Information
Services
Program
(ISP)

Information Systems Planning Report

Education Sector

INPUT®

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INFORMATION SYSTEMS PLANNING REPORT

EDUCATION SECTOR

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I

Major Issues

A

Driving Forces

Administrative applications are being bought to increase the efficiency of the business and administrative functions in the education sector. Schools are purchasing microcomputers to "front end" larger computer systems. New administrative applications should integrate with the basic financial systems.

Strategic planning is higher education's latest buzzword. Like businesses, schools need to do strategic planning. This need is fueled by declining birth rates, an orientation toward "vocational" or skills-based training, and specific employer needs.

Desktop publishing is hot! It is being used to produce a wide range of materials for schools of all sizes. In addition, with the proliferation of personal computers, IS departments are hiring separate staff or allocating part of existing staff for end-user support.

The education sector continues to deal with political pressures such as:

- Cost cutting. While IS can provide a means to improve productivity and information for decision making in key administrative departments, it, too, is under severe cost constraints.

- Changing administrative requirements. State and local governments frequently change administrative reporting requirements and budgeting procedures. Working within a shifting bureaucracy represents a real challenge.

Improved service to high school and post-secondary school students remains a priority. Service improvements include better information for student registration, on-line registration, and better management reporting about the registration process. Since declining birth rates in the 1960s have resulted in a smaller pool of applicants for post-secondary institutions,

colleges, universities, and technical and vocational schools must offer the right classes and services to students in order to grow.

Exhibit I-1 lists the driving forces affecting IS departments in the education sector.

EXHIBIT I-1

EDUCATION SECTOR – DRIVING FORCES

- Improve Education Administration
- Support Strategic Planning
- Begin Desktop Publishing
- Support End-User Computing
- Deal with Politics of Government and School Boards
- Improve Service to Students
- Appeal to a Decreasing Supply of Students for Post-Secondary Institutions

B

Issues and Objectives

IS must develop data-oriented as opposed to process-oriented information, representing a major change in the way educational institutions operate. Department-level fiefdoms are giving way to centrally managed resources with related growth in information necessary to further the strategic planning efforts. A good example is the efforts of many institutional IS organizations to support the school's recruitment efforts; rather than strict cost reduction, IS must support post-secondary institutions' recruitment efforts. Such support consists of data base management programming and mail list management.

Another major issue is the establishment of centralized, integrated student information systems as the key means of providing better services to students. Better service is not simply a concept–it is a key differentiator among competing institutions.

Key IS objectives include:

- Resolving the paradox of providing more support to a broader range of users with tighter budgets.
- Waiting for technological advances or industry standards which will enable communication between incompatible hardware.
- Providing the necessary data to support an increased level of strategic planning by post-secondary schools.

Exhibits I-2 and I-3 summarize the issues and objectives identified by education sector survey respondents.

EXHIBIT I-2

EDUCATION SECTOR – ISSUES

- Develop Data-Oriented Information
- Support Recruiting Activities
- Improve Student Information Systems

EXHIBIT I-3

EDUCATION SECTOR – OBJECTIVES

- Resolve Less Budget/More Support Paradox
- Resolve Incompatibility Among Computers and Networks
- Develop Necessary Data to Support Strategic Planning

C

Management Perception and Organizational Issues

With the growing importance of strategic planning, schools' senior management is relying heavily on IS directors to define and implement the necessary information. IS is now directly supporting senior management at post-secondary institutions in two key areas–financial information and the long-range planning process.

- Financial information must be gathered and consolidated in a meaningful way for use by senior management.
- No longer can university presidents run a fully decentralized operation. Deans and department heads are being made accountable for head counts, capital budgets, and operating budgets to support long-range objectives.

Since they do not directly represent a particular department or academic discipline, IS directors are seen as a "neutral" party to gather and present necessary information; hence, their importance is increasing. Furthermore, technological advances in networking, data base software, and integrated voice/data communications are forcing recognition of the skills and knowledge of the IS director.

Retaining technical staff is becoming a critical success factor. Some schools have experienced incredible turnover during the past year, with staff lured by better salaries and growth opportunities in other industries. As a result of key staff shortages, IS management cannot implement departmental plans.

D

Impact of Technology

New technology has fostered a faster document turnaround to meet the demands for faster-paced administrative processing. Also, networks enable colleges and universities to link geographically separate offices/branches for file transfer and administrative purposes.

INPUT also observed that universities are taking advantage of the fact that replacing old with newer technology will permit growth in processing capability and storage capacity while maintaining a flat budget. And, new technology has enabled IS to promote a "buy-in" by senior management of computerization through daily use of computers as a tool. Major administrative functions include: electronic mail, calendars, data manipulation, and report writing.

Finally, new technology has enabled schools to better comply with changes in state and federal laws and related reporting requirements as well as changes in auditing procedures.

EXHIBIT I-4

EDUCATION SECTOR – IMPACT OF TECHNOLOGY

- Improved Response Times
- Improved Communication
- Improved Efficiency of Computer Equipment
- Heightened Computer Awareness by Senior Management
- Better and Faster Compliance with Changes in Laws

II

New Applications

II

New Applications

Colleges and universities support a wide range of business activities, resulting in a diverse base of applications software. Primary applications include; accounting and finance, admission, financial aid, development/ fund raising, registration, bookstore, and administrative offices of the president and various deans. Exhibit II-1 details new applications identified by INPUT survey respondents.

EXHIBIT II-1

EDUCATION SECTOR – NEW APPLICATIONS IN 1987

- Applications Based on Data Base Management Systems
- Voice/Data Networks
- Desktop Publishing

Post-secondary and secondary institutions are implementing more applications based on data base management systems, including:

- Registrar files.
- On-line library catalog systems.
- On-line registration.

