
- This alternative has the following weaknesses:
  - A market share of 5% or more would be difficult to obtain through a single company acquisition.
  - Competition is highly aggressive in both market segments.
  - Probable development required for on-site minicomputer product offering. The software for these applications would have to be developed as current RCS packages could not be used on the mini-computers.
  - Software products sold on a stand-alone basis and generally different from the RCS products. The customer who migrates from RCS to a software product will have conversion problems.

- Current domination of Commercial Banks and Savings and Loans Associations as vendors to the industry. Forty-eight percent of correspondent banking and 62% of savings and loan processing is currently performed by Commercial Banks, Savings and Loans Associations or joint ventures of these parties.

## 2. SERVICES TO BE OFFERED

- INPUT recommends that the following services (or delivery modes) be considered:
  - RCS.
  - FM.
  - Software.
  - Professional services (only if utilized with some other delivery mode; for example, software).
- XCS should continue to monitor the economics of placing a minicomputer at the user's site which would utilize XCS' systems and could be connected to the XCS network.

## 3. ACQUISITION CANDIDATES

- XCS should plan to move as quickly as possible (next 3-6 months) with its acquisition plans, as many companies have similar acquisition strategies.
- Potential acquisition candidates, segregated by market segment, are listed in Exhibits II-3 through II-6.



### III MARKET SEGMENT ANALYSIS



### III MARKET SEGMENT ANALYSIS

#### A. DESCRIPTION OF MARKET SEGMENTS

##### I. COMMERCIAL BANKING INDUSTRY

- The Commercial Banking industry is composed of:
  - Commercial banks.
  - Mutual savings banks.
  - Non-deposit banks and trust companies.
- The commercial banks account for over 99% of this industry subsector (see Exhibit III-1).
- The commercial banking industry is controlled by less than 1% of the total number of banks. These banks hold over 53% of the bank deposits of all commercial banks (see Exhibits III-2 and III-3).
- Commercial bank expenditures for data processing average 8%-10% of total bank expenditures.
- The major application areas are:

EXHIBIT III-1

GROWTH OF BANKS AND BANK BRANCH OFFICES  
(1960-1977)

BANK TYPE	NUMBER OF UNITS							AAGR (%)
	1960	1965	1970	1975	1977			
COMMERCIAL BANKS	13,350	13,673	13,581	14,392	14,536		0.5%	
MUTUAL SAVINGS BANKS	515	506	493	476	457		-	
NON-DEPOSIT BANK & TRUST COMPANIES	69	43	93	142	156		4.9	
OTHER BANKING INSTITUTIONS	68	51	38	44	50		-	
TOTAL NUMBER OF BANKS	14,002	14,273	14,205	15,054	15,199		0.5	
TOTAL NUMBER OF BRANCHES	10,796	15,986	21,889	29,960	34,327		7.0	
TOTAL NUMBER OF OFFICES	24,798	30,259	36,094	45,014	49,526		4.1%	



EXHIBIT III-2

DISTRIBUTION OF COMMERCIAL BANKS BY SIZE  
(1960-1977)

BANK SIZE	1960				1970				1975				1977				AAGR (%)
	NUMBER OF BANKS	PER-CENT (%)	CUM. %*	NUMBER OF BANKS	PER-CENT (%)	CUM. %*	NUMBER OF BANKS	PER-CENT (%)	CUM. %*	NUMBER OF BANKS	PER-CENT (%)	CUM. %*	NUMBER OF BANKS	PER-CENT (%)	CUM. %*		
VERY LARGE >\$1 BILLION	23	0.2%	0.2%	59	0.4%	0.4%	90	0.6%	0.6%	108	0.7%	0.7%	108	0.7%	0.7%		
LARGE \$500M-1B	30	0.2	0.4	67	0.5	0.9	97	0.6	1.2	113	0.7	1.4	113	0.7	1.4		
MEDIUM \$100M-500M	240	1.8	2.2	430	3.2	4.1	698	4.6	5.8	805	5.3	6.7	805	5.3	6.7		
SMALL \$10M≤100M	2,321	17.4	19.6	5,141	37.9	42.0	8,028	53.4	59.2	9,472	61.9	68.6	9,472	61.9	68.6		
<10M	10,736	80.4	100.0	7,884	58.0	100.0	6,141	40.8	100.0	4,798	31.4	100.0	4,798	31.4	100.0		
TOTAL	13,350	100.0%	-	13,581	100.0%	-	15,054	100.0%	-	15,296	100.0%	-	15,296	100.0%	-		

\*CUMULATIVE PERCENTAGE

000001

EXHIBIT III-3

DISTRIBUTION OF COMMERCIAL BANK DEPOSITS  
(1960-1977)

BANK POPULATION BANK SIZE	1960			1970			1975			1977			AAGR %
	DEPOSITS (\$BIL)	%	CUM.* %	DEPOSITS (\$BIL)	%	CUM.* %	DEPOSITS (\$BIL)	%	CUM.* %	DEPOSITS (\$BIL)	%	CUM.* %	
VERY LARGE >\$1 BILLION	\$ 69.37	29.8%	29.8%	\$223.24	42.2%	42.2%	\$456.51	49.7%	49.7%	\$ 586.84	53.2%	53.2%	13.4%
LARGE >\$500M ≤ \$1 BILLION	20.80	8.9	38.7	46.88	8.9	51.1	69.73	7.6	57.3	81.94	7.4	60.6	8.4
MEDIUM >\$100M ≤ \$500M	50.90	21.9	60.6	90.03	17.0	68.1	139.04	15.1	76.4	158.98	14.4	75.0	6.9
SMALL >\$10M ≤ \$100M	56.39	24.3	84.9	131.35	24.8	92.9	223.17	24.3	96.7	268.08	24.3	99.3	9.6
<\$10M	35.24	15.1	100.0	37.78	7.1	100.0	30.68	3.3	100.0	8.03	0.7	100.0	-
TOTAL	\$232.70	100.0%	-	\$529.28	100.0%	-	\$919.13	100.0%	-	\$1,103.87	100.0%	-	9.6%

\*CUMMULATIVE PERCENTAGE

- Correspondent banking.
  - Trust services.
  - Automated customer services.
  - Financial management and planning systems.
- Correspondent banking functions are the commercial or day-to-day bank operations of:
    - Demand deposits.
    - Savings.
    - Loans.
    - Administration.
  - Trust services are the accounting and management of pension funds, portfolios, and the like.
  - Automated customer services encompass accounting (accounts receivable, accounts payable, payroll, general ledger, billing, sales analysis, inventory analysis), mortgage servicing, property management, timesharing, and forecasting.
  - Financial management and planning applications consist of the processing of data base information for a specific end user request. This can range from consulting, to accessing a data base through remote computing services, to the renting or selling of the actual data bases. This area cuts across all banking and finance industry subsectors.

## 2. CREDIT AGENCIES

- Credit agencies include savings and loan institutions, credit unions, and other credit agencies.
- The savings and loan industry structure is depicted in Exhibit III-4. This industry has almost an order of magnitude difference in control of assets from commercial banking. In S&Ls, about 56% of the deposits are held by 9% of the associations.
- The main application areas in both Savings and Loan Associations and Credit Unions include:
  - Savings.
  - Loans.
  - Administration.
  - Financial management.
  - Special consumer services.

## 3. SECURITY AND COMMODITY BROKERS

- This area includes the applications processing for stock quotations, financial management and planning, and back office processing.
- Stock quotation applications are designed to provide information on price, volume, yield, dividends, trends, etc. of traded securities, options and the like. The information is provided through an interactive RCS system.
- Back office processing handles the accounting, control and management necessary for completing the paperwork on a sale or purchase of securities.

DISTRIBUTION OF SAVINGS AND LOAN ASSOCIATIONS  
IN 1975 BY ASSET SIZE

ASSET SIZE (MILLIONS)	NUMBER OF ASSOCIATIONS	% OF TOTAL	CUMULATIVE %	ASSETS (\$MILLION)	% OF TOTAL	CUMULATIVE %
UNDER \$1	426	8.6%	8.6%	\$ 234	.1%	.1%
\$ 1 and under \$ 5	489	9.9	18.5	1,430	.4	.5
\$ 5 and under \$ 10	503	10.1	28.6	4,021	1.2	1.7
\$ 10 and under \$ 25	1,164	23.4	52.0	20,836	6.1	7.8
\$ 25 and under \$ 50	1,019	20.5	72.5	38,416	11.3	19.1
\$ 50 and under \$100	661	13.3	85.8	50,361	14.9	34.0
\$100 and under \$150	262	5.3	91.1	34,050	10.1	44.1
\$150 and under \$200	139	2.8	92.9	25,532	7.5	51.6
\$200 and under \$300	116	2.3	96.2	28,304	8.4	60.0
\$300 and over	185	3.7	100.0%	135,211	40.0	100.0%
TOTAL	4,964	100.0%		\$338,395	100.0%	

#### 4. HOLDING AND INVESTMENT COMPANIES

- Most of the processing for this group of companies is in financial management and planning systems, as well as financial and economic data base processing. The primary thrust of these areas was described in section III:A:1 above.

#### B. DESCRIPTION OF COMPUTER SERVICES PROCESSING MODES

- INPUT has divided computer services processing expenditures into five categories:
  - Remote computing services (RCS).
  - Facilities management (FM).
  - Batch services (Batch).
  - Software products (Software).
  - Professional services.
- These processing modes are defined in Appendix A.
- A complete picture of the banking and finance industry computer service expenditure patterns and growth forecasts is shown in Exhibit III-5. These figures are segregated by computer service delivery mode and market segment type.

EXHIBIT III-5

COMPUTER SERVICES EXPENDITURES AND  
GROWTH FORECASTS BY PROCESSING MODE

PROCESSING MODE	EDP EXPENDITURES FOR COMPUTER SERVICES	AVERAGE ANNUAL GROWTH RATE EXPENDITURES
RCS FM BATCH SOFTWARE PROFESSIONAL SERVICES	\$ 617M 226 492 193 110	25% 17 8 14 14
TOTAL	\$1,638	17%

## C. ANALYSIS OF EDP COMPUTER SERVICE EXPENDITURES

### I. OVERALL ASSESSMENT

- A summary of computer service expenditures by application area is shown in Exhibit III-6.
- The largest computer services market segment is in correspondent banking, with a market potential of \$733 million. This segment is growing at an average annual growth rate (AAGR) of 16%. Forty-five percent of total banking and finance industry computer services expenditures are for correspondent banking.
- The second largest market segment is in financial management and planning systems (FMPS), at \$222 million. This figure includes all FMPS across all market segments in the banking and finance industry. The FMPS markets is growing at an AAGR of 24%.
- A market segment similar to FMPS in processing modes and buyer characteristics is financial and economic data bases. This market is currently only \$47 million, but is growing at an AAGR of 26%.
- The savings and loans and Automated Customer Services market segments are the third largest in the industry, at \$155 million each. The AAGRs are 15% and 14% respectively. These market segments each represent 9% of total banking and finance computer services expenditures.
- Trust applications are growing the fastest, at a 28% average annual growth rate. However, these areas account for only about 4% of the total banking and finance computer services expenditures.



EXHIBIT III-6  
ANALYSIS OF EDP COMPUTER SERVICE  
EXPENDITURES BY APPLICATION AREA

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	COMPUTER SERVICE EXPENDITURES	AVERAGE ANNUAL GROWTH RATE OF EXPENDITURES
60	COMMERCIAL BANKS FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$733M	16%
		TRUST	59	28
		AUTOMATED CUSTOMER SERVICES	155	14
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	86	25
		SUB TOTAL	1,033	17
61	CREDIT AGENCIES	SAVINGS & LOANS	155	15
		CREDIT UNIONS	77	17
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	75	24
		SUB TOTAL	307	18
62	SECURITY AND COMMODITY BROKERS	STOCK QUOTATION	88	8
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	32	24
		BACK OFFICE PROCESSING	102	12
		SUB TOTAL	222	12
67	HOLDING AND INVESTMENT COMPANIES	FINANCIAL AND ECONOMIC DATA BASE	47	26
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	29	24
		SUB TOTAL	76	25
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$1,638M	17%

## 2. REMOTE COMPUTING SERVICES (RCS)

- The RCS processing mode is the largest market segment, accounting for nearly 38% of total 1978 computer services expenditures, or a market size of \$617 million. RCS has the highest processing mode AAGR; 25%.
- A summary of computer services expenditures for RCS is shown in Exhibit III-7.
- Approximately 28% of the RCS expenditures are for financial management and planning system services. This amounts to a \$175 million market and is growing at an average annual growth rate (AAGR) of 26%.
- The second largest market for RCS is for savings and loans. The market size is \$124 million (20% of RCS computer services expenditures) and is growing at an AAGR of 16%.
- The third largest RCS market is for correspondent bank processing. The \$118 million market is growing at an AAGR of 34%.
- The application areas of trust services and credit unions, although having small markets (\$30 million and \$20 million respectively), have average annual growth rates in excess of 30%.

## 3. FACILITIES MANAGEMENT (FM)

- A summary of computer services expenditures for FM is shown in Exhibit III-8.
- FM represents almost 14% of the total banking and finance industry computer services expenditures, with a market size of \$226 million. The AAGR is 17%.

