Information
Services
Program
(ISP)

Information Systems Planning Report

Utilities Sector

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INFORMATION SYSTEMS PLANNING REPORT UTILITIES SECTOR

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Exhibits

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Major Issues

I

Major Issues

A

Driving Forces

Merger and acquisition activities among utilities are increasing and will result in larger, but fewer, utilities, especially electric.

- Pacific Lighting Corporation (Los Angeles, CA) acquired drugstore chain Thrifty Corporation (Los Angeles, CA) in an effort to diversify its operations.

- Pacific Gas & Electric Company (San Francisco, CA) has made an offer to merge with the Sacramento (CA) Municipal Utilities District.

The cost of building new nuclear power plants continues to force budget austerity. While building nuclear power plants may be necessary to provide sufficient capacity, building costs for such plants have escalated in the last few years to where a new plant costs $4 - $6 billion.

State utility commissions are separating power generation from power distribution activities. Rate changes are divided into the cost of power production and the cost of power transmission.

The federal government is gradually deregulating prices for electricity and natural gas, adding pressure on utilities to learn how to effectively market its products. Further pressure comes from certain state governments, which are permitting utilities in their state to sell electricity or gas to customers in neighboring states.

Cogeneration is now a reality in the power business. Large industrial customers can purchase generators capable of providing internal capacity and excess power. The excess power must, by law, be purchased back by the local electric utility at comparatively high rates.

As a result of deregulation and cogeneration, utilities face more competition. New systems to address market-based requirements must be estab-

lished. To prosper, utilities must learn marketing. Marketing efforts will be directed mainly at the largest customers, which are necessary to retain in order to spread the fixed costs across a wider user base. Please refer to Exhibit I-1.

As part of an improved service orientation, smaller, rural utilities are continuing the conversion from batch to on-line systems. Department managers strongly influence the operations of smaller utilities. In the past, near-monopoly rural utilities spent as little as possible on technology. Now, they must invest in new systems to meet a changing economic and regulatory environment.

EXHIBIT I-1

UTILITIES SECTOR — DRIVING FORCES

- Mergers and Acquisition Will Lead to Fewer Utilities
- Flattening Demand for Electricity
- Building of Nuclear Power Plants Forces Budget Austerity
- Separate Power Generation and Distribution Activities
- Federal Government Deregulation
- Power Cogeneration
- More Emphasis on Marketing
- Continued Conversion to On-Line by Rural Utilities

B

Issues and Objectives

Cost containment has always been a major issue in this industry. Service requirements must be balanced against funds available for increases through rate hikes and the need to pay shareholders of investor-owned utilities a fair return on their investment.

More regulatory changes means more changes to the existing software to accommodate the wishes of state legislatures or other governmental bodies. Minor changes are not a problem; however, major regulatory changes mean major software rewrites and testing and debugging.

Interestingly, a few large utilities have installed and tested Local Area Networks (LANs). Now that users have seen what they can do, virtually every user wants to be part of the network, whether or not the network is relevant to that person's job.

Utilities are coping with the problem of how to structure the organization's data processing operation. Should it be centralized, distributed, or a "hybrid" in order to best accomplish necessary tasks? Decentralization is being discussed as a means to delay the purchase of an additional mainframe, since the existing mainframe is already burdened by the growth of applications/power needs.

Office automation, especially in IBM environments, is being implemented slowly with calendar functions and electronic mail as the primary applications.

Utilities are buying used computers to help stretch their budgets. While the purchase of used disk and tape drives is relatively commonplace, buying used CPUs is a major, but necessary, step for many utilities.

IS managers appear to have a broader organization perspective than many utility company senior managers. They want to use IS to improve customer service — through on-line inquiry, on-line posting, and relational database management system-based customer information systems, providing vital marketing information.

Senior management must begin to use information for a strategic or competitive advantage. While one electric company does not compete with another, many factors influence a developer's choice of gas or electric heat for a new shopping center or office building.

In a couple instances, IS managers wanted to use IS to foster better organizational teamwork and cooperation. The utility industry may be the last business where department managers ran the company, rather than senior management providing organizational leadership and direction.

Please refer to Exhibits I-2 and I-3 for details.

EXHIBIT I-2

UTILITIES SECTOR – ISSUES

- Cost Containment
- More Regulatory Changes
- Control Growth of LANs
- Centralized/Distributed/Hybrid Processing
- Office Automation
- More Used Computers

EXHIBIT I-3

UTILITES SECTOR – OBJECTIVES

- Use IS to Improve Customer Service
- Get Senior Management to Strategically Use Information
- Use IS to Foster Organizational Teamwork and Cooperation

C

Impact of Technology

Exhibit I-4 highlights four key aspects of what technology has done for end users in the utility industry.