- On-line student fee collection systems.
- Budgeting systems.
- Installation tracking of microcomputer hardware and software.
- Purchasing.

Campus-wide voice/data networks, while not strictly application software-based, are becoming more widespread. The past two years' planning efforts are becoming reality.

But, the hottest new application is microcomputer-based desktop publishing. Between 1986 and 1987, desktop publishing appeared across a diverse user base of educational institutions. INPUT believes this represents a significant trend, not a one-time temporary aberration.

The education sector has a few IS needs which respondents believe are not well served by vendors. Specifically, schools want:

- A network version of Lotus 1-2-3.
- Micro-to-mainframe links, especially those compatible with IBM mainframe operating systems.
- Software to integrate existing workstations.
- CPU to CPU communication between different vendors' products.
- More software for primary and secondary school districts' applications, especially payroll, personnel, and finance, running on non-DEC and non-IBM computers.

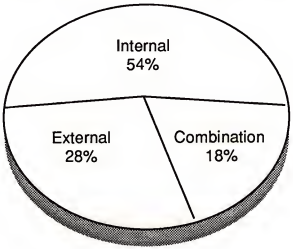
The education sector is divided in its approach to software development. Larger colleges and universities tend to develop new applications in-house while smaller colleges and universities generally rely on third-party software for new applications. In either case, maintenance and enhancement of existing applications takes far greater share of the resources than developing new applications.

- Larger colleges and universities devote around 40% of software development staff to developing new applications.
- Smaller schools devote less than 25% of their software development staff to developing new applications.

Exhibit II-2 shows educational institutions' sources for new applications software. Internally developed software continues to account for the most frequently used software acquisition method. However, off-the-shelf applications software is used more than a combination of third-party software with either internal development or outside professional services.

EXHIBIT II-2

EDUCATION SECTOR
SOURCES OF APPLICATION DEVELOPMENT
(For Major New Applications)



Cost Range of New Applications Software:
- Mainframe-Based: $30,000 - $1,000,000
- Minicomputer-Based: $15,000 - $800,000
- Microcomputer-Based: $125 - $16,000

Average Cost of New Applications Software:
- Mainframe-Based: $450,000
- Minicomputer-Based: $205,000
- Microcomputer-Based: $975

- Driven by legislative and accounting requirements, more schools are now updating their 1970s vintage in-house developed software.

- The relatively low salaries paid to programmers and systems analysts in the education sector may provide economic justification for continuing in-house applications software development.

- While it may be necessary for more schools to eventually shift to third-party integrated applications software, many schools continue to do in-house work, reflecting a "not invented here" attitude.

- However, there are not sufficient in-house programmers to both maintain and enhance existing applications and develop new applications. The increase in external software development indicates IS management is moving in the right direction.

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 applications software.

- IS spending in 1988 is projected to increase 3-5% for inflation, salaries, and benefits.
- Exhibit III-1 shows the 1987 budget distribution and projects the growth in specific budget categories in 1988.

In general, private secondary and post-secondary schools' budgets are growing at a faster pace than public secondary and post-secondary schools. IS spending in unified primary and secondary school districts is increasing at a slower rate than non-unified school districts.

Nearly 80% of the respondents project that their IS budgets will increase or remain the same in 1988 as in 1987. More than 50% of respondents believe the 1988 growth rates will be greater than in 1987 (see Exhibit III-2).

- Factors contributing to increases in the IS budget include (in order of most frequently mentioned factors):

- Hardware maintenance.
- Software maintenance.
- Personnel expenses.
- New applications software purchases.
- New hardware purchases.
- Telecommunications cost increases.

EXHIBIT III-1

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

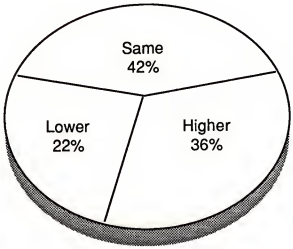
BUDGET CATEGORY	1987 I.S. BUDGET (Percent)	1987-1988 Expected Budget Growth (Percent)
PERSONNEL (Salaries & Fringe Benefits)	48.2	2.6
HARDWARE		
Mainframes	6.7	2.1
Minicomputers	6.7	3.5
Microcomputers	5.3	3.9
Mass Storage Devices	4.2	2.0
Other Hardware	0.6	1.1
TOTAL HARDWARE	23.5	2.8
Data & Voice Communications	3.7	5.2
External Software	7.3	12.6
Professional Services	0.3	(0.7)
Turnkey Systems	0.1	0.3
Software Maintenance	2.4	1.9
Hardware Maintenance	8.3	4.5
Outside Processing Services	0.2	(2.0)
Supplies	5.1	2.5
Travel, Subscriptions, Etc.	0.9	1.1
TOTAL	100.0	3.6

EXHIBIT III-2

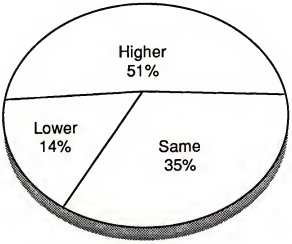
EDUCATION SECTOR

MOST BUDGETS ARE INCREASING AT A FASTER RATE

Comparison of
1988 and 1987
I.S. Budget



Comparison of
Changes in Growth Rates of
1987 and 1988 I.S. Budgets



- One factor was listed as the major contributing factor to decreases in the IS budget, namely declining state/local economy (which leads to decreases in funding from the legislature).

Head count from 1986 to 1987 within education sector IS departments changed in no significant pattern.

- Twenty-three percent indicated head count increased.
- Forty-four percent indicated head count remained the same.
- Thirty-three percent indicated head count decreased.

Head count increased in those institutions implementing new, expensive applications. Generally, head count in junior colleges and secondary school districts was the same as last year.

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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