EXHIBIT III-7

COMPUTER SERVICES EXPENDITURES FOR RCS

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	COMPUTER SERVICE EXPENDITURES	AVERAGE ANNUAL GROWTH RATE OF EXPENDITURES
60	COMMERCIAL BANKS FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$118M	34%
		TRUST	30	36
		AUTOMATED CUSTOMER SERVICES	20	20
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	72	26
		SUB TOTAL	240	31
61	CREDIT AGENCIES	SAVINGS & LOANS	124	16
		CREDIT UNIONS	20	30
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	58	26
		SUB TOTAL	202	20
62	SECURITY AND COMMODITY BROKERS	STOCK QUOTATION	80	8
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	25	26
		BACK OFFICE PROCESSING	15	16
		SUB TOTAL	120	13
67	HOLDING AND INVESTMENT COMPANIES	FINANCIAL AND ECONOMIC DATA BASE	35	30
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	20	26
		SUB TOTAL	55	29
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$617M	25%

EXHIBIT III-8

COMPUTER SERVICES EXPENDITURES FOR FM

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	COMPUTER SERVICE EXPENDITURES	AVERAGE ANNUAL GROWTH RATE OF EXPENDITURES
60	COMMERCIAL BANKS FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$152M	17%
		TRUST	10	20
		AUTOMATED CUSTOMER SERVICES	30	17
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	0	-
		SUB TOTAL	192	17
61	CREDIT AGENCIES	SAVINGS & LOANS	4	10
		CREDIT UNIONS	5	20
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	0	-
		SUB TOTAL	9	16
62	SECURITY AND COMMODITY BROKERS	STOCK QUOTATION	0	-
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	0	-
		BACK OFFICE PROCESSING	25	15
		SUB TOTAL	25	15
67	HOLDING AND INVESTMENT COMPANIES	FINANCIAL AND ECONOMIC DATA BASE	0	-
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	0	-
		SUB TOTAL	0	-
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$226M	17%

- FM is dominated by correspondent banking, with 67% of the total FM market expenditures. This figure jumps to 85% if you add in the application area of trust and automated customer services. Stated differently, commercial banks account for 85% of FM expenditures.

#### 4. BATCH SERVICES

- Batch processing represents 30% of the total banking and finance industry computer services expenditures. This processing mode has the second largest expenditure; \$492 million, but is the slowest growing, at an AAGR of 8%.
- A summary of computer services expenditures for batch processing is shown in Exhibit III-9.
- Most batch processing is done for commercial banks, approximately \$406 million, which represents about 83% of all banking and finance industry batch work.
- Batch processing is not an attractive market segment in the banking and finance industry.

#### 5. SOFTWARE PRODUCTS

- Software sales represent about 12% of the total banking and finance industry computer services expenditures, or a market size of \$193 million. This area has the second lowest average annual growth rate of all processing modes, at 14%.
- A summary of computer services expenditures for software sales is shown in Exhibit III-10.
- Half of the software sold is for correspondent banking and another 12% is for trust and automated customer service applications. The average annual growth rate for these areas is 14%.

EXHIBIT III-9

COMPUTER SERVICES EXPENDITURES FOR BATCH PROCESSING

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	COMPUTER SERVICE EXPENDITURES	AVERAGE ANNUAL GROWTH RATE OF EXPENDITURES
60	COMMERCIAL BANKS FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$318M	7%
		TRUST	8	10
		AUTOMATED CUSTOMER SERVICES	80	10
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	0	-
		SUB TOTAL	406	8
61	CREDIT AGENCIES	SAVINGS & LOANS	11	6
		CREDIT UNIONS	35	9
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	0	-
		SUB TOTAL	46	8
62	SECURITY AND COMMODITY BROKERS	STOCK QUOTATION	0	-
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	0	-
		BACK OFFICE PROCESSING	40	10
		SUB TOTAL	40	10
67	HOLDING AND INVESTMENT COMPANIES	FINANCIAL AND ECONOMIC DATA BASE	0	-
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	0	-
		SUB TOTAL	0	-
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$492M	8%

EXHIBIT III-10

COMPUTER SERVICES EXPENDITURES FOR SOFTWARE SALES

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	COMPUTER SERVICE EXPENDITURES	AVERAGE ANNUAL GROWTH RATE OF EXPENDITURES
60	COMMERCIAL BANKS	CORRESPONDENT BANKING	\$97M	14%
		TRUST	8	15
	MUTUAL SAVINGS BANKS	AUTOMATED CUSTOMER SERVICES	15	14
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	10	18
		SUB TOTAL	130	14
61	CREDIT AGENCIES	SAVINGS & LOANS	12	10
		CREDIT UNIONS	10	15
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	10	18
		SUB TOTAL	32	14
62	SECURITY AND COMMODITY BROKERS	STOCK QUOTATION	0	-
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	5	18
		BACK OFFICE PROCESSING	12	12
		SUB TOTAL	17	14
67	HOLDING AND INVESTMENT COMPANIES	FINANCIAL AND ECONOMIC DATA BASE	8	12
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	6	18
		SUB TOTAL	14	15
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$193M	14%

- Twenty percent of software sales are for financial management and planning systems. This represents a \$39 million market, growing at an average annual rate of 18%.
- Software products are offered on an individual application basis. This means that a prospective user can select the best application from available software product vendors. "Best" is determined from the user's evaluation methodology. In the correspondent banking area, for example, several software product vendors may serve the same bank. One vendor may sell a financial management system while another vendor may sell a demand deposit system.

## 6. PROFESSIONAL SERVICES

- Professional services represent about 7% of the total banking and finance industry computer services expenditures, a market size of \$110 million. This area, like software sales, has the second lowest average annual growth rate of all processing modes, 14%.
- A summary of computer services expenditures for professional services is shown in Exhibit III-11.
- Commercial banking applications (excluding financial management and planning system) account for 55% of all professional services expenditures.
- Financial management and planning systems account for 15% of the total, or a market size of \$17 million.
- The other application areas represent 9% or less of total professional services expenditures.

## 7. EXPECTED MARKET POTENTIAL

- Another way to examine market potential is to first assume a market penetration percentage (or market share percentage) and to then factor down



EXHIBIT III-11

COMPUTER SERVICES EXPENDITURES FOR PROFESSIONAL SERVICES

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	COMPUTER SERVICE EXPENDITURES	AVERAGE ANNUAL GROWTH RATE OF EXPENDITURES
60	COMMERCIAL BANKS FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$48M	14%
		TRUST	3	20
		AUTOMATED CUSTOMER SERVICES	10	14
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	4	15
		SUB TOTAL	65	14
61	CREDIT AGENCIES	SAVINGS & LOANS	4	16
		CREDIT UNIONS	7	16
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS FOR OTHER CREDIT AGENCIES	7	15
		SUB TOTAL	18	16
62	SECURITY AND COMMODITY BROKERS	STOCK QUOTATION	8	10
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	2	15
		BACK OFFICE PROCESSING	10	10
		SUB TOTAL	20	11
67	HOLDING AND INVESTMENT COMPANIES	FINANCIAL AND ECONOMIC DATA BASE	4	14
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	3	15
		SUB TOTAL	7	14
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$110M	14%

the gross market potential numbers to the expected market size that is reflected by the assumed market share percentage. Market shares of 5%, 10%, and 25% have been used to calculate the market sizes in Exhibits III-12, III-13, and III-14 respectively.

- Since XCS would probably not enter every market segment, a determination must be made of the segments to be entered. The market size can then be calculated.
  - Assume that XCS enters the automated customer services, trust and correspondent banking areas and expects a 5% share of the market employing RCS. XCS could then expect its revenue to be approximately \$8.4 million a year.
  - Assume that XCS enters the financial management and planning areas across all sectors in the banking and finance industry, and targets a 10% market share using RCS and software. The expected revenues for XCS would then be \$24.9 million.
- It would be helpful to translate market size/gross revenue figures into customer counts and expected revenue per customer. In order to accomplish this objective INPUT has used selected averages that will suffice for planning purposes. Exhibit III-15 shows expected expenditure ranges for the use of outside computer services.
  - The average annual expenditure range for stock quotation services is based on user expenditures, not company expenditures. There are an average of 75-100 users per company that subscribe to stock quotation services so that the average annual expenditures per company is \$75,000 - \$100,000.
  - The average annual expenditure range for financial and economic data base services is based on individual users rather than companies. There are typically multiple users within each company.

EXHIBIT III-12  
 EXPECTED MARKET POTENTIAL WITH A 5% MARKET SHARE

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	RCS	FM	BATCH	SOFTWARE	PROFES- SIONAL SERVICES	TOTAL
60	COMMERICAL BANKS  FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$ 5.9M	\$ 7.6M	\$15.9M	\$4.9M	\$2.4M	\$36.7M
		TRUST	1.5	.5	.4	.4	.2	3.0
		AUTOMATED CUSTOMER SERVICES	1.0	1.5	4.0	.8	.5	7.8
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	3.6	.0	0	.5	.2	4.3
		SUB TOTAL	12.0	\$ 9.6	20.3	6.6	3.3	51.8
61	CREDIT AGENCIES	SAVINGS AND LOANS	6.2	.2	.6	.6	.2	7.8
		CREDIT UNIONS	1.0	.3	1.8	.5	.4	4.0
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	2.9	0	0	.5	.4	3.8
		SUB TOTAL	10.1	.5	2.4	1.6	1.0	15.6
		STOCK QUOTATION	4.0	0	0	0	.4	4.4
62	SECURITY AND COMMODITY BROKERS	FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	1.3	0	0	.3	.1	1.7
		BACK OFFICE PROCESSING	.8	1.3	2.0	.6	.5	5.2
		SUB TOTAL	6.1	1.3	2.0	.9	1.0	11.3
		FINANCIAL AND ECONOMIC DATA BASE	1.8	0	0	.4	.2	2.4
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	1.0	0	0	.3	.2	1.5
67	HOLDING AND INVESTMENT COMPANIES	SUB TOTAL	2.8	0	0	.7	.4	3.9
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$31.0M	\$11.4M	\$24.7M	\$9.8M	\$5.7M	\$82.6M

EXHIBIT III-13

EXPECTED MARKET POTENTIAL WITH A 10% MARKET SHARE

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	RCS	FM	BATCH	SOFTWARE	PROFES- SIONAL SERVICES	TOTAL
60	COMMERCIAL BANKS  FEDERAL RESERVE BANKS  MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$11.8M	\$15.2M	\$31.8M	\$ 9.7M	\$ 4.8M	\$ 73.3M
		TRUST	3.0	1.0	.8	.3	5.9	
		AUTOMATED CUSTOMER SERVICES	2.0	3.0	8.0	1.5	15.5	
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	7.2	0	0	1.0	8.6	
		SUB TOTAL	24.0	19.2	40.6	13.0	6.5	103.3
61	CREDIT AGENCIES	SAVINGS AND LOANS	12.4	.4	1.1	1.2	.4	15.5
		CREDIT UNIONS	2.0	.5	3.5	1.0	.7	7.7
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	5.8	0	0	1.0	.7	7.5
		SUB TOTAL	20.2	.9	4.6	3.2	1.8	30.7
		STOCK QUOTATION	8.0	0	0	0	.8	8.8
62	SECURITY AND COMMODITY BROKERS	FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	2.5	0	0	.5	.2	3.2
		BACK OFFICE PROCESSING	1.5	2.5	4.0	1.2	1.0	10.2
		SUB TOTAL	12.0	2.5	4.0	1.7	2.0	22.2
		FINANCIAL AND ECONOMIC DATA BASE	3.5	0	0	.8	.4	4.7
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	2.0	0	0	.6	.3	2.9
60-67	BANKING AND FINANCE INDUSTRY	SUB TOTAL	5.5	0	0	1.4	.7	7.6
		TOTAL	\$61.7M	\$22.6M	\$49.2M	\$19.3M	\$11.0M	\$163.8M

EXHIBIT III-14

EXPECTED MARKET POTENTIAL WITH A 25% MARKET SHARE

INDUSTRY SIC	INDUSTRY NAME	APPLICATION AREA	RCS	FM	BATCH	SOFTWARE	PROFES-SIONAL SERVICES	TOTAL
60	COMMERCIAL BANKS  FEDERAL RESERVE BANKS MUTUAL SAVINGS BANKS	CORRESPONDENT BANKING	\$ 29.5M	\$38.0M	\$ 79.5M	\$24.3M	\$12.0M	\$183.3M
		TRUST	7.5	2.5	2.0	2.0	.8	14.8
		AUTOMATED CUSTOMER SERVICES	5.0	7.5	20.0	3.8	2.5	38.8
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	18.0	0	0	2.5	1.0	21.5
		SUB TOTAL	60.0	48.0	101.5	32.6	16.3	258.4
61	CREDIT AGENCIES	SAVINGS AND LOANS	31.0	1.0	2.8	3.0	1.0	38.8
		CREDIT UNIONS	5.0	1.3	8.8	2.5	1.8	19.4
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	14.5	0	0	2.5	1.8	18.8
		SUB TOTAL	50.5	2.3	11.6	8.0	4.6	77.0
		STOCK QUOTATION	20.0	0	0	0	2.0	22.0
62	SECURITY AND COMMODITY BROKERS	FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	6.3	0	0	1.3	.5	8.1
		BACK OFFICE PROCESSING	3.8	6.3	10.0	3.0	2.5	25.6
		SUB TOTAL	30.1	6.3	10.0	4.3	5.0	55.7
		FINANCIAL AND ECONOMIC DATA BASE	8.8	0	0	2.0	1.0	11.8
		FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	5.0	0	0	1.5	.8	7.3
SUB TOTAL	13.8	0	0	3.5	1.8	19.1		
60-67	BANKING AND FINANCE INDUSTRY	TOTAL	\$154.4M	\$56.6M	\$123.1M	\$48.4M	\$27.7M	\$410.2M

EXHIBIT III-15

1978 AVERAGE ANNUAL EXPENDITURES FOR  
USE OF OUTSIDE COMPUTER SERVICES

APPLICATION AREA	OUTSIDE COMPUTER SERVICES AVERAGE ANNUAL EXPENDITURE RANGE
CORRESPONDENT BANKING	\$47K - \$53K
SAVINGS & LOANS	30 - 55
STOCK QUOTATION	1 - 2
FINANCIAL AND ECONOMIC DATA BASE	3 - 4
FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	12 - 24

- Data in Exhibits III-15, III-16 and III-17 include the following market segments:
  - Correspondent banking.
  - Savings and loans.
  - Stock quotation.
  - Financial and economic data base.
  - Financial management and planning systems.
- The expected customer base sizes are shown in Exhibits III-16 and III-17. The first (III-16) shows customer counts assuming that RCS, FM, batch, software and professional services were all offered by XCS. The second exhibit (III-17) shows customer counts assuming that only RCS and software were offered. It should be noted that these figures are estimates for planning purposes only. The relative differences between the numbers is more significant than the numbers themselves.
- The number of customers is an important variable because of the service, billing and overhead processing considerations that all directly relate to the size of the customer base.
  - If XCS had a 5% market share in the stock quotation area, for example, the number of customers serviced would be between 2,000 and 4,400. That is at least twice (and maybe 3-4 times) the current XCS customer count.
  - A 5% share in the S&L market, however, would translate into from 120 to 260 new customers (or about 25% of the current XCS customer count).