EXHIBIT I-4

UTILITIES SECTOR — IMPACT OF TECHNOLOGY

- Office Automation Helps Daily Operations
- New Technology Results in Decreasing Maintenance Costs
- Users Get More Hardware Power for the Money
- Routine Work Moves from Programmers to End Users
- IBM PS/2 will Increase User Expenditures

First, office automation helps manage the daily operations in electric, gas, and water/waste utilities. Better communications are a must for improving customer service and becoming more competitive.

Second, new hardware technology has resulted in steadily decreasing maintenance costs over the past two years. While manpower requirements to operate an IBM mainframe have not changed much, IBM decreased its direct changes for maintenance under its CSA program.

Third, for the same amount of money spent three years ago, a user now gets ten times the raw hardware power. However, increases in the number of applications supported and the increasing memory required to support each application results in a minimal overall gain. More robust software continues to help sell more hardware.

Fourth generation application development software helps move more routine work from programmers to end users, enabling programmers to catch up on the applications backlog.

Finally, IBM's new PS/2 system will have the effect of forcing end users to spend more money to adapt and integrate this new technology into existing IBM PC/XT/AT-based operations. This comes at a difficult time for utilities, when management would rather watch all IS spending.

II

New Applications

II

New Applications

Application development within the utilities sector continues its focus on asset management and customer-oriented systems. Exhibit II-1 highlights the specific applications to be started or continued in 1988.

EXHIBIT II-1

UTILITIES — NEW APPLICATIONS IN 1987

- Shareholder Systems
- Repetitive Maintenance for Nuclear Facility
- Distributed Work Information Power Plant Maintenance System
- On-line Financials (AP/AR/GL/Billing)
- Conversion from Batch to On-line Systems

Better utilization of people's time and the capital assets in place represent a major means of improving overall financial performance. The installation of customer-oriented systems may be the result of:

- A different regulatory environment.
- The financial community's perception of what makes for a "better" investor-owned utility.
- Utilities' responses to increased competition.

Shareholder systems are also being updated to foster better relations with shareholders, in the increasingly likely event of a takeover offer. Better relations should result in increased loyalty to the organization and, indirectly, to current management.

People and asset management applications include:

- Repetitive maintenance for nuclear facility.
- Distributed work information systems.
- Power plant maintenance system.

Medium-sized gas, electric, and water/waste utilities are continuing to convert financial systems from batch to on-line operations.

The utility sector has few IS needs which respondents believe are not well-served by vendors. Specifically, users want:

- More networking options available through each vendor.
- More involvement by vendors to help hold costs down.

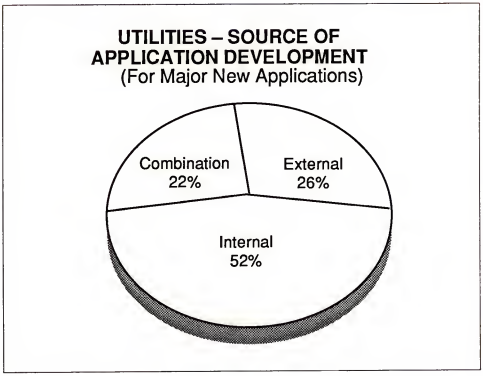
Without prompting by INPUT interviewers, users remarked favorably about the decreasing mainframe hardware maintenance costs under IBM's new Corporate Service Amendment (CSA). However, the CSA is designed generally for large accounts which must meet such requirements as: setting up a first-line of contact for internal users (to minimize "no fault found" service calls); agreeing to a long-term contract with heavy cancellation penalties; and having staff members trained at certain IBM-determined levels of competency for the user's computer system.

However, users believe that, in general, vendors are trying to sell too much technology too fast.

According to the information depicted graphically in Exhibit II-2, the utilities sector is divided in its approach to software development.

- Larger utilities tend to develop new applications in-house while smaller organizations generally rely on third-party software vendors for new applications.
- Maintenance and enhancement of existing applications takes far greater resources than developing new applications. Larger utilities devote approximately 50% of software development staff to developing new applications. Smaller utilities devote less than 30% of their software development staff to developing new applications.

EXHIBIT II-2



One respondent expressed a caveat for third-party software vendors. Specifically, although utilities must accomplish the same basic tasks, no two utilities approach the problem in the same way. Therefore, some level of software customization is necessary to help make the sale. Customization requirements can be minimized by offering menu-driven choices within the application software package, and thereby simplifying user support requirements.

