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ABSTRACT

Collected are eleven presentations made at a workshop designed to expose college and university administrators participating in the Technical Assistance Consortium to Improve College Services (TACTICS) to new management techniques. Presentations addressed the following subjects: the role of planning and management systems in post-secondary education; program planning and budgeting for Management Information Systems; financial aid and grants management; research applications development; the status of model developments and model implementation procedures; an implementation case study; and the relationship of management information systems and institutional research. Other speakers focused on the topics of admissions, registration, and student records; personnel systems and budget decision-making; facilities and housing management; and TACTICS evaluation training. (GW)

INSTITUTE FOR SERVICES TO EDUCATION, INC.

Report on

Spring Workshop

MANAGEMENT INFORMATION SYSTEMS

and

CONSORTIA FOR INSTITUTIONAL RESEARCH

L'Enfant Plaza Hotel
Washington, D.C.

March 14-16, 1975

Technical Assistance Consortium
to Improve College Services

2

INSTITUTE FOR SERVICES TO EDUCATION, INC.

The Institute for Services to Education was incorporated as a non-profit organization in 1965. Its initial sustaining grant came from the Carnegie Corporation. ISE is an educational research and development organization, specializing in the problems of equalizing educational opportunity. ISE is involved in the design of educational materials for students and in teaching strategies to decrease attrition among educationally neglected Black Americans.

The curriculum development work requires long term interaction with college presidents, other administrators and faculty involved in dealing with educationally neglected college entrants. ISE has developed close insights into the obvious and subtle problems of predominantly Black student populations in large and small, urban and rural settings.

The research program of ISE has been involved with annual surveys of the academic, demographic and motivational characteristics of students, with particular emphasis on entering freshmen. This has required large scale collection, management, file development and analysis of educational data from financial aid data, to income distributions, to self-concept, to perceptions of their educational environment. This experience has been instructive in the subtleties of interpreting quantitative data collected on Black populations.

MANAGEMENT INFORMATION SYSTEMS DIRECTORATE

Management Information Systems is one of the two TACTICS programs of ISE. Its goals are to improve the quality of information on the historically Black colleges and universities participating in TACTICS and through this process assist in the improvement of the information management procedures on the individual campuses. Its major accomplishments to date include: (1) The development of an automated data base which provides a manipulative capability to handle key data elements on enrollment, degrees granted, and revenue/expenditures on some 83 institutions. (2) The establishment of a cooperative data collection and reporting approach between the United Negro College Fund (UNCF), and the office for the Advancement of the Public Negro College (OAPNC). This effort significantly reduces the data collection demands on the college, and (3) The sponsoring of Summer Information Management Training Institutes for college administrators and researchers responsible for data collection. Out of this program should come accurate appraisals of the Black colleges in terms of growth patterns, internal enrollment and degree patterns, patterns of financial support and trends in the growth or non-growth of that support. With the management orientation of higher education, this program is being pushed hard to become valuable to all small colleges in mastering data collection and manipulation programs which undergird sound management decision making. MIS is developing model procedures for effective data flow and management reporting. Documentation based on experiences with TACTICS institutions will be made available to all institutions in the consortium.

MIS STAFF

Frederick A. Fresh, *Director*

Antoinette Bowler; *Assistant Director*

Edward F. McDuffie, *Programmer*

James R. Crawford, Jr., *Research Associate*

Clifton C. Fitzgerald, *Junior Programmer*

Theodore Matthews; *Data Clerk*

This document is a product of the Management Information Systems Directorate, a component of TACTICS sponsored by the Institute for Services to Education, Inc., its Assisting Agency.

TACTICS is a unique consortium of eight (8) technical service components servicing historically Black Colleges and Universities. These components are provided personnel and technical support by their Assisting Agencies, and are.

Assisting Agency	TACTICS Components
The Institute for Services to Education (ISE)	■ Cooperative Academic Planning (CAP) ■ Management Information Systems (MIS)
The Robert R. Moton Memorial Institute, Inc.	■ Moton Consortium on Admissions and Financial Aid (MCAFA) ■ Moton College Service Bureau (MCSB)
The Phelps-Stokes Fund	■ Management Development Program (MDP)
United Board for College Development (UBCD)	■ Academic Administration (AA) ■ Educational Technology (ET)
University Associates, Inc.	■ Technical Assistance (UA)

All Assisting Agencies have programs other than their TACTICS involvements.

The unique distinction enjoyed by TACTICS (Technical Assistance Consortium To Improve College Services) stems from the continuous cooperation between the agencies, components and coordinating office where all are working together for the good of their colleges and universities. This thrust is represented by the unifying TACTICS logo displayed by all TACTICS component's publications.

TACTICS is supported by the Office of Education under its Title III Developing Institutions Program.

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Preface

The essential rationale for sponsoring a Management Information System (MIS) program workshop is to expose college and university administrators participating in TACTICS to the new management techniques being developed in selected TACTICS institutions. These new techniques are being supported with consulting assistance from the MIS/TACTICS program and they focus on the implementation of improved procedures in the administrative areas of

- Student Records Maintenance
- Facilities Management
- College Personnel Systems
- Financial Aid
- Grants Management

Co-sponsoring with MIS was the ISE Consortia for Institutional Research (CIR) The combining of MIS and CIR workshop activities afforded the participants exposure to a broad range of data collection and reporting procedures appropriate for the higher education institution In addition, the president from the Association of Institutional Research (AIR), Lois Torrence, made a presentation during one of the general workshop sessions which for most participants put the total workshop in perspective Lois' presentation centered on the role of the institutional researcher as it related to the fundamental administrative responsibilities of the total academic management environment Her remarks were supported during a subsequent general session by Jack Levine, former president of the Systems Research Group of Toronto, Canada.

Jack's presentation, though more specific than Lois', addressed the notion of managing a higher education institution utilizing techniques more commonly applied in industry. In many ways, the question and answer session after his main presentation rivaled the sessions which were to follow. During this session, Jack dispelled some of the notions surrounding the compatibility of the "industrial product management approach" and the "higher education management approach." The text of Jack's presentation is included in this report.

Based on the participant evaluation of the workshop, our purposes were achieved and in some areas exceeded our expectations. Participants, while constructively challenging many of the presenters on their approach to the development of new techniques in higher education information management, also exchanged ideas with one another which in my humble opinion, is one of the true values in bringing any group of people together. (Though many of us realize that the grass is not always greener on the other side, we frequently need reinforcement of the notion). When such an exchange of ideas takes place, people quickly realize that the techniques being explained by the presenters are not so far away from the way they are actually performing. But because the presenter is operating in a controlled environment--a workshop--it appears more organized.

The MIS/CIR Spring Workshop in my estimation and in those of the participants accomplished its objectives. It provided both exposure to new management techniques and a forum for the true exchange of ideas. The appropriate credits, however, belong to those participants and consultants who made the workshop possible. Their names are listed elsewhere in this document.

TABLE OF CONTENTS

LIST OF FIGURES

The Role of Planning and Management Systems in Post-Secondary Education

Jack Levine
Consultant
U.S. Office of Education

The arts of planning and management systems development and implementation are well developed and ready for introduction into higher education on a scale never before possible. Costs of information system improvement are lower, and potential benefits are greater than ever before. And yet, after many years of discussion and research on the problem, most colleges and universities are several steps away from realizing such a potential — *a good, well rounded system that would help them with program evaluation and management control generally*. From my own experience I am aware that this seeming inability to draw on the technology that is available is not mainly a technical problem. The problem of management reform, of getting better information to make better decisions is more a social and educational problem than a technical one. In my talk today I am going to expand on this notion.

To begin with, I am going to suggest a way of grappling with three important problems in planning and management system development: first, the problem of understanding the basic nature of planning and management systems in a college or university; second, the problem of using this understanding to establish directions and priorities for information system improvements, and third, the problem of actually implementing changes in such a way that the changes will be perceived by the members of the institution as being generally supportive of their institution's goals. In summary, then, what is a planning and management system, how do we build one, and how do we get it to work smoothly and usefully?

Perhaps the most important thing for people to understand is that every college or university has the kind of planning and management system it deserves. Any so called planning and management system or management information system is nothing but an expensive exercise if it does not reflect the perceived needs and interests of the members of the community it is supposedly serving. The fidelity of this service is certainly more related to the goals and ideas of the people who are working in the institutions than it is to any abstract scientific notion of what a management information system should be.

One of the fundamental conclusions that emerges from our work over the years is that the processes of educational reform begin in the minds and hearts of educational managers. Without a serious resolve on the part of these people, any attempt to overlay improved information and planning systems is likely to be of little benefit. The educators in the institutions considering implementing new systems have to understand that it is not the systems analyst and the systems that will be primarily responsible for the success of information system change, but they themselves — the managers who will use the information to make better decisions. Better decisions will be as much a product of the resolve to make better decisions as they will be of the quality of the management information system.

So while the technology for implementing improved planning and management systems is well developed, something else is necessary — *people have to be ready for change.*

Analytical tools must be tailored to the needs of the institution using them. Computer programs are not readily transfered without a friendly pat on the back and a bit of brushing up. They may even require substantial modification. But management information and planning system development in a university or college is likely to be much more than technical tinkering, it is often a very inventive journey of self discovery. Any development program must have the following

- A clear methodology for involving those that are going to be affected by the program in its design.
- Continual briefing sessions for these individuals as the system is being developed and implemented
- Extensive training programs in the use of the system once it is developed.
- A corresponding professional development program in management and planning to improve the skills of those who will be using the systems.

Fortunately, most educators can readily grasp the main ideas underlying the system development for the subject are neither as difficult nor as technical as most people think. The general planning and management system needed for any college or university can be broken into four parts.

- Basic Transactional Systems.
- Statistical Reporting Systems.
- Planning and Budgeting Systems.
- Output Evaluation and Goals Review.

The first of these, the Basic Transactional Systems, are needed by every college and university. There must be a student and general accounting system for looking after its day-to-day operations. Students have to be recruited and admitted, aided, charged tuition and fees, and assigned to chosen courses. Staff members have to be hired, assigned tasks, and paid. The physical plant has to be looked after, and many kinds of equipment and supplies must be purchased. All of this requires information based, in most cases, on fairly traditional procedures of educational administration and accounting. In short, these systems explain what money is being spent on rather than what it is being spent for.

Statistical Reporting Systems draw, to some extent, on the Basic Transactional Systems for information such as operating statements and balance sheets, enrollment counts, student receivables, and accounts payable. Nowadays, however, the typical statistical reporting system has to go beyond these rather basic reports to new ones requiring additional data such as: student reports that analyze the characteristics, social origin, career paths, interests, and ideas of students, and special staff reports that may relate to educational experience, present work, professional data and background of staff members. This information is used to generate reports to meet requirements of internal planning committees, boards of trustees, state boards, USOE, etc. In general, these systems are concerned with historical information as a guide to the impact of decisions made in the past and how these decisions ought to be changed.

The third area, Planning and Budgeting Systems, deals, on the other hand, with future decisions. No field of management responsibility in education is in greater need of new tools for decision-making. However, the resolve to make better plans and to seek the means for making more considered choices is even more important than the analytical instrument.

What will give us more effective planning and budgeting? The most important answer is that we need to bring academic planning and financial budgeting into a harmonious relationship with each other. This means we need a bridge of some kind to link the aspirations of the educator and the practical reasonings of the financial officer. If colleges were managed a little more like businesses, the marketing concept would readily provide a conceptual scheme — a focus on the relevance to student needs and hence to community needs of the educational services delivered. If a certain level of student enrollment is judged to be economically essential to the future of any given institution, then the faculty and administration simply have to work together to achieve that enrollment level. Such an approach has a parallel in political life, in the aphorism that the first duty of a statesman is to get elected otherwise he could never implement his policies no matter what they are. In education, we have called this concept enrollment management. It implies much more than information system development although this aspect is important.

It seems to us that one of the main objectives of any kind of planning and budgeting system should be to reduce future uncertainties and risks. This objective may imply several things: better knowledge of probable future conditions, more careful consideration of alternative plans that dovetail with future conditions, manipulation of the internal and external environments to achieve desired and otherwise unobtainable future states, and stockpiling responses to possible surprises that may turn up as the scenarios of the future unfold.

In terms of the present-day academic management style, the challenge of modern approaches to planning and budgeting can be bluntly stated: abandon the traditional budgetary philosophy of intuitive incrementalism in favor of an attitude that embraces bolder innovations and more rapid change in academic goals, programs, and learning methods.

The implementation of such a system costs money, and the benefits are sometimes hard to quantify in advance. The fact is that the implementation of a new planning and management system typically creates problems. New facts and new analytical tools open up new areas for problem definition, and they do more than just make problems more specific and choices between alternatives more scientific and more considered. Herein lies the essence of modern reform in educational budgeting: to introduce a new, cooperative modus operandi among all the principal communities of the college to insure not only its survival, but also its flexibility in defining and responding to the needs of our changing society.

The fourth area, Output Evaluation and Goals Review, compared to the historical analysis and the understanding of costs and revenues of the other areas, is esoteric indeed. Such questions transcend program analysis and choice between alternative curriculum structures and teaching methods. Comparative costs or options on methods of instruction may enable a university to improve its future resource management, but the goals and values set for it will determine whether or not a degree program in a particular area can even be contemplated.

This area of management requires a higher proportion of external data as can be most readily seen in output of goals review which becomes intimately dependent on social rather than institutional research. How are the needs of our society or our area of the nation changing? How do graduates now view their educational experiences? How is the demand for various skills shifting? What does the accelerating liberation of women have to say about institutional development policy?

How will lifetime education concepts affect the campus? These and other questions certainly demand information as well as very large dollops of judgement.

One of the ironies of planning and management system development in higher education has been the inverse relationship between the costs incurred and the benefits derived in each of the four areas. Large sums have been spent on computerized Transactional Systems where the educational payoff is least. Moderate sums have gone into Statistical Reporting Systems where benefits are moderate. Little has been spent on Planning and Budgeting Systems where the payoff is very great. Almost no systematic effort has been devoted to the conscientious evaluation of goals where costs are relatively small but potential benefits astronomical.

How does one approach the development problem? Just as a university can benefit from a master plan for future facilities and program activities, so it can benefit from a parallel plan for its overall planning and management needs. Such a plan is not really very hard to formulate nor need it be complex and smartly integrated in all of its manifestations. But it can be very useful.

Planning the functions, structure, data elements, input and output characteristics at each of the four system levels we have described gives the following benefits:

- Clarifies organizational structure, job responsibilities, along with related information needs.
- Throws light on hitherto non-existant or hidden policy issues such as credit hour definitions, staff loading rules, space utilization, and attrition.
- Promotes more open, cooperative decision-making by faculty administration.
- Helps assure there will be no serious gaps in system components.
- Focuses attention on the costs and benefits of information.
- Reduces duplication and useless reports.
- Contributes to computer hardware and related staff planning by making possible a coherent statement of probable processing loads of future intervals.
- Requires the decision-makers to make conscious analysis of their information system options and to make formal decisions on system development priorities and implementation timetables.

In the balance sheet of benefits we have found to our surprise that the self-examination implicit in developing an MIS master plan is often as useful as its more obvious results.

The plan can be formulated at any of several levels of detail.