EXHIBIT III-16

EXPECTED CUSTOMER BASE SIZE\*

APPLICATION AREA	EXPECTED NUMBER OF CUSTOMERS (RANGE)		
	5%	10%	25%
CORRESPONDENT BANKING	600-780	1,380-1,560	3,460-3,900
SAVING AND LOANS	140-260	280-520	710-1,290
STOCK QUOTATION	2,200-4,400	4,400-8,800	11,000-22,000
FINANCIAL AND ECONOMIC DATA BASE	600-800	1,180-1,570	2,950-3,930
FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	470-940	930-1,850	2,320-4,640

\*ASSUMES RCS, FM, BATCH, SOFTWARE AND PROFESSIONAL SERVICES ARE ALL OFFERED



EXHIBIT III-17

EXPECTED CUSTOMER BASE SIZE FOR RCS AND  
SOFTWARE SALES ONLY

APPLICATION AREA	RCS ONLY*			RCS AND SOFTWARE SALES**		
	5%	10%	25%	5%	10%	25%
CORRESPONDENT BANKING	110-125	220-250	550-630	200-230	410-460	1,020-1,140
SAVINGS AND LOANS	110-210	225-415	560-1,030	120-230	250-450	620-1,130
STOCK QUOTATION	2,000-4,000	4,000-8,000	10,000-20,000	2,000-4,000	4,000-8,000	10,000-20,000
FINANCIAL AND ECONOMIC DATA BASE	450-600	870-1,170	2,200-2,930	550-730	1,080-1,430	2,700-3,600
FINANCIAL MANAGEMENT AND PLANNING SYSTEMS	360-730	730-1,460	1,820-3,650	430-870	860-1,720	2,150-4,300

\*THESE FIGURES ASSUME THAT RCS SERVICES ONLY ARE OFFERED AND THE 5/10/25% SHARE IS OF THE RCS MARKET.

\*\*THESE FIGURES ASSUME THAT RCS AND SOFTWARE SALES ARE OFFERED AND THE 5/10/25% SHARE IS OF THE RCS AND SOFTWARE SALES MARKETS.

#### D. COMPUTER SERVICES BUYER ANALYSIS

- A key consideration in the sales cycle (for the vendor) is to determine who buys the product or service being offered.
- The buyers of computer services are different for most market segments, as one would expect.
- The bank officer responsible for selecting correspondent bank processing services from a vendor is shown in Exhibit III-18.
  - In large and very large commercial banks, the decision of vendor selection is typically made at the highest level; ie., with the president, financial vice president and board concurring.
  - In smaller banks board concurrence is not sought. However the top officers and even a management committee are used to select the computer services vendor.
- The designation of the S&L Manager responsible for ordering computer services for the major consumer interface savings and loans functions depends on whether or not the S&L has an in-house EDP system. The responsibility for ordering computer services to support other S&L functions depends on S&L size. Exhibit III-19 indicates ordering responsibility for S&L computer services.
- Very large and some large Savings and Loan Associations have vice-presidents who are in charge of data processing. These organizations have in-house EDP systems, but do buy professional programming services and software products.
- The chief financial officer in very large and large S&Ls will order financial and economic planning RCS. Some very large S&Ls have business economists who order RCS services for economic and financial forecasting.

BANK OFFICER RESPONSIBLE FOR SELECTING  
CORRESPONDENT BANK PROCESSING SERVICES VENDOR

RESPONSIBLE BANK OFFICER	SMALL		MEDIUM DEPOSITS >\$100 ≤ 500M	LARGE DEPOSITS >\$500 ≤ 1B	VERY LARGE DEPOSITS >\$1B
	DEPOSITS <\$10M	DEPOSITS >\$10 ≤ 100M			
COMPTROLLER	X	X	X	-	-
MANAGEMENT COMMITTEE	XX	X	X	-	-
PRESIDENT WITH BOARD CONCURRENCE	-	-	-	XXX	XXX
VICE PRESIDENT AND CASHIER	XX	XXX	XX	X	X
PRESIDENT	X	X	XX	X	X
FINANCIAL V.P. OF HOLDING COMPANY	-	-	XXX	XXX	XXX

KEY

- NOT APPLICABLE
- X LESS THAN 25%
- XX BETWEEN 25% AND 75%
- XXX OVER 75%

EXHIBIT. III-19

RESPONSIBILITY WITHIN SAVINGS & LOAN ASSOCIATIONS FOR ORDERING COMPUTER SERVICES

S&L SIZE	IN-HOUSE EDP	USE COMPUTER SERVICES COMPANY	COMPUTER SERVICES USED
VERY LARGE	CHIEF EXEC. OFFICER VP DATA PROCESSING CHIEF FINANCIAL OFFICER CHIEF LOAN OFFICER CHIEF ECONOMIST		FACILITIES MANAGEMENT SERVICES PROFESSIONAL PROGRAMMING SERVICES. SOFTWARE PACKAGES. RCS FINANCIAL PLANNING SERVICES DATA BASE RELATED RCS SERVICES RCS ECONOMIC & FINANCIAL FORECASTING SERVICES
LARGE	CHIEF EXEC. OFFICER  DIR. DATA PROCESSING VP FINANCE CHIEF LOAN OFFICER BUSINESS ECONOMIST	CHIEF FINANCIAL OFFICER, TREASURER  VP FINANCE CHIEF LOAN OFFICER	FACILITIES MANAGEMENT SERVICES COMPUTER SERVICES FOR S&L OPERATIONS  PROFESSIONAL PROGRAMMING SERVICES. SOFTWARE PACKAGES. RCS FINANCIAL PLANNING SERVICES DATA BASE RELATED RCS SERVICES RCS ECONOMIC & FINANCIAL SERVICES
MEDIUM	VP DATA PROCESSING  CHIEF FINANCIAL OFFICER	CHIEF FINANCIAL OFFICER  CHIEF FINANCIAL OFFICER	PROFESSIONAL PROGRAMMING SERVICES. SOFTWARE PACKAGES COMPUTER SERVICES FOR S&L OPERATIONS  RCS FINANCIAL PLANNING SERVICES
SMALL		PRESIDENT, ASSOC. MGR WITH COMMITTEE APPROVAL	COMPUTER SERVICES FOR S&L OPERATIONS

- The chief loan officer in very large and large S&Ls orders data base related RCS services for secondary mortgage market operations and for automated loan appraisal. The chief appraiser in some very large S&Ls may have the responsibility for ordering RCS for loan appraisal.
- The chief financial officer or treasurer of large S&Ls orders RCS and batch services which relate to the consumer interface, such as RCS for the savings and loan function. He also orders RCS for financial planning.
- Some large S&Ls have a chief loan officer who orders data base related RCS for loan appraisal and secondary mortgage market operation. In other large S&Ls the operating vice-president orders these services.
- The S&L president or chief operating officer would be responsible for signing a facilities management contract.
- In medium-size S&Ls the chief financial or chief operating officer has the responsibility of ordering all computer services.
- In small S&Ls the president or association manager has the responsibility, with the approval of the management committee.
- INPUT recently conducted a survey on the use of financial management and planning systems across all industries. One of areas studied in this survey was who buys and uses FMPS services and products. Although the following data is not directed at just the banking and finance industry, it is still significant to this study.
  - Exhibit III-20 indicates the key executives who approve buying of FMPS services/products.
  - The decision making authority typically rests at a lower than presidential level, but the decision is still made at the company officer level.

EXHIBIT III-20

KEY RESPONDENT EXECUTIVE WHO  
APPROVES BUYING FMPS SERVICES/PRODUCTS

TITLE	PROPORTION OF RESPONDENTS (%)
VICE PRESIDENT FINANCE	25%
CONTROLLER	23
TREASURER	18
PRESIDENT	13
FEDERAL DEPARTMENT HEAD	7
EDP MANAGER	5
PLANNING COMMITTEE	5
VICE PRESIDENT PLANNING	2
MANAGER FINANCIAL SYSTEMS	2
TOTAL	100%

- The actual users of FMPS services/products are shown in Exhibit III-21.
- Many people and management levels within the financial area use FMPS services and products.

EXHIBIT III-21

KEY RESPONDENT EXECUTIVES WHO USE FMPS SERVICES/PRODUCTS

TITLE	NUMBER OF RESPONDENTS (1)
MANAGER FINANCIAL ANALYSIS/ PLANNING	12
CONTROLLER	8
STAFF FINANCIAL/BUDGET ANALYST	5
ASSISTANT CORPORATE CONTROLLER	4
BUSINESS ECONOMIST (FEDERAL AND STATE)	4
DIRECTOR FINANCIAL INFORMATION SYSTEMS	2
DIRECTOR CORPORATE PLANNING	2
TREASURER	2
VICE PRESIDENT FINANCE	2
DIRECTOR OPERATIONS ANALYSIS/RESEARCH	2
VICE PRESIDENT MARKETING	1
TOTAL	44

(1) MAY BE MORE THAN ONE PER COMPANY



## IV APPLICATIONS ANALYSIS



## IV APPLICATIONS ANALYSIS

### A. CORRESPONDENT BANKING

- The correspondent banking functions are:
  - Demand deposits.
  - Savings.
  - Loans.
  - Administration.
  
- The demand deposit function is divided into seven applications:
  - Demand deposit accounting is accomplished primarily in a batch mode, although the use of remote batch is growing. Some larger banks are using interactive processing for "memo posting" (creation of temporary files prior to batch updating of master files) of cash transactions.
  - Overdraft protection alerts the affected bank of potential or actual customer overdrafts by issuing special reports concurrent with daily batch processing. Overdraft protection is a by-product of an interactive inquiry-memo posting system.

- Revolving credit automatically extends personal credit to customers when overdrafts would otherwise occur. The process occurs as a result of the daily batch processing of demand deposit accounts.
  - The proof and transit application can be accomplished at the bank itself prior to sending the checks to the processing center, or by the processing center in a batch mode prior to processing the demand deposit application. Newer systems permit single pocket proofing at the bank and remote transmission of all items to the processing center.
  - Account reconciliation is the process of sorting, listing, and reconciling outstanding checks per account. It is accomplished in the batch mode by the processing center.
  - Statement preparation is accomplished monthly on a batch basis by the processing center. When account reconciliation is used with statement preparation, the checks are returned to the bank with the statements. Otherwise, the statement and checks are combined by the bank tellers.
  - Now (Negotiated Order of Withdrawal) accounts are interest bearing demand deposit accounts. They are handled by a few processing centers, primarily in New England, on a batch or remote batch basis.
- The degree of EDP utilization in the demand deposit function is shown in Exhibit IV-1.
  - The savings function is comprised of five related applications. These activities are currently accomplished primarily in a batch or remote batch mode. The trend, however, is to shift this activity to an interactive processing mode. The five applications are:
    - Passbook savings.
    - Time deposits.

CORRESPONDENT BANKING  
EDP UTILIZATION: DEMAND DEPOSIT FUNCTION

APPLICATIONS	BANK SIZE*											
	VERY LARGE			LARGE			MEDIUM			SMALL		
	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
DEMAND DEPOSIT ACCOUNTING	XXX	X	X	XXX	X	X	XX	XX	X	XX	XXX	-
OVERDRAFT PROTECTION	XXX	X	X	XXX	X	X	XX	XX	X	XX	XX	-
REVOLVING CREDIT	XXX	X	XX	XXX	X	X	XX	XX	X	XX	XX	-
PROOF AND TRANSIT	XXX	X	-	XXX	X	-	XX	XX	-	XX	XXX	-
ACCOUNT RECONCILIATION	XXX	X	-	XXX	X	-	XX	XX	-	XX	XX	-
STATEMENT PREPARATION	XXX	X	-	XXX	X	-	XX	XX	-	XX	XXX	-
NOW ACCOUNTING	XX	X	XX	XX	X	X	X	XX	X	XX	XX	-

- NOT USED  
 X LESS THAN 25%  
 XX BETWEEN 25% AND 75%  
 XXX OVER 75%

IH - IN-HOUSE  
 CS - OUTSIDE SERVICES  
 INT - INTERACTIVE REMOTE COMPUTING

\*VERY LARGE DEPOSITS > \$1B  
 LARGE DEPOSITS > \$500M ≤ \$1B  
 MEDIUM DEPOSITS > \$100M ≤ \$500M  
 SMALL DEPOSITS ≤ \$100M

- Certificates of deposit
- Christmas/travel clubs.
- IRA & KEOGH accounts.
- The degree of EDP utilization in the savings function is shown in Exhibit IV-2.
- The loan function comprises applications which handle four types of loans.
  - Commercial loans are processed primarily in a batch mode although the use of remote batch is growing.
  - Banks use interactive computing to accomplish the personal, installment, and mortgage loan applications when they already have the on-line systems to do the savings function. If the savings function is not performed on-line, the personal, installment and mortgage loan applications are processed in a batch or remote batch service mode.
- The degree of EDP utilization in the loan function is shown in Exhibit IV-3.
- The administrative function includes six applications.
  - The central information file (CIF) is a data base management application. CIF is rapidly increasing in importance in correspondent banking. Although CIF can be operated in the batch mode, it is central to interactive remote computing for the savings, loan, and demand deposit functions.
  - The on-line inquiry/"memo posting" applications are accomplished in the interactive mode. On-line inquiry allows the teller/customer to access demand, savings and loan accounts by customer name or account number. "Memo posting" creates an entry on a transaction file which