Cost Range of New Applications, whether developed in-house or purchased from a third-party:
- Mainframe Based: $90,000 - $2,000,000
- Minicomputer Based: $18,500 - $950,000
- Microcomputer Based: $165 - $9,300

Average Cost of Purchased Application Software:
- Mainframe Based: $550,000
- Minicomputer Based: $67,500
- Microcomputer Based: $1,175

III

Budget Analysis

III

Budget Analysis

In 1987, respondents experienced limited growth in their IS budgets, due primarily to increases in salaries and fringe benefits and the negative effects of nuclear power plant construction cost overruns.

- Overall IS spending in 1988 is projected to decrease 0.2%.
- Exhibit III-1 shows the 1987 budget distribution and projects the growth in specific budget categories in 1988.

In general, IS budgets at large utilities are growing faster than those at medium and smaller utilities. The unique staffing and equipment requirements at nuclear power plants account for the difference. If nuclear plants are deleted from the analysis, then budgets at medium and small utilities are increasing 0.7% faster than those of large, investor-owned utilities.

A comparison of data from 1985, 1986, and 1987 indicates that 1987 was an unusual year. Generally speaking, more utilities took one of the following actions than in either of the two previous years:

- Purchased new equipment.
- Leased more equipment.
- Upgraded existing equipment.
- Bought used equipment.

Nearly 60% of the respondents project that their IS budgets will decrease or remain the same in 1988 as in 1987. Please see Exhibit III-2.

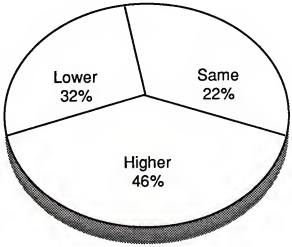
EXHIBIT III-1

1987 BUDGET DISTRIBUTION AND 1987-1988 CHANGES IN THE UTILITIES SECTOR

BUDGET CATEGORY	1987 I.S.BUDGET (Percent)	1987-1988 EXPECTED BUDGET GROWTH
PERSONNEL (Salaries & Fringe Benefits)	36.3	2.5
HARDWARE		
Mainframes	12.2	(9.7)
Minicomputers	6.6	(4.2)
Microcomputers	4.3	2.5
Mass Storage Devices	2.9	3.0
Other Hardware	2.2	(2.4)
TOTAL HARDWARE	28.2	(2.2)
Data & Voice Communicatons	4.8	4.9
External Software	6.5	8.3
Professional Services	4.5	(6.6)
Turnkey Systems	2.1	0.2
Software Maintenance	3.4	3.5
Hardware Maintenance	9.3	(11.2)
Outside Processing Services	0.1	2.3
Supplies	3.5	2.1
Travel; Subscriptions; Etc.	1.3	(6.8)
Subtotal - Maintenance, Services, & Other	35.5	(1.3)
TOTAL	100.0	(0.2)

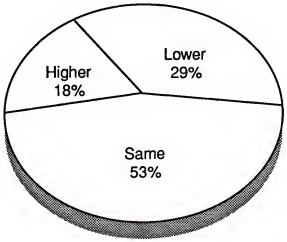
EXHIBIT III-2

UTILITIES SECTOR — MOST BUDGETS WILL REMAIN FLAT OR WILL DECREASE



Comparison of
1988 and 1987
I.S. Budget

UTILITIES SECTOR — MOST BUDGETS WILL REMAIN FLAT OR WILL DECREASE



Comparison of
Changes in Growth Rates of
1987 and 1988 I.S. Budgets
(Among Sites with Increasing Budgets)

Indirect factors contributing to decreases in the IS budget include:

- The effects of nuclear power plant construction.
- Managing reported "earnings per share."

Factors directly contributing to increases in the IS budget include:

- Personnel Expenses.
- New Application Software Development Projects.

Four factors were listed as the major contributors to decreases in the IS budget, namely:

- Declining state/local economy (resulting in a smaller customer base for services).
- Significant reductions in the purchases of software development (professional services).
- Declining hardware maintenance for IBM mainframes, resulting from adoption of IBM's Corporate Service Amendment (CSA).
- Less travel to conferences and seminars, especially from rural locations.

Headcount from 1986 to 1987 within utilities sector IS departments decreased somewhat. Larger utilities tended to add personnel, while headcount in smaller utilities decreased. These decreases can be attributed to increased efficiency resulting from automation or not replacing employees who quit or retire.

- 17% reported headcount increased.
- 56% reported headcount remained the same.
- 27% reported headcount decreased.

About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, and communications and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years of experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technially advanced companies.

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