- A general plan.
- Component systems defined.
- Component systems flow-charted with data and definitions.
- All of the foregoing plus selection of and/or writing of specific computer programs.

While planning methods are obviously affected by the level of detail that is decided on, the process also has a number of recommended steps that have proved helpful in our experience.

- Confirm organizational structure.

An information systems form and context depends on the needs of the people who work in established relationships at their appointed tasks. Hence the first step in an MIS plan is to record the existing job structure and principal duties affected by the plan. Any major changes now foreseen should also be noted at this stage.

- Identify perceived information needs and information flow.

This step is essentially an information gap analysis. It enables the MIS planner to see the outline of the system required, existing or non-existing. Part of this step consists of review of present or proposed computer hardware and computer center staff. In some cases questionnaires may prove useful.

- Review findings in relationship to standard structure.

Check the current findings against one of the many standard checklists of needed systems noting any deliberate omissions from the emerging plan as well as features needed but not in one of these lists.

- Set up the needed systems development steps for priority decisions on implementation.

Since not all elements in the system are equally important or of comparable implementation cost, the users of the proposed system should decide what to do first and why. A decision matrix can be useful at this stage laying out options and stating criteria recommended for deciding priorities, costs, benefits, lapse-time needed, internal resources needed, external resources, computer implication, etc.

Like any other set of plans this master plan needs a formal implementation schedule. When people's working environment is to be changed, social aspects of making the changes must be carefully considered. In information system changes and management and planning systems changes the penalty for ignoring psychological factors can be severe — to the point where the system becomes a witch word and its implementation

abortive or worse. Any implementation plan thus should begin with orientation and the involvement of many people, especially those who may perceive the proposed changes as a threat or at least a cause of uncertainty.

As mentioned before, a conscious program of professional development to enhance the managerial skills of those in the university is a necessity if the new systems that are being developed are to be used to the best advantage. Too often those within the university are not exposed to a conscious program of management development similar to that used in private industry. A further problem is that oftentimes the incentive system inherent in the budgeting process is such that it actually penalizes those who do a good job of planning and analysis rather than rewarding them for their efforts. A close look will have to be taken at the way in which this process is carried on if analysis is to have any real meaning.

Some critics of a systems approach to university planning and budgeting warn that implementation of such an approach poses a serious threat to the humanistic quality of higher education. How the unsystematic and subjective approach to budgeting which now characterizes most American universities can be more humanizing is difficult to conceive. The planning process in most universities is ad hoc rather than comprehensive, responsive rather than anticipatory, decentralized and fragmented rather than cohesive and integrated. Decisions on the allocation of scarce resources are frequently made without the benefit of accurate information and rigorous analysis of the way in which the allocated resources are being used for achieving institutional purposes. There is scarcely any serious attempt at long range planning, and even capital improvements projects are undertaken with little reliable information on long-range program trends. Responsibilities for institutional planning and budgeting are often poorly defined, and the process of budget-building is often conducted under the stress of time schedules which make careful analysis impossible. Coordination of the various planning and decision-making sectors of the university is often non-existent.

A better system for obtaining control of the operations of the university should serve to make the institution more responsive, under humane educational leadership, to the needs of human beings. Obviously, no technology, much less the technology of financial management, is in itself a guarantee of human freedom, but neither is technology in itself an enemy of freedom. The effect of technological advance is always to test the ability of human beings to employ a new contrivance to enhance the quality of life. This, too, is the effect of the new application of management science in education. With humane educational leaders, who have developed skill in this new technology, the managerial revolution in higher education should only lead to a greater responsiveness of the organization to the requirements of mankind.

Were it not for the personal gifts of key administrators who manage to obtain acceptable results in spite of the system, the situation would be intolerable. But clearly, the present procedures for reaching resource allocation decisions are not the cause of humaneness in higher education. On the contrary, the existing system is one of the obstacles to controlling the processes of the university for maximum service to human ends.

Workshop

MIS--Program Planning and Budgeting

Joel O. Nwagbaraocha
Staff
Institute for Services to Education, Inc.

The Program Planning and Budgeting System (PPBS) is a process by which priorities among the kinds of services a college may provide are weighed, objectives are stated in operational terms, alternative means to accomplish the given objectives are analyzed, and a choice among competing means is made under criteria of efficiency in the use of resources.

The objective of this session is to share with the participants a concise summary of work involved in planning and implementing a PPB System.

There will be discussion on four basis issues inherent in the development of a PPB system in higher education

- How a PPB system for a college can be developed
- What output measures, parameters, or indications are most appropriate and how they can be organized.
- What kind of analysis is appropriate for a college setting and how it can be conducted.
- What are likely strategies for development of the system in operational contexts.

Planning, Programming, and Budgeting Capability

An institution's planning, programming, and budgeting capability is evaluated by doing the following

- Locate PPBS decision points.
  - Once the decision points have been located, the functions and groups included in the PPBS process can be identified.
- Determine the PPBS cycle.
  - To chart the PPBS cycle, determine the sequence of decision points and the functions and groups involved at each decision point.
- Identify long-range planning activities
  - Activities included here may be multi-faceted for a special-purpose activity such as an Academic Planning Committee.
- Compare the existing PPB system to the model PPB system.
  - This comparison will identify positions that should be involved in the process, but have been excluded, as well as superfluous components.
- Determine if a feedback mechanism exists in the PPBS cycle.
  - The PPB system should be a closed-loop system. A cyclical process is established with each component receiving input from a component or components and providing outputs to another component so there is a continuous process.
- Recommend improvements in the PPB system, including the process, time frame, and participants.
  - Recommendations for improvement may take many forms, such as including other components in the process, changing the cycle itself, and establishing an office to satisfy an unfulfilled function in the PPB system.

Planning

The PPBS process is, of necessity, activity oriented. This means that the entire operational process centers about the ability of the institution to translate missions into goals, goals into objectives, objectives into activity areas, and activity areas into activities. The activities are then classified (programmed) and budgeted, and performance data is gathered to allow an evaluation of the activity. The evaluation results then serve as input into the next cycle of the PPBS process.

The institutional mission formulation process is the keystone to all institutional activities. While the formulation of the institutional mission is not a part of the PPBS process, it feeds directly into the highest level of the PPBS process. In addition, evaluations of institutional activities may play a role in updating the institutional mission. The mission is usually determined by external forces and is incorporated in legislation. Thus changes in the mission itself are accomplished over a fairly long period of time.

The mission itself, however, is the basis for the long-range planning process. This is the first PPBS activity. The long-range planning process consists of interpreting the institutional mission for purposes of formulating goals and objectives. This long-range planning function is usually accomplished by one specific group, supported by information from almost every area of the institution as well as outside

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agencies. Typically, the president and/or vice-president preside over this planning group, which should include heads of major administrative units. Input should be received from external sources such as groups in the service area and groups that legislate appropriations or responsibilities in the institution.

The short-range planning process is the means by which goals and objectives are transferred into program activities for a short period of time, usually one or two years. This process is the responsibility of the institutional planning group. The process consists of determining a series of activity areas, each with a definite objective and with measurement criteria. This process sometimes encompasses the preliminary budgetary cycle by determining resource requirements for activities and by making recommendations to the president of the institution for the ultimate resource mix.

The short range planning process culminates with the operational plan, which stipulates the operational activities and resources for the major administrative units. The major administrative units then have the responsibility for implementing the short-range plan. The major administrative units are accountable for the resources assigned to their areas and the allocation of those resources to the planned activity areas.

The next component in the PPBS process is the activity areas. The activity area is the level at which implementation occurs. As such, this area should have specific objectives which serve as operational targets. The activity area must have measurement criteria which are related to the objectives and which are quantifiable enough to allow measurement. The activity area must also be afforded a resource mix. The resources will be a combination of human, facility, and support resources, and it should be possible to relate these resources to planning budgetary figures. The activity area then assumes operation of the program and provision of evaluation-related operational data.

The long-range planning component should have the responsibility for goal formulation and activity area determination in connection with the long range planning cycle of the institution. The short range planning component should have the same functional responsibilities with the additional responsibility of determining short-range resource requirements and evaluation criteria. The major unit administration components have functional responsibilities that entail the determination of activity areas within their unit, the determination of resource requirements, in detail for those activity areas, and the conduct of the activities, including supplying evaluation-related data. The operational areas perform the detailed resource requirements determination process for their specific program areas.

Additionally, the operational areas conduct the program operations, under the direction of a major unit of administration. The activity evaluation component performs the evaluation function, with respect to the operational areas. The administrative evaluation unit performs the evaluation process with respect to major units of administration. The institutional evaluation unit performs the evaluation with respect to the overall institution and its long-range and short-range plans. The planning support group supports all evaluation areas with aggregations and manipulations of evaluation data that have been supplied by the other component areas through the institution's information processing capability. The components of a PPBS are graphically related in Figure 1.

Programming

The determination of the manpower, materials, and facilities required to support a program so that inputs are related to outputs by lines of action through an information system is known as programming.

The word program in PPBS does not refer to computer programming, but relates to the activities of an organization that are based on desired outcomes. Programs are the fundamental groups of related activities around which an institution is organized and upon which its policies are based.

It is difficult to identify ideal program structures. Each institution must develop its own program structure. There are as many different ways of putting together a program structure as there are people who attempt to do it. The basic principle of an objective-oriented program structure is the grouping of activities that serve the same purpose. The top level of a program structure should consist of the broad categories directed toward the fundamental objectives of the institution. The lowest level should be comprised of the programs that have been implemented as the specific means for moving toward the end objectives.

A program should have the following characteristics:

- Specific objectives and functions
- Measurable inputs and outputs (even though aspects of output may be difficult to quantify)
- Authority to make policy decisions both as to objectives and as to allocation of resources to meet those objectives.
- Relationship to larger programs in the institution

Any of the above or a combination of the above may be used in specifying programs. Once a program is identified, a pertinent question must be asked: is the program a group of interdependent, closely related services or activities that possess or contribute to a common objective or set of allied objectives? Is it a package of sub-programs, elements, components, tasks and activities?

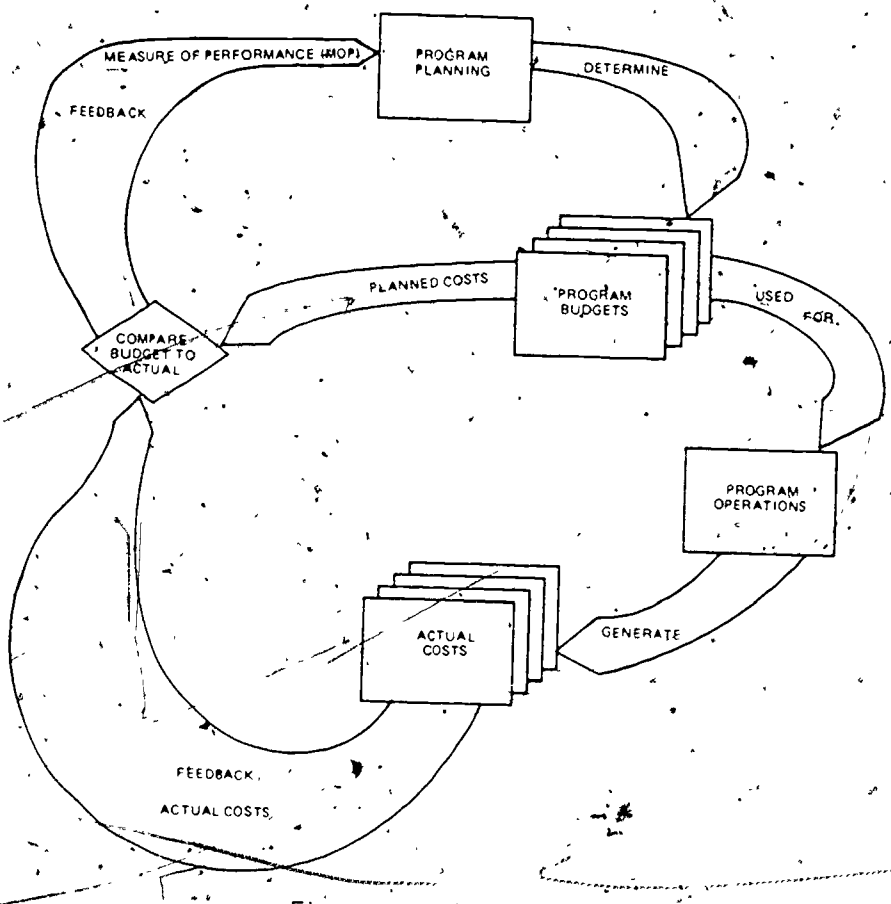

Figure 1. PPBS Components

Budgeting

Program budgeting relates to the output-oriented programs, or activities of an institution to specific resources that are then stated in terms of budget dollars. In PPBS, both programs and resources are projected for at least several years into the future. Emphasis is upon outputs, cost-effectiveness methods, rational planning techniques, long-range objectives, and analytical tools for decision-making. The most important single task that must be accomplished in moving to this kind of planning and budgeting is the development of a program structure.

The implementation of program budgeting requires substantial increases in accounting staff, developing a separate department for budget planning, and systems analysis and appraisal. Such an approach will point in the direction of rational assessment of the effects of financial input into the system in terms of output services for which the institution operates. Three additional approaches could be taken in implementing the program budgeting:

- Programming the full implementation over an extended interval, such as five years.
- Restricting this form of budgeting to selected programs, possibly on an alternating basis.
- Experimenting with pilot projects of different sizes, types, structures, objectives, and programs in the institution.

The conversion of the traditional item-budgeting to program budgeting requires application of the principle of allocating the various responsibilities, in accordance with the level of complexity and costs, to those with the appropriate resources of leadership, knowledge, funds, and hardware.

The characteristics of traditional budgetary planning are as follows:

- Minimal and fragmentary planning.
- Separation of fiscal and program planning activities.
- Generalized consideration of academic programs or instructional areas and their output consequences.

In contrast, the program budgeting concept, inherent in the PPBS, emphasizes long-range planning that integrates cost accounting into the process. All programs must, therefore, be definitive before a price-tag is attached. In addition, and of equal significance, there should be a concern for a determination of the program's measurable output. The general acceptance and use of program budgeting by an institution will result in significant educational, as well as fiscal, management improvements.

Devising a Program Budget for a College

After determining the long-range objectives and purposes and defining a program along with the measurement criteria, the next step is to devise a program budget.

- The number and types of the proposed programs will be listed.
- A statement will be made of the objective of each program.
- The resources and output characteristics will be identified.
- The sources of income generated within each program will be identified.
- The time dimensions will be determined.
- Some budget formats will be displayed.

Program Resources, or Input

The input, or financial and nonfinancial resources, for each program can be distributed among six categories as follows:

- Personnel employed: the number and type of positions required for each program and the average salary and work-load in each position. Examples of some of the positions are:
  - Professors (Full, Associate, Assistant)
  - Instructors
  - Lecturers
  - Teaching Fellows, Graduate Assistants
  - Administrators
  - Secretaries
  - Librarians
  - Building and Grounds Workers
- Students: the number in each of the instructional programs, including full-time and part-time (stated as full-time equivalent).
- Class size ratios: the average class size for each of the instructional programs.
- Instructional courses: the number and description of the courses in each of the instructional programs.
- Supplies, equipment, and furnishings: an inventory of materials and a listing of items requested to be purchased for each of the programs.