CORRESPONDENT BANKING  
EDP UTILIZATION: SAVINGS FUNCTION

APPLICATIONS	BANK SIZE*												
	VERY LARGE			LARGE			MEDIUM			SMALL			
	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT	
PASSBOOK SAVINGS	XXX	X	XXX	XXX	X	XX	XX	XXX	XX	X	XX	XX	X
TIME DEPOSITS	XXX	X	XXX	XXX	X	XX	XX	XXX	XX	X	XX	XX	X
CERTIFICATE OF DEPOSIT	XXX	X	XXX	XXX	X	X	XX	XX	X	X	XX	XX	-
CHRISTMAS/ TRAVEL CLUBS	XXX	X	XX	XXX	X	X	XX	XX	X	X	XX	XX	-
IRA & KEOGH ACCOUNTS	XXX	X	XX	XX	X	X	XX	XX	X	X	XX	XX	-

- NOT USED  
 X LESS THAN 25%  
 XX BETWEEN 25% AND 75%  
 XXX OVER 75%

IH - IN-HOUSE  
 CS - OUTSIDE SERVICES  
 INT - INTERACTIVE REMOTE COMPUTING

\*VERY LARGE DEPOSITS > \$1B  
 LARGE DEPOSITS > \$500M ≤ \$1B  
 MEDIUM DEPOSITS > \$100M ≤ \$500M  
 SMALL DEPOSITS ≤ \$100M

EXHIBIT IV-3

CORRESPONDENT BANKING  
EDP UTILIZATION: LOAN FUNCTION

APPLICATIONS	BANK SIZE*															
	VERY LARGE				LARGE				MEDIUM				SMALL			
	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT	
COMMERCIAL LOANS	XXX	X	X	XXX	X	X	X	X	X	X	X	X	X	-	-	
PERSONAL LOANS	XXX	X	X	XXX	X	X	XX	XX	X	XX	XX	X	X	XXX	-	
INSTALLMENT LOANS	XXX	X	XX	XXX	X	XX	XX	XX	X	XX	XX	X	X	XXX	-	
MORTGAGE LOANS	XXX	X	X	XXX	X	X	XX	XX	X	XX	XX	X	X	XXX	-	

- NOT USED  
 X LESS THAN 25%  
 XX BETWEEN 25% AND 75%  
 XXX OVER 75%

IH - IN-HOUSE  
 CS - OUTSIDE SERVICES  
 INT - INTERACTIVE REMOTE COMPUTING

\*VERY LARGE DEPOSITS > \$1B  
 LARGE DEPOSITS > \$500M ≤ \$1B  
 MEDIUM DEPOSITS > \$100M ≤ \$500M  
 SMALL DEPOSITS ≤ \$100M



gives the outward appearance of real-time file updating whereas in reality the master file is updated later in the batch mode.

- Account maintenance is currently accomplished primarily in a batch or remote batch mode. Banks are rapidly shifting to the use of administrative CRT terminals to accomplish account file maintenance either through "memo posting" or directly in real-time.
- The general ledger (GL) application is produced as a by-product of processing the savings, loan, and demand deposit functions. General ledger systems for correspondent banking provide for controls (such as journaling) for both multi-branch and multi-bank operations.
- Implementing the CIF application allows banks to provide service on a customer basis as opposed to an account basis. The service culminates in a consolidated statement of all savings, loan, and demand transactions against all customer accounts.
- The degree of EDP utilization in the administrative function is shown in Exhibit IV-4.

## B. SAVINGS AND LOANS

- The savings and loan application functions are:
  - Savings.
  - Loans.
  - Administration.
  - Financial management.

EXHIBIT IV-4

CORRESPONDENT BANKING  
EDP UTILIZATION: ADMINISTRATIVE FUNCTION

APPLICATIONS	BANK SIZE*																							
	VERY LARGE						LARGE						MEDIUM						SMALL					
	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT						
CENTRAL INFORMATION FILE (CIF)	XXX	X	XXX	XXX	X	XX	XXX	X	XXX	X	XX	XXX	X	XXX	X	XX	XXX	X	XX	—	XXX	X		
ON-LINE INQUIRY	XXX	X	XXX	XXX	X	XXX	XXX	X	XXX	X	XX	XXX	X	XXX	X	XX	XXX	X	XX	—	XXX	X		
ON-LINE POSTING	XXX	X	XXX	XXX	X	XX	XXX	X	XXX	X	XX	XXX	X	XXX	X	XX	XXX	X	XX	—	—	—		
ON-LINE ACCOUNT MAINTENANCE	XXX	X	XXX	XXX	X	XX	XXX	X	XXX	X	XX	XXX	X	XXX	X	XX	XXX	X	XX	—	XXX	X		
GENERAL LEDGER	XXX	X	—	XXX	X	—	XXX	X	—	XXX	X	—	XXX	X	—	XXX	X	—	—	XXX	—			
CONSOLIDATED CUSTOMER STATEMENTS	XX	X	—	X	X	—	X	X	—	X	X	X	X	—	X	X	X	X	—	—	X	—		

— NOT USED  
X LESS THAN 25%  
XX BETWEEN 25% AND 75%  
XXX OVER 75%

IN — IN-HOUSE  
CS — OUTSIDE SERVICES  
INT — INTERACTIVE REMOTE COMPUTING

\*VERY LARGE DEPOSITS > \$1B  
LARGE DEPOSITS > \$500M ≤ \$1B  
MEDIUM DEPOSITS > \$100M ≤ \$500M  
SMALL DEPOSITS ≤ \$100M

- Special consumer services.
- The savings and loan industry is highly automated. Between 95% and 99% of total S&L asset value is currently being managed by computer.
- The smaller the S&L, the more likely it is to be a candidate for outside services. Almost all (98%) very large S&Ls have in-house EDP capability. Slightly more than 40% of large S&Ls have in-house EDP and only about 4% of small S&Ls have an in-house capability.
- A significant barrier to entry in the saving and loan industry is the cost structure inherent in the processing for these organizations. Since the majority of the S&L EDP functions are processed on-line, the vendor with the lowest communication line costs has a competitive advantage over other contenders. This partially explains the regional competitive influences in the S&L industry which are discussed in Section V:B.
- The applications which comprise the savings function are shown in Exhibit IV-5. The degree to which EDP is utilized in this area is shown in Exhibit IV-6.
- Passbook savings and withdrawals are done primarily through interactive remote computing. Other savings functions applications can be performed via batch or remote batch.
- The applications making up the loan function are shown in Exhibit IV-7. The degree to which EDP is utilized in this area is shown in EXhibit IV-8.
- The loan function is typically processed in a batch or remote batch mode.
- The applications which support the administrative function are shown in Exhibit IV-9. The degree to which EDP is utilized in this area is shown in EXhibit IV-10.
- The administrative function is processed in a batch or remote batch mode.

EXHIBIT IV-5

SAVINGS AND LOAN  
 PRINCIPAL APPLICATIONS: SAVINGS FUNCTION

APPLICATIONS GROUP	APPLICATIONS PERFORMED WITHIN GROUP
CONSUMER SAVINGS	<ul style="list-style-type: none"> <li>● PASSBOOK                             <ul style="list-style-type: none"> <li>- POSTING OF SAVINGS &amp; WITHDRAWALS</li> <li>- STATEMENT PREPARATION</li> <li>- INTEREST COMPUTATION</li> <li>- ACCOUNT TRANSFERS &amp; CLOSEOUTS</li> </ul> </li> <li>● SAVINGS CERTIFICATE PROCESSING</li> <li>● MARKET RATE CERTIFICATES</li> <li>● NEGOTIABLE CERTIFICATES</li> <li>● INVESTMENT ANNUITIES</li> <li>● IRA &amp; KEOGH ACCOUNTS</li> </ul>
REGIONAL AND BRANCH ACTIVITY	<ul style="list-style-type: none"> <li>● PROFIT &amp; LOSS MANAGEMENT                             <ul style="list-style-type: none"> <li>- SAVINGS &amp; LOAN ANALYSIS</li> <li>- INCOME/COST PROCESSING</li> </ul> </li> <li>● RESOURCE BALANCING</li> <li>● JOURNALING</li> </ul>
SAVINGS ADMINISTRATION	<ul style="list-style-type: none"> <li>● ACCOUNT STATUS                             <ul style="list-style-type: none"> <li>- NEW ACCOUNTS</li> <li>- ACCOUNT CHANGES</li> <li>- DORMANT ACCOUNT CONTROL</li> </ul> </li> <li>● DATA BASE MANAGEMENT</li> </ul>

SAVINGS AND LOAN

EDP UTILIZATION: SAVINGS FUNCTION

APPLICATIONS GROUP	APPLICATIONS	SAVINGS & LOAN SIZE*												
		VERY LARGE			LARGE			MEDIUM			SMALL			
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT	
CONSUMER SAVINGS	<ul style="list-style-type: none"> <li>PASSBOOK SAVINGS</li> <li>SAVINGS CERTIFICATES</li> <li>MARKET RATE CERTIFICATES</li> <li>NEGOTIABLE CERTIFICATES</li> <li>INVESTMENT ANNUITY</li> <li>IRA &amp; KEOGH ACCOUNTS</li> </ul>	xxx	x	xxx	xxx	x	xxx	xxx	xx	xxx	x	xxx	xxx	xxx
		xxx	x	xxx	xxx	x	xxx	xxx	xx	xxx	x	xxx	xxx	xxx
		xxx	-	xxx	xx	-	xxx	xxx	-	-	-	-	-	-
		xxx	-	xxx	xx	-	xxx	xxx	-	-	-	-	-	-
		xxx	-	xxx	xx	-	xxx	xxx	-	-	-	-	-	-
		xxx	x	xxx	xxx	x	xxx	xxx	xx	xxx	x	xxx	xx	xx
REGIONAL & BRANCH ACTIVITY	<ul style="list-style-type: none"> <li>RESOURCE BALANCING</li> <li>PROFIT &amp; LOSS MANAGEMENT</li> </ul>	x	-	x	-	-	-	-	-	-	-	-	-	
		xxx	x	xxx	xxx	x	xxx	xxx	x	xx	-	-	-	
SAVINGS ADMINISTRATION	<ul style="list-style-type: none"> <li>ACCOUNT STATUS</li> </ul>	xxx	x	xxx	xxx	x	xxx	xxx	xx	xxx	xx	xx	xx	

- NOT USED  
 x LESS THAN 25%  
 xx BETWEEN 25% AND 75%  
 xxx OVER 75%

\*VERY LARGE DEPOSITS > \$1B  
 LARGE DEPOSITS > \$100M ≤ \$1B  
 MEDIUM DEPOSITS > \$25M ≤ \$100M  
 SMALL DEPOSITS ≤ \$25M

EXHIBIT IV-7

SAVINGS AND LOAN

PRINCIPAL APPLICATIONS: LOAN FUNCTION

APPLICATIONS GROUP	APPLICATIONS PERFORMED WITHIN GROUP
LENDING	<ul style="list-style-type: none"> <li>● CONSUMER LOANS                             <ul style="list-style-type: none"> <li>- Mortgage Loan Processing</li> <li>- Installment Payments</li> <li>- Loan Payoff Computation</li> <li>- Automatic Payments</li> </ul> </li> <li>● IMPOUND ACCOUNTING HANDLING                             <ul style="list-style-type: none"> <li>- Insurance</li> </ul> </li> <li>● APPRAISALS                             <ul style="list-style-type: none"> <li>- Computer assisted appraisals using local real estate loan history data base.</li> </ul> </li> <li>● CONSTRUCTION LOANS                             <ul style="list-style-type: none"> <li>- Progress Payments</li> </ul> </li> </ul>
LOAN ADMINISTRATION	<ul style="list-style-type: none"> <li>● LOAN COMMITMENT TRACKING</li> <li>● LOAN DOCUMENTATION</li> <li>● LOAN SERVICING</li> </ul>
REAL ESTATE MANAGEMENT	<ul style="list-style-type: none"> <li>● RENTAL PROPERTY ACCOUNTING</li> <li>● APPRAISALS</li> </ul>
SECONDARY MORTGAGE MARKETS	<ul style="list-style-type: none"> <li>● COMPUTER ASSISTED MORTGAGE MARKET TRADING</li> </ul>

SAVINGS AND LOAN

EDP UTILIZATION: LOAN FUNCTION

APPLICATIONS GROUP	APPLICATIONS	SAVINGS & LOAN SIZE*											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
LENDING	<ul style="list-style-type: none"> <li>• CONSUMER LOANS</li> <li>• APPRAISALS</li> <li>• CONSTRUCTION LOANS</li> </ul>	xxx	x	xxx	xxx	x	xxx	-	-	-	-	-	-
		-	xx	xxx	-	x	xxx	-	-	-	-	-	-
		xxx	x	xxx	xxx	x	xxx	xx	xx	xxx	-	-	-
LOAN ADMINISTRATION	<ul style="list-style-type: none"> <li>• LOAN COMMITMENT TRACKING</li> <li>• LOAN DOCUMENTATION</li> <li>• LOAN SERVICING</li> </ul>	xxx	x	xxx	xx	xx	xxx	x	xx	xxx	-	x	xxx
		xx	x	xxx	x	x	xx	x	x	xx	-	x	xx
		xxx	x	xxx	xx	xx	xxx	x	x	xxx	-	-	-
REAL ESTATE MANAGEMENT	<ul style="list-style-type: none"> <li>• RENTAL PROPERTY ACCOUNTING</li> <li>• APPRAISALS</li> </ul>	xxx	-	xxx	xxx	x	xx	-	-	-	-	-	-
		-	xx	xxx	-	x	xxx	-	-	-	-	-	-
		-	x	xxx	-	-	xxx	-	-	-	-	-	-
SECONDARY MORTGAGE MARKET	<ul style="list-style-type: none"> <li>• TRADING</li> </ul>	-	x	xxx	-	x	xxx	-	-	-	-	-	-
		-	-	xxx	-	-	xxx	-	-	-	-	-	-
		-	-	xxx	-	-	xxx	-	-	-	-	-	-