- Physical facilities: an inventory listing of the number, square feet, and utilization of classrooms, offices, laboratories, and libraries.

Program Output

The output for each program can be identified as follows.

- Degrees: the number and type of degrees granted.
- Degree courses: the number of students in each major and elective course; the number of student credit and class hours provided.
- Library growth: the number of volumes in the library.
- Research and scholarly publications: expressed in terms of research grants and research publications.
- Contributions of the institution to the community: expressed in terms of lectures, cultural events, art exhibits, and urban and community projects.
- Standardized test results: performance of students on standardized tests given in the freshman and senior years and on graduate admissions tests.
- The number of seniors admitted to graduate schools.
- Alumni questionnaires filled out by alumni giving a personal history after receiving their degrees, listing positions, salaries, participation in community affairs, graduate studies, and their evaluation of the institution.
- Evaluations of programs by college and university accrediting associations.
- Self-evaluation by college and university committees.

Sources of Income

The sources of income generated for each program will be identified and applied to the program earning the income. For example:

- Tuition income
- Laboratory fees
- Application fees
- State appropriations
- Gifts
- Endowment income
- Grants

Student, Faculty, and Staff Services

- Student activity fees
- Athletic income
- Room and board fees
- Food services, cafeteria sales
- Gifts
- Parking
- Health service fees
- Government grants
- Library fines

Public Services

- Admission fees to cultural events
- Fees for noncredit courses
- Book sales

Research and Development

- Government gifts and grants
- Industry grants
- Gifts

General Support

- Unrestricted gifts
- Endowment income

Advantages of Using a PPBS System in Higher Education

The program budget is a comprehensive output-oriented policy and planning budget, and is thus not restricted to the fiscal control functions of a conventional budget.

Summarized are some of the advantages of using a program budget in higher education:

- The programs of a college are organized on the basis of systems analysis rationality.
- Actual total costs of a program are obtained. The budget cuts across traditional departmental lines and gives the cost, in both financial and nonfinancial resources, for extended time periods (five to ten years).

- Information is given to everyone in the junior college, college, or university family, regarding the general objectives and goals of the institution and the explicit objectives of each program. Input-oriented conventional budgets may not make available the future plans of other programs within the institution.
- Participatory planning is encouraged
- Allocation of resources is made on a more rational basis. Evaluation of programs is made by means of a wide variety of analytical techniques.
- There is an emphasis on outputs or desired results, and all resources are directed to these outputs.
- All programs, existing and new, are continually reviewed and revised on both a formal and informal basis.
- Fund-raising activities may be coordinated with the long-term planning objectives of the program budget.
- A Management Information System (MIS) can be developed around a program budget structure in order to provide data for progress reporting and program planning and control.

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Workshop
Financial Aid and Grants Management

Quinn Shelton
Consultant
Institute for Services to Education, Inc.

Background

Considerable effort has been directed toward strengthening management capabilities in small colleges. From these efforts have come numerous models and a myriad of skilled consultants which have structured and clarified the college management model (e.g. WICHE, Moton Management Consortium, NACUBO, professional associations, consulting firms, etc.). Various types of management models have been developed on college campuses today.

The focus of the ISE/MIS modeling effort is to *build upon the existing college management model(s)* by developing an operations manual for financial aid, grants management, and related finance management which clearly specifies relationships between all other parts of the management model, as well as its own internal operation.

APPROACH

Concept

Operational systems and subsystems include the following items:

- *Data or Information*
- *Data Flow* - the ordered flow of groups of data through the system or subsystem
- *Decision Points* - points in the data flow where information may be sent in more than one direction. Each decision point represents a potential obstacle to data flow until a choice among alternative paths is made. Such a choice is made by pre-existing rules or subjective selection.
- *Operational Roles* - These describe the necessary human or mechanical actions. Personnel roles are described in terms of operational roles.
- *Role Processes* - These are the specific steps done to carry out the actions defined by the role.
- *Process Flow*

An *integral* system is defined in terms of the above elements and is the basis for an *operating* system.

A system becomes *operational* when it *interacts* with other systems, it receives data from other systems which may require a response sent to another system.

The *operational* system is defined by:

- *Interactions or Interfaces* - These are the contact points between systems and have all of the elements described above.

ANALYSIS AND DESIGN COMPONENTS

I. Data - forms, aggregates, elements.

A. Unique identifiers.

B. Definition (where necessary) including normal context.

II. Data Flow - charts and narratives.

A. For each identified form, aggregate or independent element show and give an identifier to -

1. A starting point in its flow.
2. The sequence of its distribution to other points, including copies.
3. The end of its flow.
   a. End of its usefulness
   b. Entry into archival storage
   c. Entry into active data base for subsequent use.
   d. Points at which its elements are used to create new data - identify new data it helps compromise
4. Points at which it flows in combination with other data.
5. Parallel flows it may be involved in simultaneously or alternatively (based upon decisions).

B. Along the flow path identify uniquely each point at which a decision must be made which determines the subsequent flow of data.

III. Decision Points - uniquely identified.

A. Describe the data flow-point at which the decision should be made in terms of all data which must converge to result in the decision.

B. Describe any rules confined to the incoming data content which contribute to the decision including value limits, ranges, relationships, completeness of content, etc.

C. Identify the spontaneous human judgments, if any, which must contribute to the decision. Identify uniquely the role(s) which must be involved.

D. Identify the data leaving the decision by path (II.A. above), corresponding to the applying existence of, or combination of III.B. and/or III C.

IV. Operational Roles

A. Identify by class of action entered into (to be defined) Confine to a single class of action

B Describe the specific action limits within the class.

C. Identify the data (if specific), from I.A. above, involved in the action.

V. Role Process unique combination and sequence.

A. Identify the start and stop point(s) of each role process along the data flow(s) II.A.

B Identify the operational role associated IV.

C Describe the sequence or actions between the start and stop points. Each should be described in terms of what happens to data and what other roles are interacted with

VI. Process Flow

A Show the connection (interfaces) of all role processes.

B Parallel the data flow.

VII Personnel Descriptions

Combine appropriate operational roles to produce titled personnel descriptions.
Identify all the operational roles (IV) within each.

DATA COLLECTION

The attached charts (Figure 2) will be used to collect data on financial aid, grants management, and related fiscal processes, as follows:

Data Flow Description

Each person fills out the charts with respect to *all* the relevant data that person uses related to the subject area (even though someone else also uses the same data). Further, when the person uses the data for several different *functions*, the data is re-listed for each function.

When the data being described is a form (either an internal document or an external document, such as a government form), the data which is not of direct use to that person for the specific function should be crossed out on the supplied copy of the form. A copy of the form for each function in which it is used would be helpful, each with a different ID number.

Sometimes the data being used is not specifically on a form as no process exists to create a form for the desired data configuration. Instead, the person derives his data from one or more forms by calculations, interpretation, extraction, or a combination of these operations. Such *desired data* is to be described. In this instance, column "I" on the form will be used to identify the source forms. Please attach a note referencing the assigned ID and describing how the data is derived.

A good method of attack is to collect all forms you use in any fashion and list all data which are not on forms *before* you start filling out the charts.

Decision Description

Each person for whom a Data Flow Description chart is filled out will discover that some level of decisions are made relative to the described data as part of the job, for which that person is specifically responsible. Such decisions affect the contents of other forms, the order of processes to be accomplished, where data is to be sent or other facets of the total operation.

This chart (Figure 3) is designed to identify such decisions and to determine when and where they occur.

As entry is made in the Data Flow Description chart it should be checked for relevance to the Decision Description chart

Following is a typical Financial Aid Officer's calendar.

SEPTEMBER

- Reconfirm with the Fiscal Office all aid awards previously distributed on the master roster. Make necessary changes prior to registration.
- Assist in student orientation activities. Be available during registration to answer student questions with regard to specific aid packages and/or the student aid program in general.
- Following registration, verify enrollment status of all aid recipients. Re-allocate any funds as a result of an aided student's failure to enroll.

Name _____
Date _____
Dept _____
Office _____
Title _____

DATA FLOW DESCRIPTION
COLLECTION VEHICLE

A Form Aggregate Element ID	B Definition/ Descriptions	C Dept /Office/ Function using data	D Dept /Office from which required	Where created 1 and/or 2	How Used: E To create other forms? If yes, list ID's	How Used: F As input to decisions? If yes, list Decision ID's	How Used: G Is form stored here?	How Used: H Is form destroyed here?	How Used: I List other forms which must be present to use this one (ID's)	J Dept / Office where forwarded	K List other forms forwarded at the same time (ID's)

Rules for Use: *ID*—Give unique number designation to forms, *Definition*—Title or brief description, *Dept /Off*—Name Dept /Office or Function referenced, *Where Created*—indicate 1, 2 or 1 and 2 referencing the previous columns (1 and 2 partially completed by both); *How Used*—Number the columns from 1 up to 9 which apply in the order they apply, then list requested info (decision ID's are numbers supplied on "Decision Description Form"). *Attach blanks or samples of all forms referenced.*

Figure 2.

Name:
Date:
Dept.
Office:
Title:

DECISION DESCRIPTION
COLLECTION VEHICLE

Decision ID.	Definition/ Description of Decision	*Data Forms*, Aggregates Elements Required (ID's)	Are there any *written rules* for the decision? Identify sources	Are all rules written?	Other Dept./ Offices/Functions participating in decision	Other Dept./ Offices/Functions approving decision	*Decision Alternative Results* List All	*Data* Forms, Aggregates *Generated or forwarded* from Each Decision (ID's)

Rules for Use: *ID*- Give unique number designation to each decision; *Definition* - Give brief definition and description of decision; *Data Forms* - Refer to ID's on "Data Flow Description Form"; *Written Rules* - If any, refer to source document and specific pages, *Decision Alternative Results* - If choice is to be made, list candidate choices; if original or innovative approach is to be generated, describe on another page and attach; *Data Generated or Forwarded* - List ID's corresponding to "Decision Alternative Results."

Figure 3.

- Distribute work study job contracts. Interview students for whom they have designated support.
- Acknowledge to outside donors the enrollment of students for whom they have designated support.
- Financial Aid Committee Meeting: present a status report reflecting summer activities. Give a statistical report which reflects student awards in relation to the actual fall enrollment. Seek committee input regarding projections for the next academic year.

OCTOBER

- Compile statistical data for current term. Project additional awards to be made during the present academic year.
- Application for Federal Funds draft. Assemble as much data as possible. Secure necessary projection from the Admissions and Fiscal Offices.
- Conference with new students. Aid them however possible in making a satisfactory adjustment to the campus environment.
- Attend state and regional meetings with regard to the Federal Application for Funds.
- Complete the institutional Application for Federal Funds and submit to the Regional Office.

NOVEMBER

- General Session for Work-Study Students. This kind of meeting allows for any general problems to be dealt with through open and healthy discussion.
- Secure mid-term grade roster from the Registrar. Counsel with students where indicated. Assist students in securing specialized counseling services if such follow-up is indicated.
- Team Recruiting in conjunction with the Admissions Office.
- Verify with the Admissions Office any applicants admitted for the second semester or spring term.

DECEMBER

- Recapitulate all funds. Reconcile records for accuracy with the Fiscal Office.
- Make awards for the second term based upon availability of funds. Notify late applicants if funds *are not* available. Indicate resources where the student may turn for financial aid.
- Begin processing and review or new applications for the next academic year. Check with admissions regarding early decision candidates.
- Double check recruiting materials. Maintain an adequate supply. Reorder any materials which are moving fast. It is important that all requests for information be met without delay.
- Financial Aid Committee Meeting: progress report due. Re-evaluation of criteria for the awarding of academic scholarships, music, band, and athletic awards.

JANUARY

- General Session: Work-Study Supervisors.
- Team recruiting and follow-up, in conjunction with the Admissions Office.
- End of term grade reports due from registrar.
- Counsel with students with low averages. Refer for special help, if indicated.
- In-Service Staff Training Workshop including Personnel Evaluations.
- Review and plan for the Student Financial Aid Program. Collaborate with the Director of Institutional Research, and the Development Office with regard to long-range plans. Assist in generating some proposals to non-traditional sources to secure funds for the student aid program.

FEBRUARY

- Mail academic grade reports to outside donors if applicable.
- Post deadline dates for student aid applications for the next academic year.
- Re-allocate and finalize awards for the remainder of the academic year.
- Continue reviewing and processing new applications for the next academic year.
- Secure departmental requests for student employment in the next academic year. Along with this request, ascertain department needs for summer employment.
- Attend Regional Student Financial Aid Administrators Meeting.

MARCH

- Begin making awards to new applicants for the next academic year.
- Prepare a statistical report listing all aid awarded during the present academic year.

- Financial Aid Committee Meeting submit progress report. Include in the report the number of applicants and awards made to date for the next academic year. Include the projected student aid budget.
- Office Personnel Evaluation and Budget finalize a written report based upon skills, performance, attitude towards work, relationship with students, staff, faculty, and others. Submit copies of each staff member's evaluation to Dean of Student Affairs, President or appropriate designate along with recommendations for staff promotions and salary increments. Submit at the same time a realistic office budget which reflects additional needs for personnel, equipment, and supplies. Indicate the amount of anticipated income as a result of the Administrative Cost Allowance from federally-funded student aid programs. These funds are designed to improve the direct services of the institutional student financial aid program.

APRIL

- Confirm with the Registrar and or Dean of Student Services any student withdrawals. Notify interested agencies such as an outside donor or lending agency. Re-assign any available funds.
- Complete and mail, if possible, all awards to new applicants.
- Secure applications from students interested in applying for aid during summer months.
- Assign aid to students for summer months. Mail award letters.
- Begin review of renewal applications.
- Make tentative work-study assignments to upper-classmen for the next academic year.
- Prepare National Direct Student Loan summaries and mail notices to graduating seniors for exit interviews.

MAY

- Complete all N.D.S.L. exit interviews.
- Prepare roster of aid acceptances from new applicants. Follow-up on any for which no reply has been received.
- Continue review of renewal applications.
- Reconcile fund balances with Fiscal Office.
- Financial Aid Committee Meeting. progress report due regarding aid to new applicants. Give a projected picture of aid to renewal applicants.
- Conferences with students regarding future aid packages as a result of academic progress.

JUNE

- Check final grades of renewal applicants. If grants are satisfactory, mail award letters to those eligible for continuing aid.
- Notify immediately those students whose academic averages restrict them from continuing with all or any portion of their previous aid. Suggest new resources where they might apply for funds.
- Mail final grade report to outside donors and lending agencies.
- Finalize any late awards to freshmen or new students.
- Begin preparation of the final fiscal report.
- Reconcile all aid authorized for disbursement with Fiscal Office. Close books, June 30.

JULY

- Preparation and completion of the Annual Report to the President. Submit copies to all members of the Student Financial Aid Committee.
- Begin preparation of the Fiscal Operations Report on Federal programs.
- Complete renewal and new awards for the next academic year.
- General Session. Summer College Work-Study Students including Supervisors.
- Office Inventory: order equipment and supplies. Revise any necessary form letters, brochures, or applications. Prepare recruiting packets and begin mailing materials to High School counselors and other recruiting sources.