- NOT USED  
x LESS THAN 25%  
xx BETWEEN 25% AND 75%  
xxx OVER 75%

IH - IN-HOUSE  
CS - OUTSIDE SERVICES  
INT - INTERACTIVE DATA PROCESSING

\*VERY LARGE DEPOSITS > \$1B  
LARGE DEPOSITS > \$100M ≤ \$1B  
MEDIUM DEPOSITS > \$25M ≤ \$100M  
SMALL DEPOSITS ≤ \$25M

EXHIBIT IV-9

SAVINGS AND LOAN

PRINCIPAL APPLICATIONS: ADMINISTRATION FUNCTION

APPLICATIONS GROUP	APPLICATIONS PERFORMED WITHIN GROUP
PERSONNEL	<ul style="list-style-type: none"> <li>● PERSONNEL RECORDS                             <ul style="list-style-type: none"> <li>- Affirmative Action</li> <li>- Equal Opportunity</li> <li>- Accounting</li> </ul> </li> <li>● PAYROLL                             <ul style="list-style-type: none"> <li>- Payroll Systems</li> <li>- Government Reporting</li> </ul> </li> </ul>
FACILITIES	N/A - None Automated Yet
STAFF SERVICES	<ul style="list-style-type: none"> <li>● AUTOMATIC DEPOSITS                             <ul style="list-style-type: none"> <li>- Payroll</li> <li>- Social Security</li> </ul> </li> <li>● PUBLIC FUNDS ACCOUNTING</li> <li>● DEFERRED COMPENSATION ACCOUNTS</li> </ul>



SAVINGS AND LOAN

EDP UTILIZATION: ADMINISTRATION FUNCTIONS

APPLICATIONS GROUP	APPLICATIONS	SAVINGS & LOAN SIZE*														
		VERY LARGE			LARGE			MEDIUM			SMALL					
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
PERSONNEL	• PERSONNEL RECORDS	XX	XX	XX	X	XX	XX	XX	XX	XX	XX	-	XX	XX	XX	-
	• PAYROLL	X	XXX	-	-	XX	-	XX	-	XX	-	XX	-	XX	-	-
FACILITIES		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STAFF SERVICES	• PUBLIC FUNDS ACCOUNT	XXX	X	XXX	XXX	X	XXX	X	XXX	XXX	X	XXX	X	XXX	X	XXX
	• AUTOMATIC DEPOSITS	XXX	X	XXX	XXX	X	XXX	X	XXX	XXX	X	XXX	X	XXX	X	XXX
	• DEFERRED COMPENSATION	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-

- NOT USED  
 x LESS THAN 25%  
 xx BETWEEN 25% AND 75%  
 xxx OVER 75%

IH - IN-HOUSE  
 CS - OUTSIDE SERVICES  
 INT - INTERACTIVE REMOTE PROCESSING

\*VERY LARGE DEPOSITS > \$1B  
 LARGE DEPOSITS > \$100M ≤ \$1B  
 MEDIUM DEPOSITS > \$25M ≤ \$100M  
 SMALL DEPOSITS ≤ \$25M

- The applications areas which accomplish the financial management function are shown in Exhibit IV-11. The degree to which EDP is utilized in this area is shown in Exhibit IV-12.
- The financial planning applications are typically performed using an RCS vendor. Other applications in the financial management function are performed in a batch or remote batch mode.
- The applications which accomplish the special consumer services function are shown in Exhibit IV-13. The degree to which EDP is utilized in this area is shown in Exhibit IV-14.
- Most of the applications within this area are processed on-line, either using in-house computers or RCS capabilities.
- The savings and loan industry is actively creating the image of being "a family finance center." A list of the services being offered as part of the concept is shown in Exhibit IV-15.

### C. FINANCIAL MANAGEMENT AND PLANNING SYSTEMS

#### I. FINANCIAL MANAGEMENT AND PLANNING SYSTEMS (FMPS) TECHNIQUES

- FMPS services and software aid the financial and business planner in building a computer model of one or more areas (applications) of the company's business.
- Starting with one or more sets of assumptions, the planner next defines the variables to be forecasted. He next determines the logic or equations that interrelate the assumptions and the variables.
- Where relationships between variables are not finitely known, the business planner will use statistical techniques to estimate the interrelationships.

EXHIBIT IV-11

SAVINGS AND LOAN

PRINCIPAL APPLICATIONS: FINANCIAL MANAGEMENT FUNCTION

APPLICATIONS GROUP	APPLICATIONS PERFORMED WITHIN GROUP
FINANCIAL PLANNING	<ul style="list-style-type: none"> <li>● PLANNING AND BUDGETING               <ul style="list-style-type: none"> <li>- MODELING</li> <li>- FORECASTING</li> <li>- PLANNING ACCOUNTING &amp; FINANCIAL INFORMATION</li> </ul> </li> </ul>
FINANCIAL REPORTING	<ul style="list-style-type: none"> <li>● PROFIT ANALYSES               <ul style="list-style-type: none"> <li>- SINGLE UNIT</li> <li>- BY BRANCH</li> <li>- BY REGION</li> </ul> </li> <li>● STATEMENT PREPARATION               <ul style="list-style-type: none"> <li>- GENERAL LEDGER</li> <li>- COST ACCOUNTING</li> </ul> </li> <li>● COST ANALYSIS</li> </ul>
ASSET & LIABILITY MANAGEMENT	<ul style="list-style-type: none"> <li>● CASH MANAGEMENT</li> <li>● LIQUIDITY MANAGEMENT</li> <li>● INVESTMENT MANAGEMENT               <ul style="list-style-type: none"> <li>- PORTFOLIO ANALYSIS</li> <li>- ECONOMIC MODELING</li> <li>- USE OF ECONOMIC/FINANCIAL DATA BASES</li> </ul> </li> </ul>

EXHIBIT IV-12

SAVINGS AND LOAN

EDP UTILIZATION: FINANCIAL MANAGEMENT FUNCTION

APPLICATIONS GROUP	APPLICATIONS	SAVINGS & LOAN SIZE*											
		VERY LARGE			LARGE			MEDIUM			SMALL		
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT
FINANCIAL PLANNING	<ul style="list-style-type: none"> <li>• PLANNING &amp; BUDGETING</li> <li>• MODELING</li> <li>• FORECASTING</li> </ul>	-	xxx	xxx	-	x	xxx	-	-	-	-	-	-
		-	xxx	xxx	-	x	xxx	-	-	-	-	-	-
		-	xxx	xxx	-	x	xxx	-	-	-	-	-	-
FINANCIAL REPORTING	<ul style="list-style-type: none"> <li>• PROFIT ANALYSIS</li> <li>• FINANCIAL STATEMENT PREPARATION</li> <li>• COST ANALYSIS</li> </ul>	-	xxx	xxx	-	x	xxx	-	-	-	-	-	-
		xxx	x	xxx	xxx	x	xxx	x	xx	xxx	-	xx	xx
		xxx	x	xxx	xxx	x	xxx	-	-	-	-	-	-
PORTFOLIO MANAGEMENT	<ul style="list-style-type: none"> <li>• CASH MANAGEMENT</li> <li>• LIQUIDITY MANAGEMENT</li> <li>• INVESTMENT MANAGEMENT</li> </ul>	-	xxx	xxx	-	x	xxx	-	-	-	-	-	-
		-	xxx	xxx	-	x	xxx	-	-	-	-	-	-
		-	xxx	xxx	-	x	xxx	-	-	-	-	-	-

- NOT USED  
 x LESS THAN 25%  
 xx BETWEEN 25% AND 75%  
 xxx OVER 75%

IH - IN-HOUSE  
 CS - OUTSIDE SERVICES  
 INT - INTERACTIVE REMOTE PROCESSING

\*VERY LARGE DEPOSITS > \$1B  
 LARGE DEPOSITS > \$100M ≤ \$1B  
 MEDIUM DEPOSITS > \$25M ≤ \$100M  
 SMALL DEPOSITS ≤ \$25M

EXHIBIT IV-13

SAVINGS AND LOAN

PRINCIPAL APPLICATIONS: SPECIAL CONSUMER SERVICES FUNCTION

APPLICATIONS GROUP	APPLICATIONS PERFORMED WITHIN GROUP
FUNDS TRANSFER	<ul style="list-style-type: none"> <li>● POINT OF SALE (P-O-S)</li> <li>● AUTOMATED TELLER TERMINALS (ATM)</li> <li>● EFT NETWORK MANAGEMENT</li> </ul>
THIRD PARTY PAYMENT	<ul style="list-style-type: none"> <li>● NOW ACCOUNTS</li> <li>● CHECKING ACCOUNTS                             <ul style="list-style-type: none"> <li>- Demand Deposit Accounting</li> <li>- Clearing House</li> </ul> </li> <li>● PAY BY PHONE</li> <li>● AUTOMATED TELLER TERMINALS</li> </ul>
CONSUMER CREDIT	<ul style="list-style-type: none"> <li>● CREDIT CARDS</li> <li>● CONSUMER LENDING                             <ul style="list-style-type: none"> <li>- Credit Authorization Networks</li> </ul> </li> </ul>

EXHIBIT IV-14

SAVINGS AND LOAN

EDP UTILIZATION: SPECIAL CONSUMER SERVICES FUNCTION

APPLICATIONS GROUP	APPLICATIONS	SAVINGS & LOAN SIZE*																
		VERY LARGE			LARGE			MEDIUM			SMALL							
		IH	CS	INT	IH	CS	INT	IH	CS	INT	IH	CS	INT					
FUNDS TRANSFER SYSTEMS	<ul style="list-style-type: none"> <li>POINT OF SALE SYSTEMS</li> <li>AUTOMATED TELLER SYSTEMS</li> </ul>	xxx	x	xxx	xx	xx	xxx	xx	xx	xxx	x	x	xxx	-	x	x	xxx	
THIRD PARTY PAYMENT MECHANISMS	<ul style="list-style-type: none"> <li>NOW ACCOUNTS</li> <li>CHECKING ACCOUNTS</li> <li>PAY BY PHONE</li> </ul>	x	x	x	x	x	x	-	x	x	-	x	x	x	x	-	-	xx
CONSUMER CREDIT	<ul style="list-style-type: none"> <li>CREDIT CARDS</li> <li>CONSUMER LENDING</li> </ul>	xx	xx	xxx	xx	xx	xxx	xx	xx	xxx	x	x	xxx	xxx	x	-	xxx	-

- NOT USED  
 x LESS THAN 25%  
 xx BETWEEN 25% AND 75%  
 xxx OVER 75%

IH - IN-HOUSE  
 CS - OUTSIDE SERVICES  
 INT - INTERACTIVE REMOTE PROCESSING

\*VERY LARGE DEPOSITS > \$1B  
 LARGE DEPOSITS > \$100M ≤ \$1B  
 MEDIUM DEPOSITS > \$25M ≤ \$100M  
 SMALL DEPOSITS ≤ \$25M

EXHIBIT IV-15

SAVINGS AND LOAN "FAMILY FINANCE CENTER"

TYPICAL CONSUMER SERVICES OFFERED

- SAVINGS ACCOUNTS
  - CERTIFICATE
  - PASS BOOK
- NEGOTIABLE CERTIFICATES
- MARKET RATE CERTIFICATES
- DIRECT DEPOSIT OF PAYROLL CHECKS
- DIRECT DEPOSIT OF SOCIAL SECURITY CHECKS
- CHECKING ACCOUNTS
- CONSUMER LENDING
- CONSUMER CREDIT
- PHONE TRANSFER OF FUNDS
- PHONE PAYMENT OF BILLS
- INVESTMENT ANNUITY ACCOUNTS
- IRA ACCOUNTS
- KEOGH PLAN ACCOUNTS
- MONTHLY ACCOUNT STATEMENTS
- TRUST DEED AND NOTE COLLECTION
- INCOME TAX PREPARATION
- TRAVELERS' CHECKS
- SAFETY DEPOSIT BOXES
- SAVE BY MAIL
- SAVING CLUB MEMBERSHIP

- If the data input is small, the planner may enter the data as a file; whereas when large volumes of company or external data is required for forecasting, the financial analyst will access the data through a data base management system (DBMS).
- The last element of a financial model is displaying the results either through computer graphics or a printed report.
- The model building process has become almost entirely interactive. The business planner frequently uses remote computing services (RCS) to accomplish this task. Alternatives are in-house timesharing, or more recently, minicomputers.
- FMPS model execution has also become virtually all interactive. RCS revenues are divided between the model building process (general business application) and model execution (specialty).

## 2. TYPES OF FMPS PRODUCTS AND SERVICES

### a. In-House Models

- Some users have used standard programming languages to program their financial models for in-house use. Most user developed financial and business planning models are coded in FORTRAN, primarily because of the widespread availability of FORTRAN mathematical and statistical library routines, and the fact that the models themselves are sets of mathematical (logical) equations. FMPS models, home grown in this manner, are difficult to understand and even more difficult (even at times for the author) to revise.



b. Fixed Packages

- Initially, FMPS software vendors offered their less sophisticated users mostly fixed or predetermined forecasting models and report display methods. The models were easy to use but limited in scope. The inflexibility of the system narrowed its market potential.

c. Table Driven Systems

- Vendors next offered FMPS systems based on table, matrix and report generation subsystems. These systems were an outgrowth of processing large volumes of tabular data which required frequent updating. The systems have been expanded to handle serial calculations on designated rows and across columns.

d. High Order Modeling Languages

- More recently vendors are offering FMPS packages based on high order financial modeling languages. The language permits the model to be developed in terms (words, symbols, functions) familiar to the business planner. Significant features of advanced FMPS software are:

- A comprehensive modeling language.
- Ability to reorder the equations.
- The ability to solve simultaneous equations.
- Detection of propagation errors.
- Library of standard business and financial functions.
- Comprehensive report writer.

- Comprehensive graphics package.

e. Application Packages

- Using high order modeling languages, vendors have produced application packages to solve selected cross-industry problems for financial planners (such as replacement cost accounting).
- High order modeling languages have also permitted vendors to develop financial management and planning packages which are as easy for business planners of Fortune 1000 and smaller size companies to use as were the fixed systems; but where the assumptions and statistical estimation methods are easily alterable at the user's request, and by the vendor's consultant.

3. TYPES OF FMPS VENDORS

a. Remote Computing Services (RCS) Vendors

- RCS vendors offer FMPS software in conjunction with remote processing. The mode is almost exclusively interactive.
- Most RCS vendors offer FMPS packages without either package lease cost or premium charge for RCS usage.
- Professional consulting services are an important ingredient of both selling and supporting the business planner. Professional services are used for assisting the planner in model design and programming.
- RCS vendors tend to specialize in specific market segments.
- RCS vendors are offering FMPS software on vendor supplied on-site minis.

b. Software Product Vendors

- Software product vendors offer FMPS software for in-house installation and for use through selected RCS vendors.
  - Software product vendors charge in-house users an installation license fee and a periodic (monthly or yearly) maintenance fee. The maintenance fee usually begins one year from initial installation.
  - Software product vendors typically charge an RCS vendor in one of two ways:
    - An installation license fee and a periodic maintenance fee.
    - A percentage of the gross revenue (royalty) generated through customer use of the software product vendor's package on the RCS vendor's network.
    - A royalty arrangement would normally be preferred by the software product vendor if high customer use is expected on the RCS vendor's network.
    - An installation license fee with a maintenance agreement would be preferable to the software product vendor that needed immediate cash flow or where the RCS vendor's ability to market the package was in question.
- Professional consulting services are used by software product vendors to help sell and support the business planner. Emphasis is placed on training and helping the user get started.
- Formation and support of user's groups is another ingredient of customer support.

- Software product vendors are offering FMPS software on minicomputers.
- Software product vendors are offering cross industry and industry application packages programmed in a high order modeling language.

#### 4. USES OF FMPS

- FMPS usage cuts across all industries. Manufacturing and the Banking and Finance sectors account for between 50% and 60% of all industry FMPS usage.
- A survey conducted by INPUT reflects current applicational use of FMPS (see Exhibit IV-16). New applications will constantly be developed, however, as users become familiar and comfortable with the use of FMPS. The applications shown in Exhibit IV-16 reflect usage across all industries, not just banking and finance.

#### D. FINANCIAL AND ECONOMIC DATA BASES

- This service is based on the sale of the financial or economic information itself. DBS vendors obtain revenues by selling or renting their data bases directly to users or to RCS vendors. The majority of these revenues are obtained from the sale of the data bases in printed form and on magnetic media for in-house computer use.
- Data base access software is provided enabling the user to access time series (or portions thereof) in conducting his own data analysis. The software allows the corporate economist to create his own forecasting model. Examples of such systems presently being offered are:
  - MODSIM offered by DRI.
  - TSAM offered by ADP Network Services..

EXHIBIT IV-16

RESPONDENTS' APPLICATIONAL USE OF FMPS

APPLICATION	PROPORTION OF RESPONDENTS (%)
LONG RANGE PLANNING	74%
OPERATING BUDGETING	65
CASH REQUIREMENTS FORECASTING	62
CAPITAL BUDGETING	59
SOURCE AND USE OF FUNDS	59
CASH MANAGEMENT	53
PRO FORMA	50
INVESTMENT ANALYSIS	44
SALES FORECASTING	44
CONSOLIDATIONS	38
LEASE/BUY	32
MARKET PLANNING	27
MERGER/ACQUISITION ANALYSIS	24
FACILITIES PLANNING	18
FOREIGN EXCHANGE	15

- PROBE offered by Rapidata.

- XSIM offered by IDC.

- EMS offered by NCSS.

- Typical capabilities that may be included with data base access and analysis software include:

- Manipulate time series.

- Access

- Create

- Update

- Revise

- Modeling routines:

- Regression - linear, polynomial, stepwise.

- Autocorrelation, covariance, spectrum analysis.

- Compare and tally time series.

- Lead/lag techniques.

- Solve recursive and simultaneous equations.

- Box-Jenkins forecasting techniques.

- Display and reporting routine:

- Tabular formulating
  - Graphics.
- Many vendors offer packaged forecasting models to encourage data base usage.
  - It is in the vendor's best interest to offer easy to use models for the customer, as the vendor generates revenue from data base and model usage.
  - These models include short range forecasting (up to two years) and long range forecasting (five years or more).
- Typical models available are:
  - National Economy - The econometric model of the U.S. economy forecasts from 80 to 300 variables.
  - Monetarist Models - Forecasts approximately 80 variables. Concentrates on financial marketplace.
  - Aggregate Models - Utilizes data from industrial and federal (fiscal) sectors and breaks down aggregate results into over 300 forecast items.
  - Industry Models - These econometric models are aggregate models tailored to specific industries and are related to the industry specific data bases. Example are:
    - Insurance.
    - Lumber
    - Petro Chemicals.

- Regional Models - The models are aggregate models which utilize regional data bases.
  - California Economic Forecast (eg., UCLA and Economic Sciences (NCSS)).
- Historical data bases are maintained so that the model user or builder does not have to enter or store large amounts of data. A historical data base would include 20 or more years of information dealing with a specific subject. For example, a historical securities data base would include daily prices of all listed stocks, bonds, options, warrants, splits, dividends, highs, lows, bid, asked, etc.
- Forecast data bases are also provided. These data bases carry forecasts for up to five years in the future. The data base is a product of an economic model. Multiple data bases may be employed for multiple sets of assumptions. These data bases are used on an inquiry basis by subscribers.
- Regional data bases containing historical data by state, county, etc. are also maintained by vendors.
- Industry data bases containing aggregate industry specific information is another type of data base that vendors maintain.

#### E. FUNDS TRANSFER

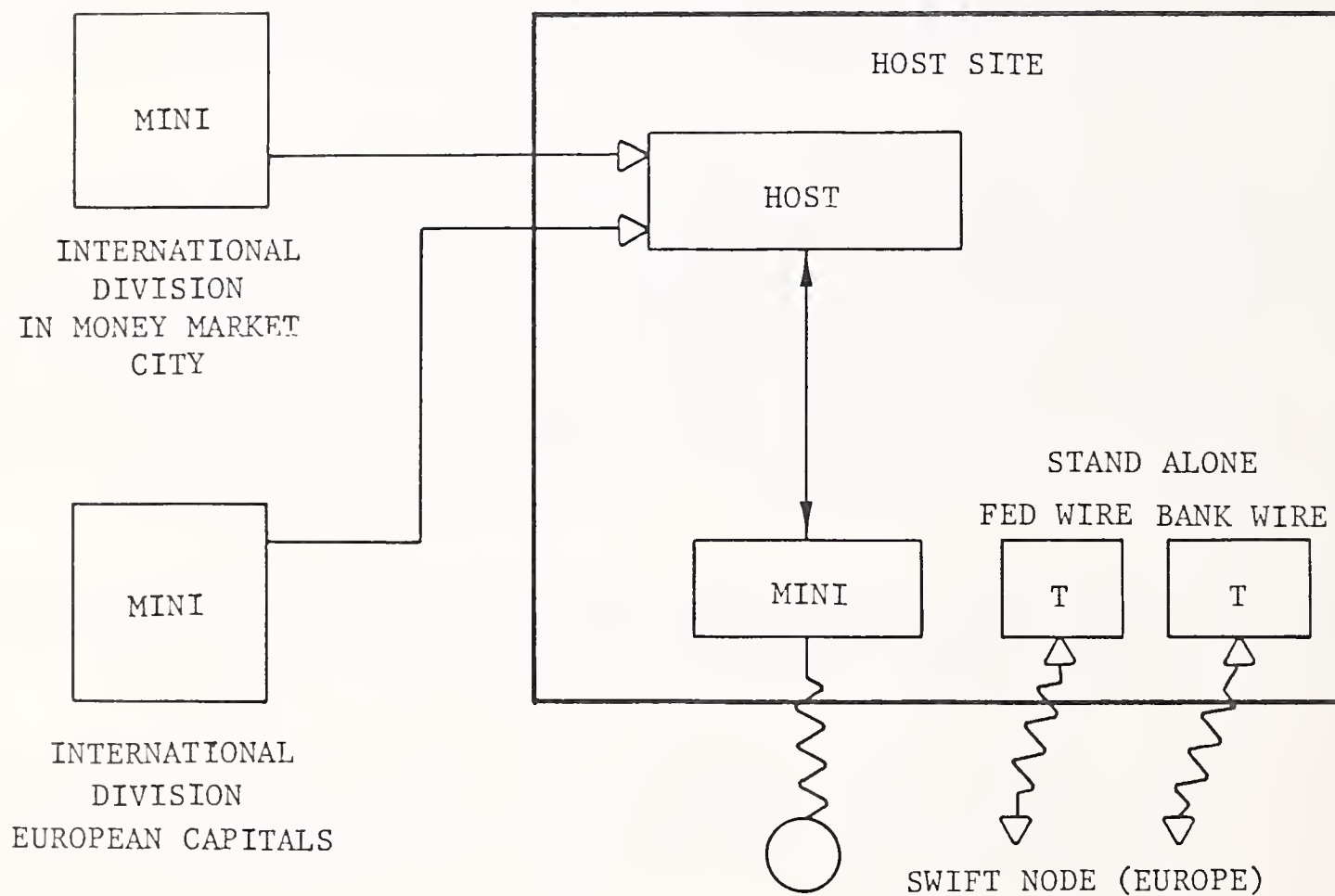
- The use of electronic funds transfer by computer has, up to now, fallen far short of early forecasts.



- Bank's and S&Ls' use of electronic funds transfer (EFT) is very limited. Both use automatic teller machines (ATMs) on a local basis for handling consumer account transactions.
- Some commercial banks use computers to transfer funds internationally by using the Society for Worldwide Funds Transfers Network (SWIFT), as depicted in Exhibit IV-17. Future plans call for integrating FEDWIRE and BANKWIRE into a fully integrated on-line system.
- There is some potential for serving as an automated clearing house (ACH) in various small to medium size cities. In this role an organization would clear local checks for banks as well as inter connect to large city banks to complete funds transfer.
- There is a need for corporations to be able to transfer funds nationally and especially internationally as company or country conditions warrant. In this concept of funds transfer, terminals would be placed in corporate offices (worldwide, if appropriate) to direct funds flow. The terminals would be tied in, through an EFT network, to one or more commercial banks, which would carry out the desired transfers.
  - A corporation could transfer funds automatically and rapidly utilizing this approach.
  - A computer service vendor that had an international communications network would be well positioned to offer such a service.
- Bank and S&L EFTs operations are currently regulated by the state. As such, there is little uniformity between states in terms of what can or cannot be done, or in how it is implemented.
- At this writing there are only a handful of large banks that are working on an integrated on-line funds transfer system.

EXHIBIT IV-17

INTERNATIONAL FUNDS TRANSFER SYSTEM



- There is obvious potential for EFT. The regulatory situation must first be stabilized before it would be worth investing resources in this area. Stabilization could be brought about by:
  - Coordinated Governmental (state and federal) Regulations.
  - Industry developed standards.



V COMPETITIVE ANALYSIS



## V COMPETITIVE ANALYSIS

### A. CORRESPONDENT BANKING

- Four types of vendors compete in the correspondent bank computer services marketplace:
  - Banks offering correspondent bank processing services.
  - Computer processing services vendors.
  - Facilities management (FM) vendors.
  - Software and professional services vendors.
- There is overlap among vendors regarding types of services because they are active in more than one category.
- The market is characterized by a large number of specialized vendors with no single vendor dominating the marketplace.
- Commercial banks, as a group, are the leading suppliers of processing services.
- Competition among current vendors is strong, but opportunities for market entry still exist due to changes in market structure influenced by both

electronic technology and legislation changing conditions within commercial banks.

- Electronic technology improvements reduce the cost of hardware to a point where many current computer services customers must reassess the economics of using an outside service. These customers could be sold software packages or a combination of hardware and software such as a minicomputer at the customer site with communications capability to a remote processing center.
- Commercial banks have many in-house data processing problems. This situation has forced the bank management to evaluate the correspondent banking services offered to other banks. Management philosophy is to focus total data processing resources on in-house problems. This strategy means that correspondent bank processing for outside banks becomes vulnerable to takeover by another services vendor.
- Most of the over 200 bank and commercial computer services vendors operate within a 200 mile radius of the home office. Some are operating on a regional (1,500 mile radius) and a few on a national basis. The total number of vendors is expected to decrease as more vendors extend area coverage through satellite systems and on-site minicomputers.
- A list of the leading correspondent bank processing vendors is shown in Exhibit V-1
- The market share data for correspondent bank computer services is shown in Exhibit V-2.