AUGUST

- Complete Federal Fiscal Operations Report and submit.
- Make final checks with Admissions, Registrar and Academic Dean.
- Firm up all Student Financial Aid Awards, including commitments from outside donors. Re-allocate and repackage if the student has become over-awarded as a result of receiving outside aid. Inform the student of any necessary revisions. Emphasize the necessity of providing for equitable distribution of institutional student aid funds.
- Submit roster confirming the academic year's awards to the Fiscal Office.

- Mail student employees job assignments. Check job acceptances and re-assign any jobs not accepted.
- Prepare job contracts for distribution during registration.

Research Applications Development

Linda J. Lambert
Staff
Institute for Services to Education, Inc.

OVERVIEW

One of the mandates of the MIS program, as established by the Black college presidents in 1971, was to develop and maintain a data bank on Black colleges. From the inception of the program to the present, the MIS directorate has been doing this.

In creating this data bank, the decision was made to go back as far as 1965 as a baseline for data to be included. In order to acquire previous data for the 113 historically predominant Black colleges that were originally a part of the TACTICS Consortium, the U.S. Office of Education was identified as the best source for the data needed from the years 1965-1970.

Beginning in the 1971-72 academic year, MIS began developing its own survey questionnaires to obtain the necessary information on an annual basis. Subsequent questionnaires were administered to acquire the 1972-73 academic year data and opening fall enrollment, 1973 data. These surveys were conducted in conjunction with the Office for the Advancement of the Public Negro Colleges (OAPNC), the National Association for Equal Opportunity in Higher Education (NAFEO), the United Negro College Fund (UNCF), the Institute for Service to Education (ISE), and the other TACTICS components.

It was decided that this type of joint venture would reduce the number of survey instruments being sent to the colleges for completion and would prevent those persons on campus who had the responsibility for survey completion from having to fill out a separate instrument for each organization. Instead, one questionnaire would come back to MIS and the data from these institutions would be distributed to the participating agencies who needed the data to accomplish the objectives of their programs.

In the spring and summer of 1974, another joint survey instrument was planned for distribution. It was decided, however, that we would not send another questionnaire but instead request copies of those questionnaires that each institution sends to the U.S. Office of Education each year under the Higher Education General Information Survey (HEGIS) program. This eliminated the task of filling out another survey instrument and we hoped to have a better response. The data that was usually requested from the colleges dealt with the following broad areas.

- Student data (e.g., enrollment, admissions, and student financial aid data).
- Faculty data (e.g., faculty by department, average salaries, earned degrees, and, recently, race).
- Degrees conferred (e.g., the number of degrees granted by academic area and degree level).
- Institutional finances (e.g., data on revenues and expenditures).
- Data on other areas of the institution, such as libraries, physical facilities, etc.

Once this data is received by MIS, it is processed both in-house and on computers at the Brookings Institution in Washington. Computer reports are generated which we utilize at ISE and distribute to the agencies mentioned previously who need information on their member schools.

What is Done With This Data

In the past, the presidents have received copies of their own college's data reports. For example:

- In 1972, a General Status Report was delivered that gave data on each school along with cluster and consortium averages. These averages provided the means for a president to look at his institution as compared with similar institutions as well as the entire original TACTICS Consortium of 113 schools. The Consortium averages were not always based on 113 schools because we did not always have complete data from each school.
- Another report which was sent to each president in 1973 was a picture of what the school looked like in Fall 1972, based on data submitted to us. This report was sent primarily to get corrections or revisions of any information that was previously reported.
- The most recent report was the one which was available at the conference registration "Degrees Granted and Enrollment Trends in Historically Black Colleges. An Eight Year Study," released in October 1974. This report deals with various aspects of enrollment and degrees granted at 98 institutions over the eight year period from 1966 to 1973. When these reports were sent to the president of each college they were accompanied by an eight year enrollment profile for that particular institution. This report has been given wide distribution and serves as a useful way of providing data on the Black colleges to any interested person.

I might add that a report such as this was very difficult to complete even though the areas of enrollment and earned degrees conferred seem to be relatively simple ones on which to collect data. Even now, we are still missing detailed data from schools in these areas and quite often we have to resort to telephone queries in order to get any figures on enrollment. In this manner, it makes it difficult for us to get the type of detailed breakdown that will allow us to make an adequate presentation.

Future Reporting Efforts

There are presently a few reports being developed for dissemination by the end of this year. These reports will be accompanied by an individual institutional report and sent along with the aggregate to each college president and our survey contact person. In terms of other types of individual reporting to each school, we are still working on what form these reports will take. Along this line, we are open to any suggestions you might have on services of this nature that you feel we can provide.

Some of the reports to be completed this year include:

- A report which will examine the student aid programs in the colleges based on three to four years of data obtained from the Fiscal Operations reports filed by the institutions each year with the U.S.O.E. Division of Student Assistance and other data on state financial aid funds and institutionally-based student aid. This will concentrate on the pattern of student financial aid from various sources and what kind of impact these programs have, not only on the students in the Black colleges, but also the colleges themselves.

- Another report will focus on a model, which was developed by the National Commission for the Funding of Post-Secondary Education, and its application to Black colleges This model assumes a higher education funding system into which no new money will go and it concentrates on the effects of distributing these same monies through different mechanisms. This model utilizes enrollment projections, tuition costs, instructional costs, financial aid increases or decreases, and family income. The results will show what relationships exist among tuition cost, student aid funds, and enrollment.

- Some trend reports which are projected for completion this year are:

  - A report on patterns of Institutional Finances which will examine revenues by source and expenditures by function for the three-year period for which we have the most complete data.

  - A report on Advanced Degree Enrollment, by academic area, for those Black colleges which have graduate programs. Both of the above two reports will be similar to the enrollment and degrees-granted study.

- Another report on Student Financial Aid is being completed from the viewpoint of two different contributors - Leon Belcher of Texas Southern University and Alexander Astin of the University of California at Los Angeles. This report is expected to go to press soon.

- Three research profiles have been completed and will be released.

  - The first will be on Opening Fall Enrollment 1974 in the Historically Black Colleges and will be based on preliminary data from these institutions.
  - Another will focus on the Black Student Market - i.e. where do Black students who attend Black colleges come from, what are the chances of Black students even getting to the college level, and what are some of the characteristics of students who enroll in Black colleges, with regard to their standings in their high school classes. This three-part profile was done by Lewis Jones of Tuskegee Institute, Clifton Jones of Howard University, and William F. Brazziel now at the University of Connecticut, but previously at Norfolk State College.
  - *Patterns of Federal Financial Support to Black Colleges and Universities*, a report which utilizes recent data from the FICE reports, developed by Roosevelt Steptoe of Southern University at Baton Rouge.

A Problem Area

The data requests that MIS made this year were for the purpose of collecting the most recent data on the institutions. To date, we still have a great number of institutions who have not responded at all.

In your registration folder is a list of these institutions and the original memo sent to the presidents by James Welch, director of MIS. The memo gives the names of those survey forms we requested in August of 1974. If your school is on that list, we'd appreciate your assistance in helping us to collect those forms. We cannot make any kind of statement on Black colleges if we do not have data for half of the universe. If we do not receive this data, it limits the type of reporting that we can do.

In addition, I'd like to point out that this data becomes very important when, for example, Dr. Charles Lyons or Miles Mark Fisher IV of NAFEO go to meet with President Ford (which they did recently) or testify before Congress on behalf of Black colleges. Philosophical statements or estimates are not good enough. They want to be able to talk about facts. This data allows us a means for *accurately* and *favorably* portraying the Black colleges. Also, many corporations or others ask us for data on all Black colleges which, if available, we provide in the aggregate. People in corporate affirmative action programs may want to identify those institutions who produce graduates

in specific fields. This provides them with initial information on where to go to recruit Black students for employment in their organization.

In addition to providing data to other agencies in support of the Black colleges, we might get results from persons within the colleges who may want to look at certain data in the total Black college community and make some comparisons with their own school's data.

In the one-year period from November 1973 to November 1974, we answered 23 *major* requests for data on the Black colleges. Of these 23 only 8 were from Black colleges or related agencies. The point I'm making is—*use us*—if we don't have what you want, we try to make referrals to other places where you might be able to obtain what you want.

In closing, I hope that I have given you some idea of what the research and data collection aspect of MIS is about and if you need anything from us—we'll try our best to assist. Thank you.

Status of Model Developments and Model Implementation Procedures

James A. Welch
Staff
Institute for Services to Education, Inc.

Management improvement efforts aimed toward small colleges and universities certainly are not new. Professional associations, consulting agencies, and private corporations all have emerged as complements to administrative and faculty positions and each has produced extremely valuable approaches to assist the higher education institution in improving its management operations.

Consulting agencies and private corporations have contributed sufficiently to the field of knowledge which applies management and economic modeling theory to the administration of higher education. The CAMPUS modeling series developed by the Systems Research Group; the National Laboratories for Higher Education's Student Information System; and the SEARCH model of Peat, Marwick, and Mitchell, just to name a few, are exemplary of the management models aimed at small colleges. Each in its own way has supported *the management by objectives* (MBO) approach to college and university management. The MIS program, in its conceptual approach, likewise is reinforcing the MBO concept of managing institutions but in contrast with the previous attempts of others, it has varied substantially its implementation approach. The general details of the MIS concept provides the purpose for this report. Before moving into its essence, some mention should be made of the existing modeling efforts which are at varying stages of development in the small college.

Current Modeling Efforts Aimed Toward Small Colleges

The National Center for Higher Education Management Systems (NCHEMS) in recent years via its development of a program classification structure (PCS), small college demonstration model program, and a series of regional conferences has provided the stimulus for institutions to view their operation from a management system perspective. This is not to say that such an emphasis was absent for higher education institutions prior to NCHEMS, but one could certainly identify the NCHEMS' influence on institutional thinking related to course loading, institutional organization structure, and student and faculty record keeping. The MIS models, building on these influences, attempt to expand on the concept surrounding NCHEMS' developments by providing answers to the questions:

- How may an institution develop its own management resources to prepare more effective planning, programming, and budgeting?
- May an institution be effectively managed without the assistance of automated data processing?
- To what extent is management theory applicable to actual institutional operation?

Focusing on the fiscal operation of small colleges and universities is another very important service provided by the Moton Memorial Institute, Inc. via its Moton Management Consortium (MMC). In coordination with the National Association of College and University Business Officers (NACUBO), MMC is providing training and consulting assistance to small colleges in the areas of general and cost accounting as well as providing interpretations of the legal ramifications surrounding the college business office operation. While the MMC touches on many aspects of a college's management procedures, its emphasis is primarily toward the training of *new* business and fiscal operations personnel.

Moton's efforts are noteworthy because they deal with essentially the same institutional audience as the TACTICS portion of the MIS program and are providing an excellent skills base for fiscal personnel new to the higher education environment. MIS, in utilizing recommended personnel by MMC in selected model developmental activities, will be particularly benefited by their advice and council.

The National Association of College and University Business Officers' (NACUBO) efforts over the years, one would have to say, have set the pace. Through its earlier efforts with the ESSO Education Fund (now EXXON) in the development of their Finance and Student Records Manuals, NACUBO has provided the small college administrator with an excellent reference document for establishing PPBS procedures as they relate to areas of student record maintenance and accounting. Their revised efforts, which have recently been published, should enjoy a much wider readership due to its brevity, writing style, and materials content. Again, however, the procedure for training and disseminating the fundamentals of PPBS and the concept of management team building shall be limited to regional workshops and conferences for business officers and selected administrators. The MIS program, in structuring its modeling approach, shall utilize personnel from NACUBO in an advisory capacity. As the models are implemented in model institutions, portions of the materials developed by NACUBO shall be utilized as references and from time to time personnel from their professional ranks will be called in to consult.

Other professional associations, such as the Association of Institutional Researchers (AIR), the Association of Physical

Plant Officers, and the National Association of Federal Relations Officers, have in their own way supported sound management procedures by promoting the efficient operation of their constituent members within the institution. Either through definition of office functions and role or by describing institutional activities which should take into consideration these functions and roles these associations continue to have a direct impact on the decision-making process in an institution's management operation. The MIS models, therefore, shall stress the importance of all administrative roles as a team function in promotion of performance based on institutional objectives.

The final group which contributed to the thinking going into the MIS modeling concept are consulting firms. Through the years these firms have consistently been able to influence public and private programs which emphasize improving the planning and management of the higher education institution. The SEARCH Project developed by Peat, Marwick, Mitchell, Inc. (PMM) under a Ford Foundation grant introduced the *network concept* of remote computing and long-range financial forecasting. The Systems Research Group (SRG)—now a part of Systems Dimensions Limited—expanded on the total management system concept of individual simulation modeling and was among the first to apply simulation modeling to planning in higher education. Both PMM and SRG, however, are profit making corporations. Their management system developmental services aimed toward the small college usually require dollar resources far beyond those of the institution. Though they have been successful in getting foundations to support some of their efforts in different institutions, their model availability has been somewhat restricted by costs. In addition, the computer capability required to support cost management system simulations has been historically absent in the small college. Given today's economic problems, it becomes more problematic and less cost effective for these type of corporations to continue any sizable marketing of development in the higher education sector.

The MIS program of ISE resulting from its TACTICS involvement will result in a more comprehensive management system improvement effort within small colleges because:

- *The services will have a greater degree of permanency.*
- *The costs for the services will be minimal.*
- *The development and installation activities will not be geared solely to an automated environment.*
- *MIS will work with a single institution rather than a group.*

Given these four basic principles, the fundamental concept surrounding the MIS modeling effort should be obvious.

Working with Small Groups of Institutions

By working with a small group of colleges on an individual basis and drawing liberally from the experience of managers in small colleges, a fundamental knowledge of the management practices of small colleges has been accumulated by the MIS staff. During the early years (1971-1973) of the program, it became painfully apparent that the comprehensive kinds of management services required by each institution participating in TACTICS could not possibly be provided given the dollar constraints placed on the program. The current pressures of tight money, increased competition for students, and soaring institutional operating costs place additional restrictions on the time management may devote to developing improvements in management and reshaping program priorities. No combination of TACTICS-type programs can possibly remove the social stigma, much less the concomitant management problems, facing the small college. The closest that any program like TACTICS can hope to get in providing useful management assistance is to provide the kind of in-depth assistance on an ongoing basis in selected administrative and academic areas in an institution. Working, therefore, with small groups of institutions on a one-to-one basis would provide for:

- *concentrating a few quality staff and consultants to work consistently with a core of institutional administrators;*
- *skills development in an environment where the results are* actual *rather than theoretical;*
- *minimizing the distribution of source manpower and money resources while maximizing the quality advantageous to the institution; and*
- *developing and operationalizing administrative program units on a modular basis in institutions whose resources are closer to being typical of most small colleges.*

One readily notices that each of the above advantages in working with a small group of institutions relates to the principle of concentrating total effort on a small audience as opposed to a larger group. This advantage is clearly a strength which has been the hallmark of the program's services.

Institutional management team building is one of the most important features of the MIS modeling concept. The management team building feature attacks head on the problem of personnel movement to and from the small college environment. By concentrating *initially* on senior administrators, the program modeling effort starts at a level where training and planning procedure development is more likely to survive. Utilizing senior administrators also carries with it the element of resistance to change. MIS contends that the conservative element normally associated with higher education administrators pro

vides sufficient testing or at the very least questioning of new model approaches and procedures.

As the work with an institution progresses and the senior staff begins to feel more comfortable with the modeling approach, MIS capitalizes on its work by gradually relinquishing its developmental responsibilities to the senior staff members. They in turn work with their staff in producing the remaining elements of the model with MIS as an observer. Complementing these staff activities is a regular schedule of reports and presentations to the larger institutional audience who, though affected by the model developments, are not directly involved. Once, however, everyone - either directly or indirectly - begins to work on the detail planning and management problems of the institution, the personality conflicts and program politics which usually accompanies program change gradually diminishes and eventually is replaced with performance-based criteria for the entire institution.

The team-building feature embodies in the MIS modeling approach, therefore, distinguishes itself from other model building approaches due to its main emphasis of working initially with senior institutional personnel.

Procedures and Product Documentation

The basic difference between MIS documentation and previous modeling efforts is one of *style*. The NCHEMS taxonomies and reports, the NACUBO manuals, and similar efforts provide excellent references and theoretical flows of how a college or university *should* operate or what *should* be the proper categorization of programs within them. These types of manuals, in their portrayal of real world situations, prove and shall continue to prove enormously beneficial to college management. The MIS manuals, drawing on these efforts as references, attempt to describe the *how* to procedures for operationalizing a particular administrative program from the standpoint of *this is the way it was done*. Thus yielding, not only a live model, but also setting in place personal skills and new procedures which an institution can *identify with* because they produced them. The documentation which MIS produces merely describes what the institution has done.

The *anticipated results* should, therefore, be obvious. By individualizing the modeling to a single institution, in accordance with the concept of management team building, MIS provides both a *specific* service to an institution and a *general* service to all TACTICS institutions receiving the documentation. In another instance, through operationalizing a model unit in a single institution, the institution is provided the opportunity of analyzing the training and implementation techniques employed by the MIS team and will be able to structure their own administrative training techniques and programs to their benefit.

The diagram on the following page (Figure 4) delineates the administrative modeling units which are currently under development by MIS. The flow lines in the diagram depict the administrative unit's relationship to the PPBS (items 1-6) which in itself, is a model presently under development.

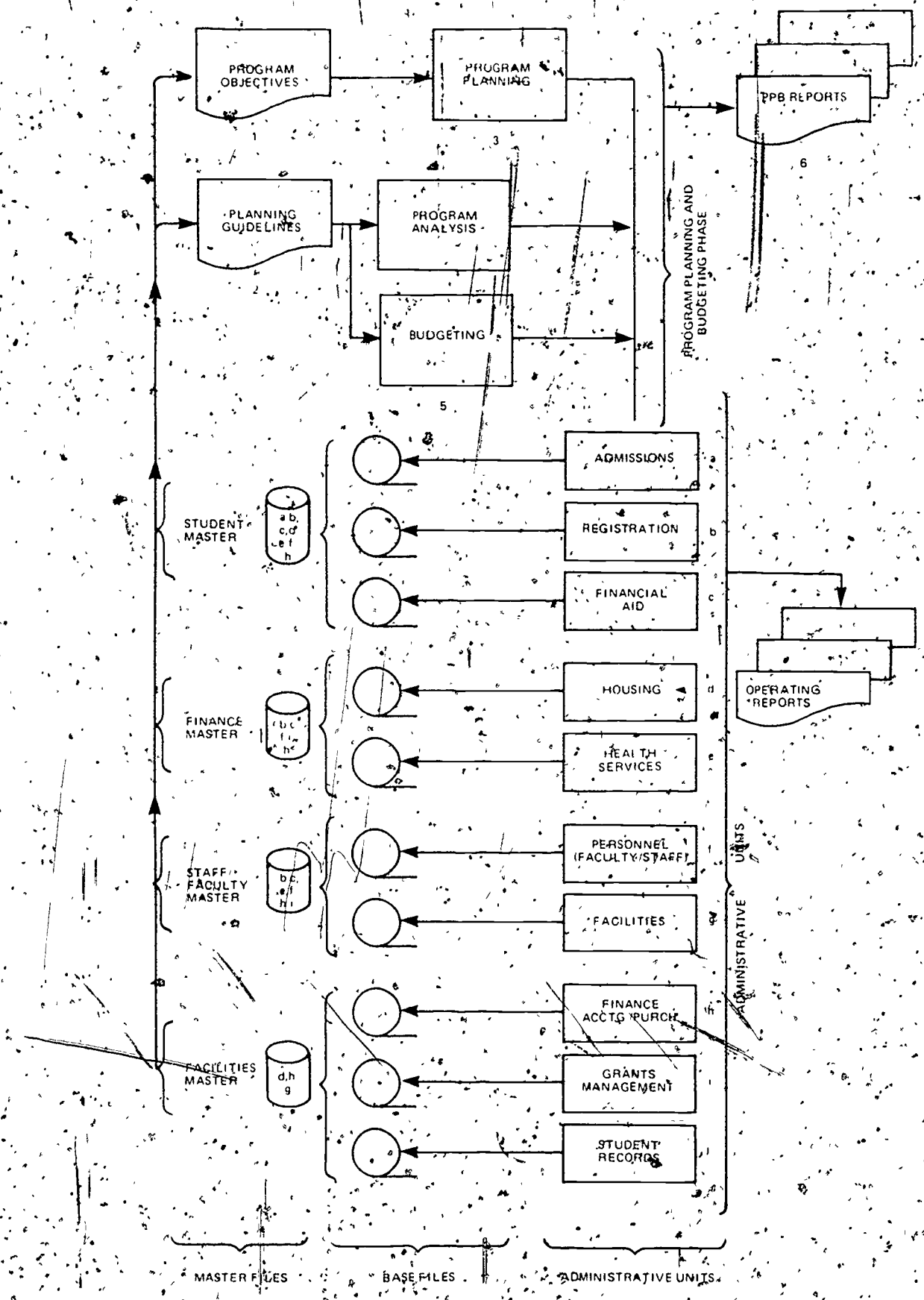

Figure 4. Management Information System

Workshop Implementation Case Study

Frederick A. Fresh
Staff
Institute for Services to Education, Inc.

Abstract

Management Information Systems (MIS) of the Institute for Services to Education, Incorporated is a service component of TACTICS (Technical Assistance Consortium for Improving College Services). The major MIS program for this year is the development and implementation of model administrative information management procedures. The implementation approach involves operationalizing the procedures at a model institution under local institutional constraints.

MIS assists a management team at the institution through consultation in analysis, design, implementation, training, and documentation associated with the project. One such project was concluded in the area of Admissions and Registration at Jarvis Christian College, Hawkins, Texas. This presentation provides a status report and summary of the activities involved in initiating and implementing the project.

Foreword

Good morning, ladies and gentlemen.

By this point in our workshop you should have some ideas about the current thrust of the MIS program—developing, documenting, and operationalizing institutional planning and information management models. Some of you are contributing to the model development through your input in the workshop sessions. Additionally, the resulting data should support institutional research needs by supporting comprehensive data base development.

Since many of you may have participated in the Institutional Research (IR) sessions rather than MIS sessions, I want to pause a moment to emphasize the relationship between MIS and IR. Each institution is besieged with seemingly endless requests for data for one survey or another. Some may be recurring requirements of a funding source, while others may be queries from a serious researcher external to your institution. The institutional researcher needs data that is readily accessible to develop statistics for planning, research, or proposal input. Resources are wasted if the source of data and procedures for processing must be generated upon receipt of each request. Necessarily, then, a symbiotic relationship exists between the Management Information System and the Institutional Research office. The researcher is a consumer of the goods produced by the MIS. The well-planned MIS will capture data at a single source, provide for efficient storage, and support logical procedures for retrieval and subsequent manipulation.

The design of the MIS models should support Institutional Research data needs as well as the data and procedural needs of a particular administrative area. Since, initially, the models are being implemented at a model institution, it is imperative that the institutional researcher and other regular consumers of institutional data make their needs known so proper consideration is given during the model design phases.

Introduction

The discussion on the MIS modeling concept described the process for developing model administrative procedures and making them an operational reality at an institution. An element of this process was the development of workshops and seminars on the model program unit. This element assures increased visibility of the institution's effort before the TACTICS audience.

The presentation of an institution's management improvement effort at a MIS-sponsored workshop is intended to stimulate others in the TACTICS to critically review its own procedures with an eye towards improvement. Perhaps some feedback may be appropriate for incorporation in subsequent individualized models. The following presentation will serve to illustrate the model implementation process and to stimulate thought and discussion.

Institution Characteristics (See Figure 5)

Jarvis Christian College is a fully accredited, private, co-educational, church-related college, located just east of Hawkins, Texas. Although its setting is rural, Jarvis is located within a 25-mile radius of cities with populations of 35,000 or greater. Dallas, Texas, and Shreveport, Louisiana, are both within a 100-mile radius.

Jarvis, under the leadership of President John P. Jones, offers programs in the humanities, physical and life sciences, social and behavioral sciences, and teacher education. Bachelor of arts and bachelor of science degrees are offered in these areas. Other institutional characteristics are summarized in Figure 5.

The mission statement of JCC as taken from the most recent catalog reads as follows:

"The purpose of Jarvis Christian College is to provide adequate opportunity, in the context of the Judeo-Christian ethic and within the limits of its published programs, for the maximum development of all its students. Jarvis has been and remains

open to all students, but gives special attention to the needs of the deprived and disadvantaged. The college has been and remains open to all denominations, but, in its official church service and its preparation for work in the church, gives special attention to ministry in the Christian Churches."

Level:	Four Year, Private, Co-Educational
Affiliation:	Christian Church (Disciples of Christ)
Campus Size:	1,000 Acres
Faculty Size:	50
Student Enrollment:	509 (Fall 1974)
Degrees (June 1974):	102 (Bachelors)
Tuition and Fees:	
Boarding	$2,114.20
Non-Boarding	$1,234.00
Estimated Replacement Value of Physical Plant	$5.3 million

Figure 5. Institutional Characteristics

Initiation of Contact (See Figure 6)

The selection of a model institution can take one of several forms:

- An institution may request help of a specific nature via a TACTICS work statement.
- MIS may know of an institution whose priority problem meshes with a model programmed for development.
- An institution may contact MIS as a result of its exposure to our program through workshops and conferences.

The last method applies to the initial MIS contact with Jarvis. During a Fall 1973 MIS In-Service Conference, the JCC Director of Institutional Research approached a MIS staff member. The expressed concern was too lengthy a registration process. Later MIS was requested to determine why registration consumed so much time and to consider automation.

Preliminary Investigation (See Figure 7)

On December 6-7, 1973, a MIS staff member and a consultant visited JCC to gather data for an analysis of needs regarding the upgrade and possible automation of the student registration system. The initial analysis resulted in a written report with recommendation for

- A strong program of pre-registration.
- Collection of student personnel data on one form at one time only.

Identification of Institution
- TACTICS Work Statement
- Known Match Between Priority Problems and MIS Programmed Development
- Direct Request from Institution

Initial Problem Definition
- Registration Process too Long
- Determine Why
- Consider Automation

Figure 6. Initiation of Contract

Recommendations
- Pre-Registration
- Single Source of Data
- Central Data Dissemination
- Reduce Redundant Card Checks and Endorsements
- Increase Business Office/Financial Aid Communication

Schedule
- Proposed Schedule for Preparation of Student Files for Automation

Follow-Up
- Institutional Resources Could Not Be Allocated to the Schedule at Mid-Year

Impact
- Stimulation of Concern and Interest Relating to the Impact of Planning and Management on Institutional Operation

Figure 7. Preliminary Investigation

- Centralized dissemination of student record data by the registrar.
- Elimination of repeating identical data on multiple forms.
- Elimination of intermediate checking and endorsements of forms.
- Submission of consolidated listing of Financial Aid awards to business office.

MIS observed that the team approach used at JCC provided objective and fair assessment of the bottlenecks within the registration system. The broad based membership of the committee should add weight to recommendations they may make for administrative improvements.

One product of the initial visit was a proposed eight-month schedule for preparing student files for an automated student registration and grade reporting system. This was included with the initial report. In a follow-up visit on May 27-28, 1974 it was learned that the proposed schedule would have proved disruptive to on-going activities if resources had been applied at mid year. The schedule had not been implemented, however.

Jarvis decided that during June 1974 the major objectives of the top administrative staff would include a period of consultation on the plans, schedules, budgets, and policies of the academic and administrative activities of JCC for the coming school year. Also, the concept of automation as it relates to registration procedures was to be introduced and the impact of such a concept analyzed.

The major impact of this segment of the Jarvis effort was, as expressed by the President, the stimulation of JCC'S concern and interest relating to management and planning and the impact these elements have on the operations of the institution. At this point, the ground work had been laid for the future development efforts.

Model Institution (See Figure 8)

During August 1974, the MIS program plan called for the initiation of a Student Records Model which includes Admissions and Registration The MIS Director associated the program direction with the known needs of Jarvis. The President of Jarvis was approached relative to JCC being a model institution. As such JCC would receive concentrated, free consultations on its need, implementation of a solution, and documentation of results

MIS engaged the necessary consultants and scheduled an orientation meeting at Jarvis for October 2-3, 1974. The results of the meeting were:

- A narrative description of the existing registration system.
- The designation of two liaison persons.
  Mrs. M. Clift, Financial Aid Director
  Mrs. V. Waddleton, Admissions Director/Registrar
- Scheduling of subsequent activities:
  - Workshop on new registration procedures, December 11-12, 1974
  - MIS/JCC Presentation of Procedures to Faculty, January 13, 1975
  - Evaluation of Registration Procedures, January 16-17, 1975.

Admissions Procedures (See Figure 9)

The Jarvis Christian College Admissions Procedures are shown in Figure 9 The key factors to note are.

- Associate the Jarvis Registration Problem with the MIS Admission/Registration Model Development
- Obtain Written Commitment of the JCC President
- Conduct Project Orientation Meeting with Faculty Committee
- Delegate Tasks Between MIS and Jarvis

Figure 8. Model Institution

- Designation of Admissions Office as sole contact agent for JCC with the student.
- Creation of a master list of admitted students to be distributed by the Admissions Office.

Detailed discussion of the procedural flow is provided in Appendix A.

Entering Student Registration Procedures (See Figure 10)

This flow diagram (Figure 10 depicts the flow of the JCC registration procedures. The preparation of registration materials (registration kits) will be completed for those students whose names have been submitted to the Registrar on the Master List, prepared by the Business Office. The registration process for entering students takes place in the days immediately preceding the start of classes for each semester.

The key factor here is that multiple contact with a single registration activity has been eliminated. Discussion of entering student registration flow is included in Appendix B..

Pre-Registration Procedures (See Figure 11)

Pre-registration procedures differ slightly depending on the semester for which a student is registering. If pre-registration occurs in the Spring for the Fall semester, then the registration procedure is similar to that for the newly admitted students. The similarity comes in the requirement for the student to declare his intent to reside in campus housing and the need to execute financial aid affidavits. The housing intent must be evidenced by the payment of the housing reservation fee, or negotiating deferred payment until the Fall term.