EXHIBIT V-1

LEADING CORRESPONDENT BANK PROCESSING VENDORS

BANKS	SERVICES COMPANIES	FACILITY MANAGERS
<p>CITY NATIONAL BANK</p> <p>CITIZENS &amp; SOUTHERN</p> <p>CONTINENTAL BANK, BOSTON</p> <p>FIRST NATIONAL BANK, ATLANTA</p> <p>FIRST NATIONAL BANK, BOSTON</p> <p>FIRST WISC. NAT'L BANK</p> <p>HARRIS BANK, CHICAGO</p> <p>MELLON BANK</p> <p>NORTH CAROLINA NATIONAL BANK</p> <p>NORTHWEST BANCORP</p> <p>PEOPLES NATIONAL BANK</p> <p>SECURITY NATIONAL BANK</p> <p>STATE STREET BANK, BOSTON</p> <p>WACHOVIA BANK</p>	<p>ADP BANKING SERVICES</p> <p>ASSOC. COMPUTER SERVICES</p> <p>BOEING COMPUTER SERVICES</p> <p>COLORADO COMPUTER SERVICES</p> <p>COMPUTER DIMENSIONS</p> <p>DECIMUS</p> <p>ITEL</p> <p>METRIDATA</p> <p>SOUTHEAST DATA CORP.</p>	<p>COMPUTER SCIENCES</p> <p>ELECTRONIC DATA SYSTEMS</p> <p>NATIONAL SHAREDATA SYSTEMATICS</p>

EXHIBIT V-2

MARKET SHARE FOR CORRESPONDENT  
BANK COMPUTER SERVICES BY BANK SIZE  
(1978)

COMPUTER SERVICES VENDOR TYPE	BANK SIZE	CORRESPONDENT BANK SERVICES REVENUES (\$MILLION)					TOTAL	% OF TOTAL
		SMALL		MEDIUM >\$100≤\$500M	LARGE >\$500≤\$1BIL	VERY LARGE >\$1 BIL		
		<\$10M	>\$10≤\$100M					
COMMERCIAL BANKS		\$14M	\$280M	\$27M	\$3M	\$27M	\$351M	48%
COMPUTER PROCESSING VENDORS		2	69	14	0	0	85	12
FACILITIES MANAGEMENT VENDORS		2	43	40	14	53	152	21
SOFTWARE PRODUCTS VENDORS		2	47	16	7	25	97	13
PROFESSIONAL SERVICES VENDORS		1	16	10	4	17	48	6
TOTAL		\$21M	\$455M	\$107M	\$28M	\$122M	\$733M	100%

- The largest computer services companies providing correspondent bank processing services are shown in Exhibit V-3. The share of vendor market given is calculated by dividing the individual company revenue by the total computer processing vendors revenue; which was \$74 million in 1977. For ADP, for example, the calculation is:

$$\frac{\frac{4.5 + 6.5}{2}}{74.0} = 7\%$$

- The largest facilities management vendors to correspondent banks are shown in Exhibit V-4.
- The largest software vendors providing applications packages to correspondent banks are shown in Exhibit V-5.
- It should be pointed out that some companies, such as ADP, have developed an aggressive acquisition strategy based on market segments that they want to penetrate. In the case of ADP, they have an acquisition program that calls for 2 or 3 or more companies to be acquired in a year.
  - ADP is acquiring correspondent banking functions directly from banks that decide that ADP's acquisition offer is better than the bank offering continuing services to their correspondents.
  - ADP is increasing its market share with this concentrated attack in the banking and finance industry.
- The market share (48%) of commercial banks offering correspondent banking services is expected to decline.
  - This is partially a response to offers like those from ADP.

EXHIBIT V-3

COMPUTER SERVICES COMPANIES PROVIDING  
CORRESPONDENT BANK PROCESSING SERVICES

COMPUTER SERVICES VENDOR	NUMBER OF BANKS SERVICED	ESTIMATED 1977 CORRESPONDENT BANKING RELATED REVENUES (\$ MILLION)	SHARE OF VENDOR COMPUTER PROCESSING MARKET	SHARE OF TOTAL COMPUTER PROCESSING MARKET
ADP NETWORK SERVICES, BANKING SERVICES	125-200	\$4.0-6.5	7%	.7%
ITEL DATA SERVICES GROUP	80-125	3.5-5.0	6	.6
COLORADO COMPUTER CENTER	50-75	2.5-3.0	4	.4
METRIDATA COMPUTER	35-60	2.0-2.5	3	.3
DECIMUS	NA	NA	NA	NA

EXHIBIT V-4

FACILITIES MANAGEMENT VENDORS INVOLVED IN  
CORRESPONDENT BANK PROCESSING

FACILITIES MANAGEMENT VENDORS	INSTALLATIONS	ESTIMATED 1977 CORRESPONDENT BANKING RELATED REVENUES (\$M)	SHARE OF FACILITIES MANAGEMENT MARKET	SHARE OF TOTAL COMPUTER SERVICES MARKET
SYSTEMATICS, INC.	20-30	\$14-16	12%	2%
NATIONAL SHAREDATA	30-40	25-30	23	4
ELECTRONIC DATA SYSTEMS	15-20	25-30	23	4
DECIMUS	NA	NA	NA	NA
METRIDATA	4-10	2.0-2.7	2	.4
COMPUTER SCIENCES CORPORATION	1	2.0-2.5	2	.4
WEILAND COMPUTER GROUP INC.	2	2.0-2.5	2	.4
FINANCIAL INDUSTRY SYSTEMS	9-12	\$12-15	12%	2%

EXHIBIT V-5

SOFTWARE VENDORS PROVIDING APPLICATIONS  
PACKAGES TO CORRESPONDENT BANKS

VENDOR	ESTIMATED 1977 SOFTWARE REVENUE (\$ MILLION)	SHARE OF SOFTWARE MARKET	SHARE OF TOTAL COMPUTER SERVICES MARKET
UNIVERSITY COMPUTING COMPANY	\$14.0	17%	2%
WEILAND COMPUTER GROUP	5.8	7	.9
BAY BANKS DATA SERVICES	5.0	6	.8
TYMSHARE	2.0	2	.3

- Many commercial banks have their own in-house EDP problems and have decided to concentrate their energies and resources internally rather than continue to serve other correspondent banks.

## B. SAVINGS AND LOANS

- Over 200 remote computing and batch services vendors serve the savings and loan market.
- The computer services provided come from commercial banks, federal home loan banks, savings and loans, and S&L joint ventures. Only 38% of the market is served by commercial RCS vendors. Exhibit V-6 shows the classes of RCS vendors serving saving and loans.
- The Federal Home Loan Bank is presently the largest single computer services vendor to the savings and loan industry. However, a federal court ruling requires that the FHLBs divest their S&L computer service operations.
- In the four other vendor classes there is no one vendor that has achieved a dominant market position.
  - There is no single S&L computer services vendor that processes much more than 500,000 accounts. This represents less than a 1% share of the market.
  - There are two dominant S&L joint venture vendors as shown in Exhibit V-7. This class of service has been well received by many S&Ls.

EXHIBIT V-6

CLASSES OF RCS VENDORS SERVING  
SAVINGS AND LOAN ASSOCIATIONS

VENDOR CLASSIFICATION	NUMBER	DOLLAR MARKET SHARE
● S&Ls	44	14%
● S&L JOINT VENTURES	67	18
● COMMERCIAL BANKS	40	12
● FEDERAL HOME LOAN BANKS	4	18
● COMMERCIAL RCS VENDORS	45	38
TOTAL	200	100%



EXHIBIT V-7

SAVINGS AND LOANS JOINT VENTURE COMPUTER  
SERVICES VENDORS SERVING  
SAVINGS AND LOAN ASSOCIATIONS

SAVINGS AND LOANS JOINT VENTURE	ACCOUNTS SERVICED	1976 ESTIMATED REVENUE (\$ MILLION)	MARKET SHARE OF JOINT VENTURE MARKET SEGMENT	MARKET SHARE OF TOTAL COMPUTER SERVICES MARKET
FLORIDA INFORMATION MANAGEMENT SERVICES	2,000,000	\$3.7	20%	3%
DATA LINE SERVICE COMPANY	1,200,000	3.1	17	3
OTHER JOINT VENTURES	NA	11.4	63	10

- State Street Bank and Trust of Boston and Midland National Bank of Milwaukee are the two commercial banks that are leaders in providing computer services to S&Ls, as shown in Exhibit V-8. There is a trend for commercial banks to leave this area to concentrate on their own in-house data processing environment.
- The leading commercial RCS vendors serving the S&L market are shown in Exhibit V-9. NCR accounts for nearly one half of the commercial vendor revenues. ADP has about four percent of the market and the other vendors have less than two percent each.
- There is room for expansion of market share in the S&L market as commercial banks and the Federal Home Loan Banks leave the computer services business. Annual processing revenues of \$40 million - \$45 million will become available as the banks and FHLBs leave the processing business.
- The facilities management market for savings and loans is small, at \$4 million a year. Electronic Data Systems (EDS) is the leader with about 450,000 accounts. National Sharedata and Boeing Computer Services are the next two largest vendors with 220,000 and 130,000 accounts respectively.
- In general, S&Ls purchase systems software from commercial vendors and applications software from other S&Ls. There are no dominant vendors in this market.

### C. FINANCIAL MANAGEMENT AND PLANNING SYSTEMS

- Two types of vendors currently serve the marketplace. Today they do not compete directly with each other, but minicomputers are blurring market segmentation.

EXHIBIT V-8

COMMERCIAL BANK COMPUTER SERVICES VENDORS  
SERVING SAVINGS AND LOAN ASSOCIATIONS

COMMERCIAL BANK	ACCOUNTS SERVICED	1976 ESTIMATED REVENUE (\$ MILLION)	MARKET SHARE OF COMMERCIAL BANK PROCESSING MARKET SEGMENT	MARKET SHARE OF TOTAL COMPUTER SERVICES MARKET
STATE STREET BANK AND TRUST OF BOSTON	1,800,000	\$3.1	25%	3%
MIDLAND NATIONAL BANK OF MILWAUKEE	1,200,000	2.0	16	2
OTHER COMMERCIAL BANKS	NA	7.3	59	6

EXHIBIT V-9

LEADING SAVINGS AND LOAN PROCESSING SERVICES VENDORS

VENDOR NAME	VENDOR LOCATION	ACCOUNTS SERVICED (THOUSANDS)	NUMBER OF S&Ls SERVICED	MAINFRAME	ESTIMATED MARKET SHARE COMMERCIAL VENDOR MARKET SEGMENT	MARKET SHARE OF TOTAL COMPUTER SERVICES MARKET	ESTIMATED REVENUE (\$ MILLIONS)
NATIONAL CASH REGISTER AUTOMATED DATA PROCESSING	MULTI LOCATIONS	10,000,000	500	NCR	42	16	\$25M
FINANCIAL SERVICES, INC. CHAMPION SERVICES CORP. NORTHEAST DATA COM, INC. FINANCIAL DATA SYSTEMS INTERGON COMPUTER CORP.	MULTI LOCATIONS GLEN ROCK, NJ CLEVELAND, OH WOODBRIIDGE, CT ST. LOUIS, MO WINSTON-SALEM, NC	2,000,000 1,850,000 1,490,000 1,433,000 1,300,000 1,250,000	170 73 44 56 34 99	IBM IBM IBM BURR IBM IBM	11 5 3 5 3 5	4 2 1 2 1 2	6 3 2 3 2 3
MID CONTINENT COMPUTER SERVICES TEL-A-DATA CORP. CONNECTICUT ON-LINE COMPUTER CENTER	DENVER, CO CHICAGO, IL AVON, CT	1,200,000 1,130,000 1,047,000	42 37 49	BURR IBM NCR	3 3 3	1 1 1	2 2 2
TOTAL SYSTEMS INC. ON-LINE SERVICE CORP. ON-LINE SERVICE GESCO MACS	HOUSTON, TX PHILADELPHIA, PA SEATTLE, WA FRESNO, CA WARREN, MI	1,000,000 981,000 908,658 810,000 775,000	.. 42 4 42 23	IBM BURR BURR BURR BURR	3 3 3 3 2	1 1 1 1 <1	2 1 1 1 <1
DSC COMPUTER COMPANY VIRGINIA DATA CENTER NORTHWEST MANAGEMENT SERVICES	RICHMOND, VA NORFOLK, VA SEATTLE, WA	750,000 677,000 625,000	57 4 ..	BURR BURR BURR	2 1 1	<1 <1 <1	<1 <1 <1
FINANCIAL DATA SYSTEMS SUNSHINE STATE SYSTEMS	SCHENECTADY, NY TAMPA, FL	600,000 575,000	.. 8	IBM BURR	1 1	<1 <1	<1 <1

- Software vendors market their financial management and planning products directly to the end user. They offer consulting services in conjunction with system installation to assist the user in model building. Some software vendors offer their systems through remote computing vendors. Software vendors are complementary, not competitive, with RCS vendors.
- A few software vendors (eg., Execucom Systems, Ross Systems) are offering financial management and planning packages implemented on minicomputers for in-house use as a turnkey system.
- Processing services vendors market financial management and planning services on an RCS basis. They offer consulting services to assist the user in model building. They use the model building software to develop financial planning application packages which they tailor to specific end user requirements.
- Some RCS vendors have acquired financial planning software vendors so they can offer services to the client either in-house or on an RCS basis.
  - United Computing Services has acquired Foresight Systems, Inc.
- A few RCS vendors offer on-site minicomputers for in-house use. End users can execute financial management and planning software on these systems.
  - ADP Network Services offers FML on its DEC 2020 on-site mini.
- INPUT believes that financial planning software vendors and RCS vendors offering financial planning services will evolve into financial management and planning systems vendors.
- The market share data for the largest FMPS services vendor is shown in Exhibit V-10. These figures are for all industries using FMPS, of which banking and finance is one part.

EXHIBIT V-10

MARKET SHARE OF FINANCIAL MANAGEMENT AND  
PLANNING SERVICES VENDORS

1978

SERVICES VENDORS	ESTIMATED REVENUES (\$M)	MARKET SHARE OF FMPS SERVICES	MARKET SHARE OF TOTAL FMPS
GEIS	\$ 40	29%	22%
SBC	25	18	14
ADP	15	11	8
DRI	12	9	6
IDC	10	7	5
NCSS	9	6	5
RAPIDATA	6	4	3
COMSHARE	3	2	2
RCC	3	2	2
ALL OTHERS	17	12	9
TOTAL	\$140	100%	76%

- The market share data for the largest FMPS software vendors is shown in Exhibit V-11. These figures include all industries, not just banking and finance.
- A summary of FMPS vendor hardware capabilities and estimated number of users is shown in Exhibit V-12. The number of users include all industries, not just banking and finance.
- All of the leading FMPS vendors offer software and services to the banking and finance industry. Most vendors have selected this area because of its market potential.

#### D. FINANCIAL AND ECONOMIC DATA BASES

- There are at least 15 companies offering one or more types of economic and financial data bases. No single vendor holds more than about 15% of the marketplace (see Exhibit V-13).
- Over 80% of RCS-related DBS revenues come directly from end-users, either through direct customer billings or "passed on" by the RCS vendor. The balance of the revenues comes from RCS vendor license fees.