During pre-registration, the Registrar may have knowledge of the mid-term academic states of the student if that student has been reported as being on probation. This knowledge serves as a guide to advisement when considering registration for a given course. Discussion of procedural flow is contained in Appendix C.

Pre-Registration Completion (See Figure 12)

Registration for pre-registered students is completed just prior to resumption of classes. The procedural flow is shown in Figure 9 and discussion is provided in Appendix D. Registration is speeded by the elimination of academic advisement and sign-off. Schedule changes which have become necessary or desir-

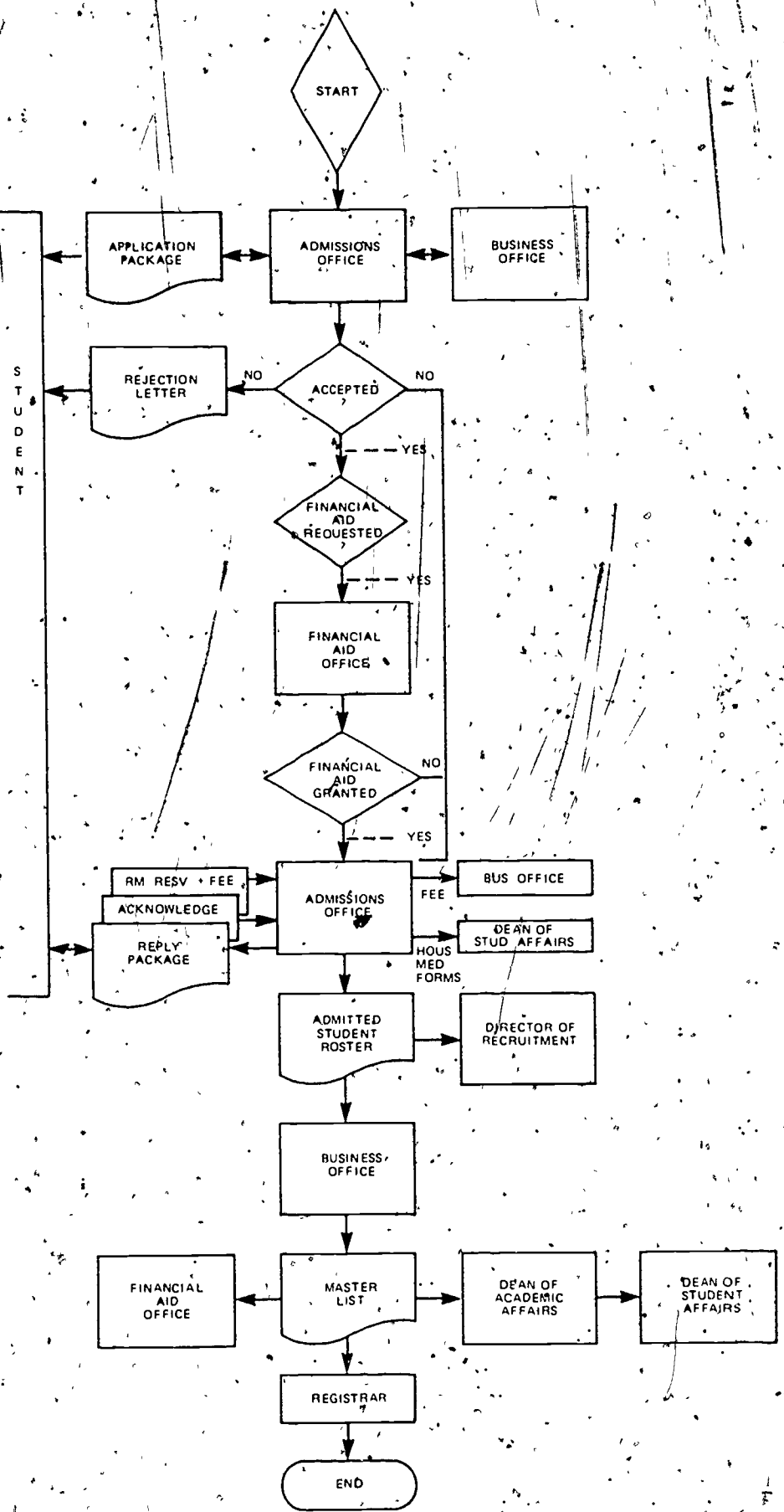

Figure 9. Admissions Flow Chart.

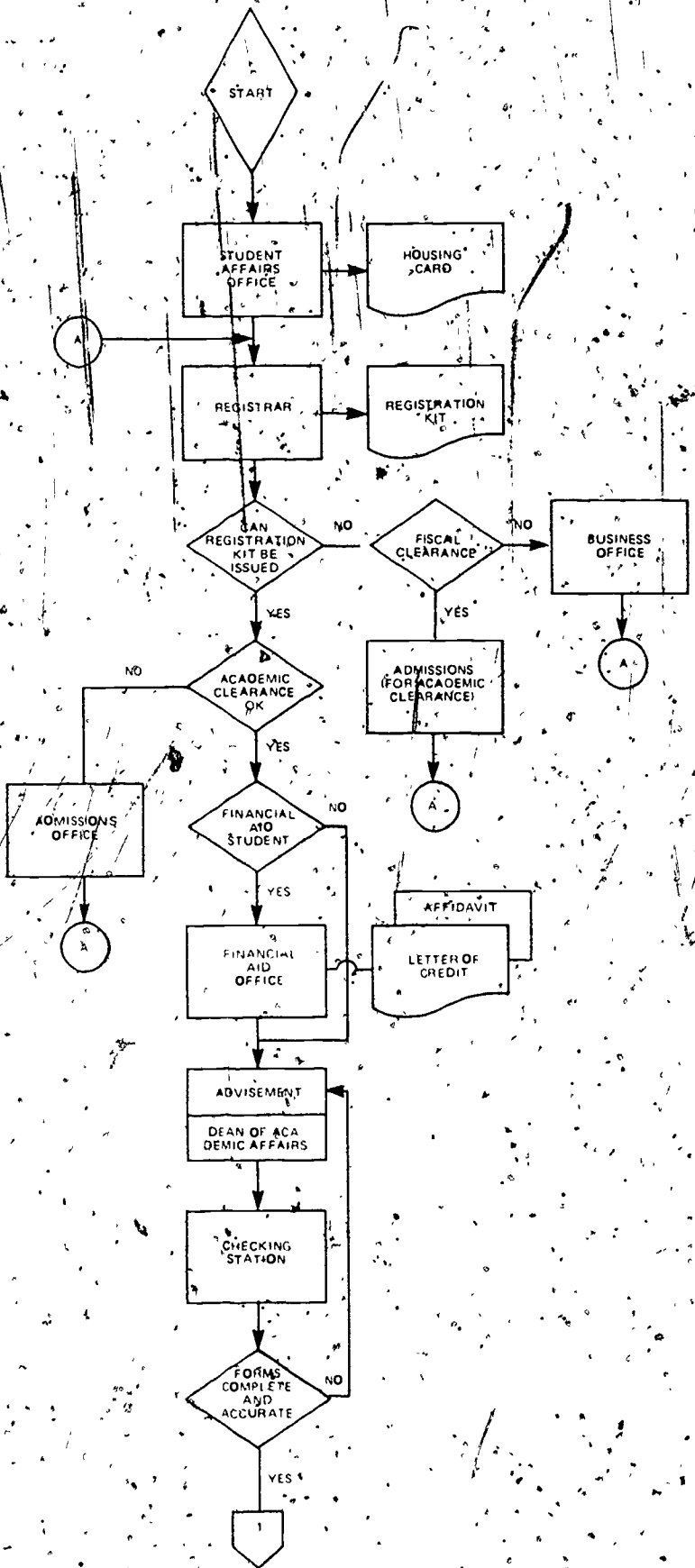

Figure 10. Entering Student Registration

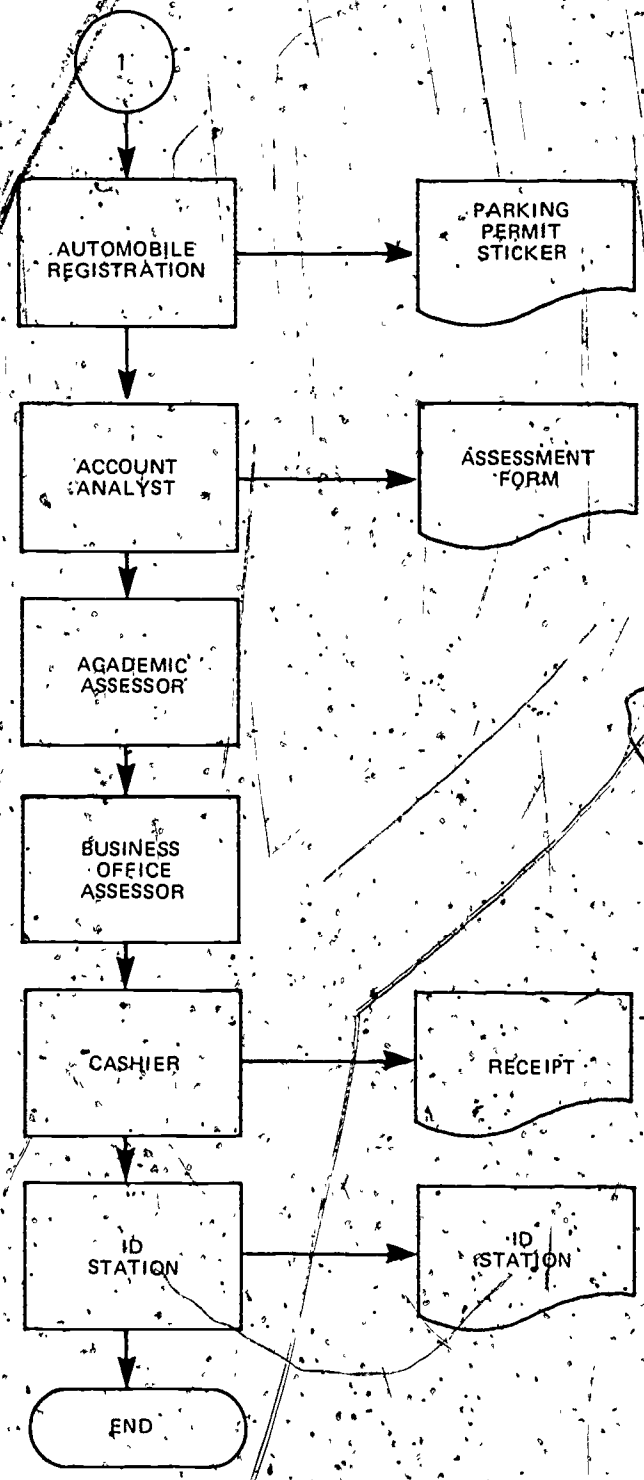

Figure 10b. Entering Student Registration

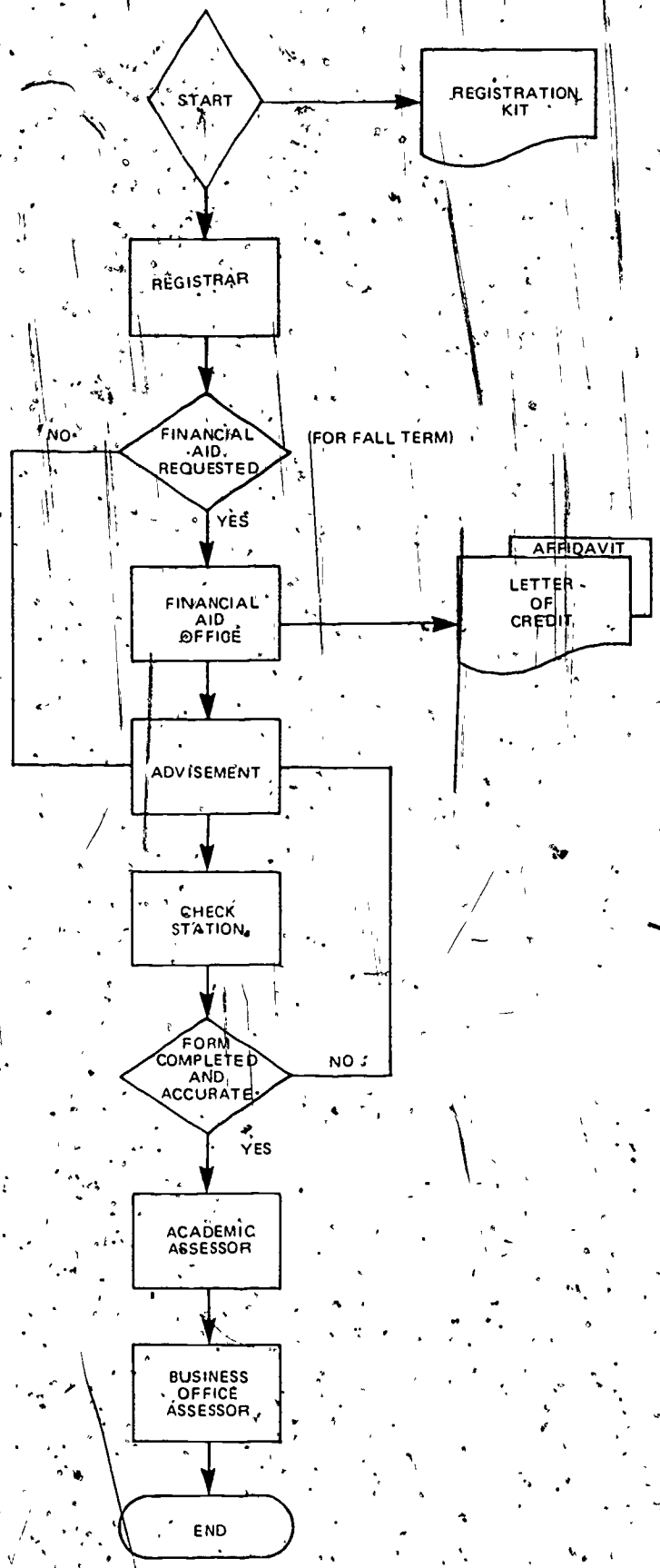

Figure 11. Pre-Registration

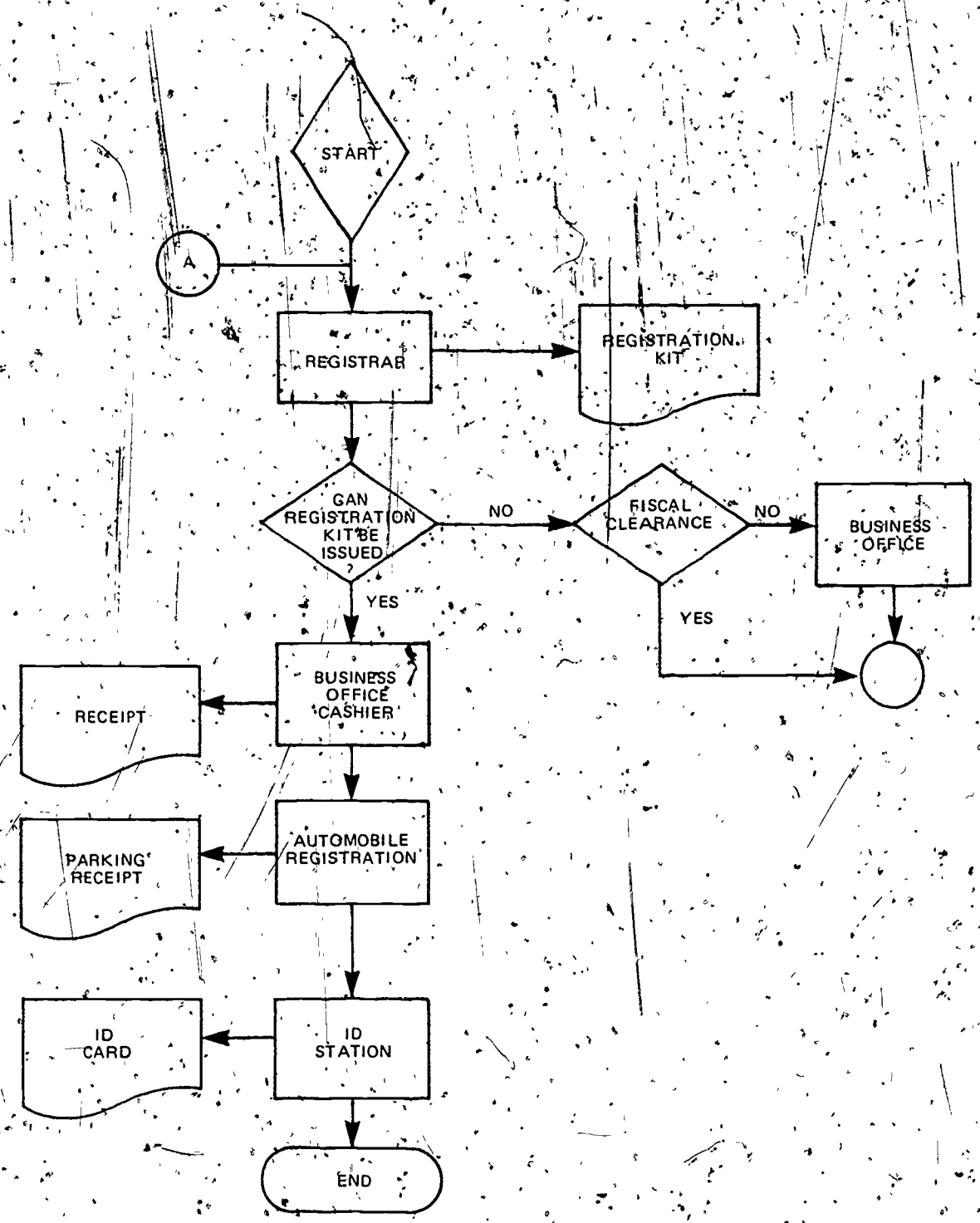

Figure 12. Pre-Registration–Completion

able since pre-registration are handled under existing drop-add procedures.

JCC/MIS Registration System Workshop (See Figure 13)

The next joint event was a workshop held at Jarvis on December 11-12, 1974. The purpose was for information exchange to refine the MIS-proposed modifications to Admissions and Registrations procedures. During the first day, MIS staff presented the existing registration system flow which was used as a baseline for modification. This was followed by a presentation on the proposed admissions and registration systems. The MIS presentations were concluded with a chart which graphically compared the flow of the existing and proposed systems against a matrix of people/functions versus admissions and registration activities.

The Jarvis inputs were (1) a description of the physical layout of the registration stations for the Spring term, (2) summary of pre-registration activities with statistics, and (3) feedback on the proposed system. Jarvis accelerated its implementation schedule by planning and installing their pre-registration process in parallel with the re-design of admissions and registration.

The feedback served to define the limitations on changes which could be accommodated within JCC system. Examples of constraints are:

- Most of registration is held in the Science Building, a 7-10 minute walk from the Administration Building.
- Students arriving prior to registration must be housed whether or not a housing deposit has been made.

Using the feedback, the MIS staff revised the proposed system and presented it for committee concurrence on the second day.

The tasks remaining on the project were (1) a presentation of the modified admissions and registration procedures to the full faculty on January 13, 1975, (2) evaluation of registration, and (3) documentation. JCC was assigned to research and provide relevant policy statements for each administrative unit as it pertains to admissions and registration.

The faculty committee involved at JCC included the President, Deans, academic and administrative division heads and representatives of affected areas (i.e. testing and counseling). This committee now calls itself the Jarvis Management Information Systems Council or JAY MISK. Incidentally, the composition of this committee, with the designation of a planning assistant, could function as the planning team in the PPB context.

Documentation (See Figure 14)

Two reports were planned for this effort, one for evaluation and the other for system documentation. A *Registration Evaluation Profile* was produced on February 21, 1975 and subsequently transmitted to Jarvis. This report is based on an evaluation questionnaire which was randomly distributed during registration. About 40% of the registrants (200) were given questionnaires. Of the 128 executed and returned, 114 were usable for analysis. The questionnaire was organized into three sections. Classification (student classification, registration status), activity processing time, and activity assessment (student feedback). A statistical analysis was performed on the reported services-times at each registration activity. The statistics, average service time by activity, by classification, and average total registration time will provide a basis for future evaluations.

The *JCC Admissions/Registration System Documentation* is the final project report. It will include a description of the problem, summary of the MIS-model development process,

Presentations
- Existing System (MIS)
- Physical Layout of Registration Stations (JCC)
- Summary of Pre-Registration Activities (JCC)
- Proposed System (MIS)
- System Comparative Flow (MIS)

Feedback
- Physical Constraints
- Policy Constraints

Results
- Refined System
- Outline of Remaining Tasks

Figure 13. JCC/MIS Registration System Workshop

- Registration Evaluation Profile
  - 200 Questionnaires Distributed
  - 114 Used in Analysis
  - Recorded
    - (A) Student Classification
    - (B) Activity Processing Time
    - (C) Activity Assessment
  - Statistical Analysis of Registration Time Provided
  - Report Transmitted to JCC in Late February, 1975
- JCC Admissions/Registration System Documentation
  - Description of Problem
  - Summary of Model Development Process
  - Admissions Procedures
  - Registration Procedures
  - Organizational Responsibilities
  - Forms and Reports Description

Figure 14. Documentation

narrative, flow charts and schedules of Admissions and Registration Procedures, organizational responsibilities of administrative units involved in the processes, and descriptions of forms and reports. This documentation is being drafted and reviewed.

Summary (See Figure 15)

We have described how the MIS implementation approach is intended to work and have shown through the Jarvis Christian College example that it does work. The basic ingredient needed by MIS is a commitment by the institution to allocate appropriate resources to the model implementation. MIS will assist in the analysis, design, implementation, training, and documentation associated with the project.

- Institutional Commitment
- Planning and Design Assistance Provided
- Individualize Implementation Approach
- Responsive to Institutional Constraints
- Implementation Pace Set Through Institution Input

Figure 15. Summary

A key factor in the approach is individualized implementation. We began with the existing JCC Admissions and Registration procedures and sought to make them more efficient. The resulting procedures reflect the physical and policy constraints pointed out by the JAY MISK. The implementation process at Jarvis was accelerated by in-house planning.

As a service component of TACTICS, MIS could assist your institution as it has Jarvis and as it is doing currently at Miles College and Mississippi Valley State. Our services are available through contact with the TACTICS Coordinating Office or by direct contact in our offices at the Institute for Services to Education.

APPENDIX A

Admissions Procedures

The Admissions Office will send admissions materials to all applicants. The type of applicant will determine the content of an admissions package. In any case, the contents will be an appropriate combination of the following:

- Letter of transmittal and instruction.
- Application for admission.
- Application for financial aid.
- Report of medical history.
- Housing information form.
- Two-year calendar.
- Transfer-student transcript analysis.
- Letter to foreign students.
- Application for admission—foreign students.

The admissions process is initiated when the applicant submits the required items to the Admissions Office.

Upon receipt of the material returned by the applicant a determination is made as to whether the application for admission is complete, the application fee is enclosed, and all the required forms have been included. An application master control card and an applicant file folder are prepared. The receipt date is then posted for each item that is submitted now and subsequently.

If the application package is incomplete in any way, a letter is sent noting omissions and processing ceases until all items are submitted.

Once the package is complete, the determination is made by the Admissions Committee as to the academic acceptability of the student. If the student is rejected, the Admissions Office sends a rejection letter and no further processing is necessary.

If the applicant is accepted and has submitted a financial aid request, the financial aid forms are forwarded to the Financial Aid Office for further processing.

The Admissions Office then prepares a reply package containing:

1. Admissions notification letter.
2. Financial aid letter of award or denial (if aid is requested).
3. Applicant acknowledgement of acceptance or declination.
4. Housing reservation form and request for room reservation fee.

The applicant must complete and sign items 3 and 4 and return them immediately to the Admissions Office. The room reservation fee must accompany the reservation request. The signed letter of acceptance is used to update the applicant's status on the master list.

The Admissions Office will create an admitted-student roster which will be sent to the Business Office and the Director of Recruitment. The Business Office will in turn create a master-list of students indicating the financial status of these students relative to any existing delinquent accounts and the status of the room reservation deposit. The master list will be distributed to:

- Financial Aid Office to prepare letters of credit.
- Dean of Academic Affairs for Academic Planning.
- Dean of Student Affairs for room allocation, orientation, and testing.
- Registrar for preparation of the registration kits.

The master list will be continuously updated for periodic distribution until decisons are reached on all applicants and all required forms and fees have been submitted.

Conditional admission is granted when one or more requirements are not met in warranted situations:

- Partial transcript.
- Health data form (medical form).

- American College Test (ACT) scores (test will be administered on campus).

The condition should be cleared within the first twelve working days of the semester.

The admissions process will be terminated with the production of the following reports:

- List of accepted applicants.
- List of rejected applicants.
- List of confirmed applicants.
- List of non-confirmed applicants.

APPENDIX B

Entering Student Registration Procedures

The preparation of registration materials (registration kit) will be completed for those students whose names have been submitted to the Registrar on the master list that is prepared by the Business Office. The registration process for entering students takes place in the days immediately preceding the actual start of classes for each semester.

Step 1

Students report to the Dean of Student Affairs Office to obtain a housing card for lodging on or off campus. At this time the student affairs representative will notify the student if there are outstanding financial obligations that preclude registering. If so, the student will be instructed to report to the Business Office prior to commencing registration. All of the students who have cleared their financial obligations will report to the Registrar.

Step 2

The student next reports to the Registrar and shows the housing card. The Registrar will issue a registration kit and a permit to register. The registration kit contains

- Daily program cards (3) - Blue, Green and White.
- Trial schedule.

The issuance of the permit and kit is based on the status indicated on the master list. This list has been received from the Business Office and is the controlling document for continuing registration. *If a student arrives at the Registrar without having satisfied his obligations or without presenting a Business Office clearance receipt, he is directed to the Business Office for his clearance and must return to the Registrar prior to continuing registration.* If the student has cleared all financial obligations but has some missing documentation that is required by the Admissions Office, he/she is directed to the Admissions Office to make arrangements for clearing those requirements prior to continuing registration.

Step 3

Once all clearances have been obtained and the registration kit issued, *the student proceeds to the Financial Aid Office if he has been awarded financial assistance. Here the student executes an affidavit and receives a financial aid letter of credit.*

Step 4

Students next report to Advisors. The student will do the following during the advisement period.

- Confer with advisor to plan academic program.
- Select courses with help of advisor.
- *Prepare trial schedule* under supervision of advisor and obtain the advisor's signature on trial schedule.
- *Proceed to faculty member in divisional area(s) to enroll for course and have the trial schedule initialed* when placed on the class roll (if a class is closed return to advisor and select another course).
- Fill in personal data on registration cards and transfer courses from trial schedule to daily program side of the registration cards. Arrange courses so that the time classes meet fall in chronological order.
- Obtain signature of advisor on registration cards.

Step 5

Proceed to Dean of Academic Affairs for endorsement. The Dean will examine the student's program, initiate any corrections, and approve it by signing each registration card and the trial schedule.

Step 6

The student then proceeds to the checking station to have all forms audited for accuracy and completeness. If they are not in order, the student must make whatever corrections are necessary and return to his advisors.

Step 7 *(Students with automobiles only)*

Proceed to the automobile registration station to register the vehicle and obtain a parking permit sticker to be affixed to the vehicle.

Step 8

Next the student should go to the account analyst. The housing card is deposited here and an assessment form is received. Financial aid and any previous account balance will be recorded and/or reconciled.

Step 9

The student then goes to the academic assessor who:

- Computes tuition charges.
- Assesses laboratory fees.

Step 10

Proceed to the Business Office assessor who:

- Makes a summation of charges, less financial aid.
- Collects white, blue, and green copies of assessment form leaving the student with the pink copy.
- Gives Business Office clearance—trial schedule, and blue, green, and white registration cards are stamped.
- Conduct negotiations for deferred payment, if needed.

Step 11

Proceed to the cashier:

- Payment of fees and charges.
- Issue all receipts.
- Collect all forms. The student retains the pink copy of the assessment form and trial schedule.

Step 12

Proceed to the identification card station.

- Present pink assessment form to ID typist.
- Sit for photograph.
- Retrieve pink assessment form and ID card.

This completes the registration process for an entering student.

Student Holdings at Completion of Registration

- Pink copy of assessment form.
- Trial schedule which must be presented to each instructor upon initial entry into each class scheduled.
- Identification card.

APPENDIX C

Pre-Registration Procedures

The process is outlined by the following steps:

Step 1

Pick up pre-registration kit from the Registrar's Office.

Step 2 *(Financial Aid Students Only)*.

Students who receive financial aid will proceed to the Financial Aid Office to execute the appropriate affidavits and get the necessary clearances.

Step 3

Students proceed to advisement where.

- Degree plans are reviewed.
- Courses are selected.
- Trial schedules are prepared and signed by the advisor.
- Daily programs are written.
- Class roles are formed.
- Certified by the Dean of Academic Affairs.

Step 4

Next, proceed to the check station where the forms are audited for accuracy and completeness.

Step 5

The student next moves to the Business Office assessor who assesses all other fees and totals the assessment form. Any arrangements relative to deferred payments are negotiated at this time. The student leaves his pre-registration kit at this point and terminates pre-registration.

The collected kits are forwarded to the Registrar for subsequent processing before the next term's registration.

APPENDIX D

Completion of Registration–Continuing Students Procedures

Registration for students who have pre-registered is completed by the following steps.

Step 1

Registration begins in the Registrar's Office where the student obtains the registration kit containing previously executed forms. Prior to issuing kits, the Registrar will check the master list that contains data from the Business Office and the Dean of Student Affairs. The Business Office data indicates the student's financial status. If these records are not in order, the student must proceed to the Business Office to obtain a financial clearance prior to continuing registration. Once the Business Office clearance is obtained, the student returns to the Registrar's Office to obtain the registration kit. If the student is found to have academic problems, notification will be given, but registration may continue.

Step 2

The student next goes to the cashier. At this point, all students will satisfy their financial obligations as determined during pre-registration. Appropriate receipts will be given and all forms collected. The student retains the pink copy of the Assessment Form. The forms are forwarded to the Registrar who is responsible for distribution.