EXHIBIT V-11

MARKET SHARE OF FINANCIAL MANAGEMENT AND  
PLANNING SOFTWARE VENDORS

1978

SOFTWARE VENDOR	ESTIMATED 1978 REVENUE (\$M)	MARKET SHARE OF FMPS SOFTWARE	MARKET SHARE OF TOTAL FMPS
FORESIGHT SYSTEMS	\$ 4.5	16%	2%
SOCIAL SYSTEMS, INC.	4.0	13	2
EXECUCOM SYSTEMS	2.5	8	1
CAPEX	2.5	8	1
CUFFS PLANNING, LTD.	2.0	7	1
PLAN METRICS, INC.	2.0	7	1
CORE & CODE	1.5	5	1
ROSS SYSTEMS	1.0	3	1
ALL OTHERS	10.0	33	5
TOTAL	\$30.0	100%	15%



EXHIBIT V-12

FINANCIAL MANAGEMENT AND PLANNING SYSTEMS  
HARDWARE CAPABILITY

SOFTWARE PRODUCT	RCS VENDOR	MAINFRAME	MINI	ESTIMATED NUMBER OF USERS <sup>①</sup>
FML	ADP		DEC 20	600
SIMPLAN	AVCO INFORMATICS	IBM 370		200
EIS	BCS	IBM 370		200
CUFFS	CALLDATA	DEC 10		120
EMPIRE	COMPUTER SHARING INC. DATA RESOURCES, INC.	B 7700		80
FCS	COMSHARE	HONEYWELL SIGMA 9		350
BBL	TYMSHARE	IBM 370 DEC 10		300
IFPS	CDC	CYBER IBM 370 B 7700 H6000	PRIME 400 DEC 20	350
FAL II	GEIS	H6000		1,000
XSIM	IDC	IBM 370 AMDAHL		500
FORESIGHT	MELLONICS UCS	IBM 370 CYBER		800
DATA-MODEL	MINI-COMPUTER MODELING, INC.		DATA POINT 1100 PDP 11 DEC VAX	85
FISCAL	RAPIDATA	DEC 10		300
MAPS	ROSS SYSTEMS		PDP 11 DEC 20	60
PROPHIT II	SBC	IBM 370		2,500

① VENDOR ESTIMATES

EXHIBIT V-13

FINANCIAL AND ECONOMIC DATA BASE VENDOR  
MARKET SHARES

DATA BASE VENDOR/NAME	NUMBER OF SUBSCRIBERS	ESTIMATED 1976 DBS REVENUES (\$M)	MARKET SHARE
ARNOLD BERNHARD AND COMPANY (VALUELINE)	200	\$ .70	11.7%
BANK OF AMERICA (BAMACS)	60	.45	7.5
CHASE ECONOMETRICS, INC. (CHASE)	320	.80	13.3
DATA RESOURCES, INC. (DRI)	300	.70	11.7
FEDERAL RESERVE BANK, SAN FRANCISCO (FRBSF)	50	.03	.5
INTERACTIVE DATA SERVICES, INC. (IDSI)	400	.93	15.5
INVESTORS MANAGEMENT SCIENCES (COMPUSTAT)	200	.50	8.3
KENT ECONOMIC ASSOCIATES, INC. (KEA)	20	.02	.3
MERRILL LYNCH ECONOMICS (MERRILL LYNCH)	80	.40	6.7
NATIONAL BUREAU ECONOMICS RESEARCH (NBER)	240	.23	3.8
PREDICASTS, INC. (PREDICASTS)	40	.20	3.3
REMOTE COMPUTING CORPORATION (MERLIN)	60	.08	1.3
SECURITY PACIFIC NATIONAL BANK (SPNB)	50	.16	2.7
TELSTAT SYSTEMS, INC. (TELSTAT)	600	.70	11.7
WHARTON ECONOMIC ASSOCIATES (WEA)	40	.10	1.7
TOTAL	2,624	6.00	100%

VI ACQUISITION ANALYSIS



## VI ACQUISITION ANALYSIS

### A. DESIRED COMPANY PROFILE

- Xerox Computer Services (XCS) has identified the acquisition approach to expanding revenue, customer and market segment size.
- XCS envisions the following advantages of an acquisition strategy:
  - Expanded geographic coverage.
  - Unique, proven product and new market.
  - In-place sales force.
  - Fast way to grow revenue.
- XCS has specified a profile of characteristics that the ideal acquisition candidate will have.
  - Prefer IBM compatibility.
  - Would like product to be modular in nature so that the customer can add modules as may be needed or required over a period of time.

- The revenue should be between \$5 million and \$25 million a year.
- The company should provide services and software.
- Added geographic coverage, beyond XCS's current situation, would be a plus.
- An international presence would be desired, but is not a requirement.
- There must be a strong management team, willing to remain and run the company after acquisition.
- Financial stability.
- At least 50% of the revenue should be from the banking and finance industry.
- Complimentary products to the current XCS product line of numerical control, engineering, health care, or process manufacturing would be a plus.
- Company must have a marketing and service orientation.

## B. POTENTIAL ACQUISITION CANDIDATES

- Potential XCS acquisition candidates have been derived from the Company Analysis and Monitoring Program (CAMP) files.
- It was difficult to use the XCS acquisition candidate profile consistently since some of the companies were not well known to INPUT.

- The acquisition candidates for the correspondent banking market segment are shown in Exhibit VI-1.
- The acquisition candidates for the savings and loan market segment are shown in Exhibit VI-2.
- The acquisition candidates for the financial management and planning systems market segment are shown in Exhibit VI-3.
- The acquisition candidates for the financial and economic data base market segment are shown in Exhibit VI-4.
- There is a high level of interest in the companies indentified in Exhibits VI-1 through VI-4 from computer services companies. There have been at least ten acquisitions of companies serving these market segments in the last 12 to 18 months. This trend is expected to continue for the next 2 to 3 years.

EXHIBIT VI-1

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
AMERICAN APPRAISAL MILWAUKEE, WI	\$ 22-30	NA	TOTAL U.S. INTERNATIONAL	RCS AND SOFTWARE
BANKING SYSTEMS DALLAS, TX	6-8	100	EAST NO CENTRAL WEST NO CENTRAL EAST SO CENTRAL WEST SO CENTRAL MOUNTAIN	INTERACTIVE RCS, BATCH, FM, & PROFESSIONAL SERVICES
CISCO TULSA, OK	6-10	NA	WEST SO CENTRAL	RCS AND BATCH
COLLATERAL INVESTMENT CO., BIRMINGHAM, AL	11-18	100	EAST SO CENTRAL	SOFTWARE
COLORADO COMPUTER CENTER, DENVER, CO	4-6	100	TOTAL U.S.	INTERACTIVE RCS AND BATCH
COMPUTER POWER JACKSONVILLE, FL	5-10	100	TOTAL U.S.	RCS, BATCH, FM & SOFTWARE



EXHIBIT VI-1  
(CONT'D)

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
COMPUTER USAGE CORP. SAN FRANCISCO, CA	\$ 9	60%	TOTAL U.S.	INTERACTIVE RCS FM, SOFTWARE & PROFESSIONAL SERVICES
DATA PROCESSING OF THE SOUTH, CHARLOTTE, NC	5-10	NA	MIDDLE ATLANTIC EAST NORTH CENTRAL, SO. ATLANTIC SO. ATLANTIC	INTERACTIVE RCS AND BATCH
DISC OWINGS MILLS, MD	14-20	100		SOFTWARE
FINANCIAL DATA SYSTEMS ST. LOUIS, MO	5-10	100	TOTAL U.S.	INTERACTIVE RCS AND TURNKEY SYSTEMS
FINANCIAL INDUSTRY SYSTEMS, HARTFORD, CT	16-23	90	NEW ENGLAND MIDDLE ATLANTIC E. NO. CENTRAL W. NO. CENTRAL	RCS, FM AND SOFTWARE
FLORIDA SOFTWARE SERVICES, ALTAMONT SPRINGS, FL	7-9	95	TOTAL U.S.	RCS REMOTE BATCH AND SOFTWARE

EXHIBIT VI-1  
(CONT'D)

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
HAWAII COMPUTER SERVICES HONOLULU, HI	\$ 6-8	100	TOTAL U.S.	INTERACTIVE RCS, BATCH & DATA BASE
HILTMAN ASSOCIATES COLUMBIA, MD	11-15	100	NEW ENGLAND	SOFTWARE
KRANZLEY & COMPANY CHERRY HILL, NJ	4	NA	MIDDLE ATLANTIC	SOFTWARE
METRIDATA COMPUTING LOUISVILLE, KY	12-15	60	MIDDLE ATLANTIC EAST NORTH CENTRAL, EAST SOUTH CENTRAL	INTERACTIVE RCS, BATCH, FM & PROFESSIONAL SERVICES
MID-CONTINENT COMPUTER SERVICES, ENGLEWOOD, CO	4-5	100	MOUNTAIN	INTERACTIVE RCS
SYSTEMATICS LITTLE ROCK, AR	15-17	100	TOTAL U.S.	RCS AND FM

EXHIBIT VI-1  
(CONT'D)

CORRESPONDENT BANKING  
ACQUISITION CANDIDATES

COMPANY /LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
TMI SYSTEMS CAMBRIDGE, MA	\$ 7-12	90	TOTAL U.S. INTERNATIONAL	INTERACTIVE RCS, SOFTWARE, PROFESSIONAL SERVICES AND TURNKEY SYSTEMS
THE THOMAS NATIONAL GROUP, NEW YORK, NY	6	60	TOTAL U.S.	DATA BASE, RCS REMOTE BATCH, FM & SOFTWARE

EXHIBIT VI-2

SAVINGS AND LOAN

ACQUISITION CANDIDATES

COMPANY /LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
DATA LINE SERVICE CO. CLAREMONT, CA	NA	100	PACIFIC	INTERACTIVE RCS
FINANCIAL DATA SYSTEMS ST. LOUIS, MO	\$ 5-10	100	TOTAL U.S.	INTERACTIVE RCS & TURNKEY SYSTEMS
FINANCIAL SERVICES GLEN ROCK, NJ	NA	100	MIDDLE ATLANTIC	INTERACTIVE RCS AND BATCH

EXHIBIT VI-3

FINANCIAL MANAGEMENT AND PLANNING SYSTEMS  
ACQUISITION CANDIDATES

COMPANY/LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
COMPUTER USAGE CORP. SAN FRANCISCO, CA	\$ 9	60	TOTAL U.S.	INTERACTIVE RCS, FM SOFT- WARE AND PRO- FESSIONAL SVCS INTERACTIVE RCS AND BATCH
FIRST COMPUTER CORP. ST. PAUL, MN	9-12	99	TOTAL U.S.	REMOTE BATCH, BATCH, FM, SOFTWARE AND PROFESSIONAL SERVICES
INFORMATION SCIENCES PROVIDENCE, RI	8-10	64	TOTAL U.S.	INTERACTIVE RCS, FM AND PROFESSIONAL SERVICES
ON-LINE SYSTEMS PITTSBURGH, PA	18-20	18	TOTAL U.S.	INTERACTIVE RCS AND DATA BASE
RAPIDATA FAIRFIELD, NJ	18-20	NA	TOTAL U.S. INTERNATIONAL	INTERACTIVE RCS AND REMOTE BATCH
SCIENTIFIC TIMESHARING BETHESDA, MD	8-10	NA	TOTAL U.S.	

EXHIBIT VI-4  
 FINANCIAL AND ECONOMIC DATA BASE  
 ACQUISITION CANDIDATES

COMPANY /LOCATION	ESTIMATED REVENUE (\$ MILLION)	PERCENT OF BUSINESS IN BANKING AND FINANCE	REGIONAL COVERAGE	SERVICES OFFERED
QUOTRON SYSTEMS LOS ANGELES, CA  REMOTE COMPUTING CORP. PALO ALTO, CA	\$ 25-30  9	95  35	PACIFIC  TOTAL U.S.	RCS, FM AND PROFESSIONAL SERVICES  REMOTE BATCH, BATCH, FM, SOFTWARE AND PROFESSIONAL SERVICES

APPENDIX A: DEFINITIONS





## APPENDIX A: DEFINITIONS

### ● COMPUTER SERVICES

These are services provided by vendors which perform data processing functions using vendor computers, or assist users to perform such functions on their own computers.

### ● REMOTE COMPUTING SERVICES (RCS)

Provision of data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer. The three sub-modes of RCS are:

1. INTERACTIVE (timesharing) is characterized by interaction of the user with the system, primarily for problem solving timesharing, but also for data entry and transaction processing - the user is "on-line" to the program/files.
2. REMOTE BATCH is where the user hands over control of a job to the vendor's computer which schedules job execution according to priorities and resource requirements:
3. DATA BASE is characterized by the retrieval of information from a vendor-maintained data base. This may be owned by the vendor or a third party.

- **BATCH SERVICES**

This includes data processing performed at the vendors' sites of user programs and data which are physically transported (as opposed to electronically by telecommunications media) to and from those sites. Data entry and data output services, such as keypunching and COM processing, are also included. Batch services include those expenditures by users which take their data to a vendor site which has a terminal connected to a remote computer used for the actual processing.

- **SOFTWARE PRODUCTS**

This category is for users' purchases of systems and applications packages for use on in-house computer systems. The figures quoted include lease and purchase expenditures, as well as fees for work performed by the vendor to implement and maintain the package at the users' sites. Fees for work performed by organizations other than the package vendor are counted in professional services. The two sub-categories are:

1. SYSTEMS PACKAGES are operating systems, utilities, and language routines that enable the computer/communications system to perform basic functions. The software is provided by the mainframe manufacturers with their hardware; other vendors provide improved versions of this and special-purpose routines. This classification includes compilers, data base management software, communications packages, simulators, performance measurement software, diagnostic software, and sorts.
2. APPLICATIONS PACKAGES are software which perform processing to serve user functions. They consist of general purpose packages, such as for accounting and inventory control, and special purpose packages, such as personal trust, airline scheduling, and demand deposit accounting.