Step 3

If appropriate, the student proceeds to automobile registration to obtain a parking permit.

Step 4

Finally, the student moves to the identification card section and poses for the ID photograph. The typist completes the ID card and the student retrieves the card and pink copy of the assessment form.

Student Holdings at the Completion of Registration

- Assessment form (pink copy).
- Trial schedule which must be presented to each instructor upon initial entry into each class scheduled.
- Identification card.

The Relationship of Management Information Systems and Institutional Research

Lois Torrence
President
The Association for Institutional Research

My topic is the relationship between management information systems and institutional research. I am more comfortable defining institutional research than I am in trying to define management information systems. On the latter, as a basic starting point, I would use the definition Paul Plourde (ECS, 1972) and others use. A management information system is "An information system which provides the manager with that information he needs to make decisions." This simple definition has the virtue of focusing on the objective rather than on the *means* whether manual systems, computer-based systems, or some combination of systems used to reach that objective.

With respect to institutional research, I would suggest the following definition:

Institutional research is the study and analysis of the operations, environments, and processes of institutions of higher education. The objectives of institutional research include achievement of improved institutional self-understanding, clarification of the uses of the human, financial, and physical resources, evaluation of the teaching-learning process, policy analysis supportive of effective planning, and assessment of the outcomes of the varied activities of higher education.

The nature of institutional research, its function, organization, and relationship to other institutional activities, have evolved principally in the past decade. Although now recognized as a significant and separately identified activity in a large number of institutions of higher education, institutional research is still rapidly changing. A universally acceptable and fully comprehensive definition of the field probably is still some years in the future.

The concepts of self-study and self-evaluation are the foundation from which institutional research is evolving. In a broad and general sense, all institutions performing social functions have, throughout history, been subject to evaluation. Evaluation may be internally generated or it may be externally imposed, it may be explicit and planned or it may be obscure and almost incidental, it may result in abrupt change or it may bring change evolutionary in nature.

For institutions of higher education, aspects of evaluation and analysis today attributed in part to institutional research have evolved from a continuing, but seldom explicit, review of activities in relation to objectives and to resources. As institutions grew in size and complexity and as the supporting agencies notably the public funding bodies asked for more and more justification for increasing support, institutional research emerged as a separately organized function in some public institutions. In the past decade, private as well as public institutions, and small colleges as well as large universities, have recognized the need for the institutional research function. Statewide and national educational agencies also have begun to utilize institutional research and its products.

Although institutional research has been evolving rapidly in the past decade, the developments in the automated *means* which are available for use in creation of management information systems have been more like an explosion. And an unplanned explosion leaves a great deal of debris in its wake. (I will return to this point later.)

Since my field is institutional research, I would like to approach today's topic from that standpoint and would like to focus the topic on six areas that I think are major parts of institutional research. As I review them briefly, the critical role of an effective management information system will be implicit, if not always explicit. The six functions are, or are related to:

- Basic Data
- Management and Information Systems
- Analytical Support
- Analytical Models
- Evaluation
- Planning

A portion of the information which I will be covering is in the process of being developed by Bernard Sheehan and me for a short article that will be included in a proposed *International Encyclopedia of Higher Education.*

FUNCTIONS

Basic Data

Adequate and reliable data are the basic building blocks on which institutional credibility in the external community can be achieved. Within the collegiate community, faculty reluctance to consider the educational process as amenable to any

useful quantification presents a challenge to the institutional researcher. Utilizing basic data, maintaining a constant interest in basic operating data systems and, at times, collecting data, are significant and continuing functions of institutional research. You may be familiar with the Saupe (in Dressel, 1971) requirements for basic data. (1) Clear definition of the elements of basic data with acceptance and understanding by all who deal with the data, (2) internal consistency, (3) consistency over time, to the extent that is feasible, (4) availability through timely, scheduled, and regular procedures and production, and (5) capability of being understood and of being accepted as authoritative. A data system built on these principles should provide an institution with sound internal basic data.

Institutional research has been, as the name suggests, institutionally-oriented and, by choice, rather strongly directed toward resolution of management related problems. The institutional focus has overemphasized a myopic view of higher education while the management focus, with its reliance on information often not considered public, simply reinforced the parochial view of the institutional researcher. Extensive exchange of studies was inhibited under these conditions.

The move toward greater openness with institutional data, the establishment of state-wide commissions, the early efforts of the National Center for Education Statistics, and the more recent efforts of the National Center for Higher Education Management Systems to develop common definitions and information exchange procedures have created new opportunities for exchange of information which have not been fully utilized. The institutional researcher needs to make more effective use of inter-institutional data and to extend his or her knowledge of data and of higher education trends beyond the boundaries of the campus.

The successful development of a basic data file for this cooperating group of developing institutions places you far ahead of most institutions. There are other groups of institutions which traditionally share *reports* on various activities but without having a shared common data base. The state commissions or agencies are now the chief movers in pressing for common data and reporting, but these efforts are limited by geographic boundaries, in some cases are limited by the public and private dichotomy, and in other cases the value of sharing is limited by the disparate nature of the institutions included in the state system. For example, if there is only one state university, there is not much that you can compare, when you try to share data within the limit set by geographic boundaries.

Management Information and Systems

A central function of institutional research identified by Mason (Dressel, 1971) is "the translation of complex data generated in the operations of a college or university into comprehensible information to serve the policy-making, planning, and governing processes of the institution . . . Management information is created when the detailed operational data are interrelated, analyzed, interpreted, and evaluated in reference to the policy issues and decision problems facing the institutional administration." Data itself, then, is *not* information. It becomes information only when it has been analyzed, interpreted *and* related to policy questions. Because of this fundamental interest in information for decision making, the institutional researcher should be involved in the planning, design, and evolution of the institution's information system.

On the campus each service or administrative department is primarily interested in the information system which supports its own operation. The institutional researcher may well be the only person with a continuing interest in linking data from different operations. For example, the calculation of instructional costs requires linking student course enrollment data with course characteristics, with personnel information on instructional staff, and with data from financial information systems. The institutional researcher, then, is interested in something which makes it possible to cut across what might be individual, small segments of the system. The individual segments may very well serve the purposes of the payroll office or the registrar's office, but there may be something missing in terms of the linkages that would bring this all together and make it the most useful for the institutional researcher. Only when the various institutional sub-systems are compatible can the institutional researcher make full and effective use of the data.

I don't know to what extent your consortia are using some of the nationally developed common data definitions. I suspect that you are using at least HEGIS and you may be using some of the NCHEMS products. If you are using NCHEMS fine, but I would say simply to use what is useful to you--don't try to impose some external system on your institution if, in fact, it will not produce what you need.

One of the hazards of generalized systems is that they assume similar decision processes as well as a set pattern of interrelationship of data. At the institutional level, although each institution is not nearly as "unique" as we would like to think, we also are aware that patterns and processes are neither rigid nor identical from campus to campus. Even so, *compatibility* with the nationally developed systems may become essential in the years ahead.

Analytical Support

The provision of analytical support for allocating and utilizing resources is another function of institutional research.

In many of your institutions, I assume the Financial Vice-President or Treasurer is the budget officer and, as such, makes many of the decisions. The institutional research office should be able to supply substantial support to the budget-making process, especially in supplying comprehensive analysis of past, present, and proposed uses of resources in relation to the institution's educational programs, objectives, and results. Institutional research is drawn into the budgeting process because of its institution-wide perspective on policy and planning and because of its primary concern with processes of integration, analysis, interpretation, and evaluation of institutional information.

There are many practical problems in attempting to account for total institutional resources by program, by conventional object, and by organizational unit, especially when campus conditions are often ill-defined and outcomes are perhaps unmeasurable.

Continuing challenges to the analytical skills of an office of institutional research are found in three areas: faculty activities, facilities utilization, and cost analysis.

Studies of the use of faculty time frequently focus on scheduled instructional activities. These are the most visible and, within strict limitations, the most readily measurable of the varied faculty responsibilities. Stecklein (1961) outlined methods for identifying more fully the range of instructional and non-instructional activities and the relative proportions of faculty time spent on each. A survey of the faculty is used most frequently as the source of the information on the distribution of time. I have great personal reluctance to use surveys which ask faculty to give their estimate of the amount of time spent on various activities. Somehow, the hours almost invariably total just over fifty per week. More intensive studies, such as one in British Universities described by Carter (in Doi, 1974), have utilized a diary kept by faculty members who were requested to make entries each half-hour for selected weeks during the year. The usefulness of this technique is highly dependent on the attitudes of the faculty who are asked to participate. Despite refinements in faculty activity and workload data, Blackburn (in Doi, 1974) quite rightly states that "a collection of data on particular faculty behaviors and attitudes does not lead to a summation which portrays the reality of professional life." Furthermore, there is the question of joint costs and joint products. If a faculty member is working with a graduate student and conducting research, how do you determine what portion of his time is instruction and what portion research? This is another of the problems which we have not resolved satisfactorily.

Principles of facility analysis are perhaps the most straightforward of the several resource categories. However, the magnitude of the data problems of space inventory and utilization and the judgment required to obtain agreement for space factors and utilization standards for various programs and kinds of space complicate practical facilities planning and management. Today, with capital expenditures for physical expansion severely limited, attention must be focused on better (however that may be defined) utilization of existing space. This may entail renovation, rather than construction, or less departmentally controlled and more institutionally controlled space, or more joint use of high cost space. For example, can't chemistry and physics classes use the same basic laboratory facilities, or biology and chemistry classes, for that matter? Can't engineering drawing and art use the same configuration of space? The point is, if we look at space in entirely conventional terms, we will be unable to respond effectively to the shifts in student interest.

Cost analysis is a function of institutional research which is closely related to allocating and utilizing resources. Institutions have done cost studies for a long time. The most common studies are those which deal only with the direct cost of scheduled instruction. Other studies fall at various points along a continuum from direct cost to full cost. Typically, full costing studies define a set of university activities and estimate the extent to which each organizational unit contributes to each activity. The costs of the activities of the university are determined by relating the resource allocations of each organizational unit to the activities undertaken by each of them, and, as appropriate, the costs of the university activities are translated to costs per student academic program and summed to yield institutional costs per student. I personally have doubts about the full costing concept, but I would encourage moving beyond purely instructional salary cost figures and would include direct support such as clerical support, supplies, equipment and, if feasible, some allocation for the costs of space used. I would go this far, but not much further. Obviously, the management information system must be at least moderately sophisticated if this is to be accomplished and if it is to be utilized not only for departmental costs but also for the costs by student majors.

The 1974 report of the Commission on the Financing of Post-secondary Education in the United States suggested that national standard procedures should be developed for determining per-student costs in post-secondary education. The report was followed by an interim proposal (Farmer, 1974) for such procedures. The potential ramifications of national costing procedures, especially if they are utilized in establishing policy for federal funding, should be evident to those concerned with higher education management.

Analytical Models

Moving beyond determination of the costs of specified activities, cost analysis may employ formulae which estimate costs or predict resource requirements on the basis of institutional parameters, such as the number and distribution of students,

class size, faculty workload, and salaries. Sometimes called simulation models, these varied computer-based analytical tools are used fairly widely in education (OECD, 1973; ECS, 1972). Analytical models are of interest to institutional research for several reasons. (1) modeling leads to a better understanding of the institution since basic assumptions, objectives, and values tend to become more explicit and hence operational, (2) models tend to routinize some institutional self-study procedures, (3) modeling may give decision-makers insight into the complicated relationships among costs, resources, and outcomes, and (4) improvement in completeness, accuracy, and consistency of institutional administrative data base usually accompanies experimentation with models.

The Query model system described by James Welch in a paper given at the AIR Forum in Vancouver in 1973 appears to be a large step in the direction of enabling your consortia institutions to experiment with modeling.

Given their limitations, promise, and popularity, the ideas and techniques of management science and systems, such as cost-benefit analysis, data base management systems, program budgeting, and student and faculty flow models, planning and resource allocation models may be a primary concern of institutional research. All of these require rather sophisticated hardware and software. It is a function of institutional research to look ahead, to create, present, use, and evaluate approaches to management that will be useful to that institution and yet will not so quantify the whole process that it will impair or vitiate the primary work of the institution, that is, the work of the scholar and the student.

Evaluation

I think on evaluation I will say simply that there are many kinds of evaluation. There can be evaluation for accountability, that is, to determine the wisdom of the way in which you are using your resources in terms of what you hope to have in the way of outcomes.

The need for evaluation for accountability and internal management is felt in all sectors of postsecondary education. Although the production functions are uncertain and the inputs not fully comprehended, higher education institutions do have objectives and outcomes which require funding and hence credible justification.

Probably the area in which institutional research has failed to do what it should do is in the evaluation of teaching and learning. More is done, I believe, in that area by those in the disciplines of psychology and education than in the offices of institutional research.

There are other areas of evaluation such as those related to sponsored and departmental research in which we have done almost no evaluation of the research process. We do a lot in the way of gathering information on the total dollars involved in research grants and listings of publications growing out of research, but very little on the research processes as such.

When we look at evaluation processes, we should keep in mind the warning by Sibley (Bowen, 1974) that "when evaluation becomes institutionalized, especially when there is dissention about governance, priorities, and purposes, and impedence is therefore high the entire process becomes politicized, the results have dubious value, and the costs to the system are truly staggering . . . . To institutionalize and thereby routinize evaluation may be to kill it . . . ." I think the wisdom of this is that when you get to the point of feeling that you have everything under control, that everything is completely routine, that you may very well have disturbed the political processes and the relationships on the campus to such an extent that the evaluation will be doubted, will be challenged, and you will find yourself back at the beginning again, trying to work out a new system of evaluation.

Planning

Support of the planning function is another major function of institutional research. Planning is a continuous process which includes the establishment of goals, the selection and assessment of alternative ways of achieving goals, the determination of the most appropriate alternatives, and the development of methods of evaluating the probable impact of alternative proposals.

It is a proper role of institutional research to assist planners and decision-makers in each phase of planning. In essence, an office of institutional research ought to be functioning as a policy analysis unit and, in that way, providing support to the planning effort.

I am hesitant to make dogmatic statements concerning the relationship between planning and institutional research. On many small campuses those functions have been combined, whereas on larger campuses they may be separate offices. The distinction that I see between institutional research and planning is that the planning office on a large campus may be a decision-making office. Decision-making is seldom the role that the institutional research person takes, so that a separation of the two functions may be more useful than it would be in a small institution. On the small campus, the decision-making is probably at a vice-presidential or presidential level rather than with the planning office as such. Whatever the relationship may be, there would hardly be an office on campus that could provide better assistance to the planning function than the institutional research office.

As Dressel (1971) has pointed out, "... planning is most attractive and accepted when it involves expansion in program and facilities." Under the conditions prevailing in the early

1970's, when planning is viewed as meaning that some programs are going to be cut, planners in higher education need all the credibility and analytical support that can be mustered.

These six functions of an IR office can be immeasurably aided by a well conceived and effectively operating management information system. This system does not have to be automated but the capability of response within the time frame most of us are given "a day, or two hours" may be improved with automation. I carefully said "may be" because experience has taught me that the manual system may indeed be speedier in some cases. The transition to an automated system or if you are automated, the transition to second or third generation hardware or software systems may be the most traumatic experience of your career! (I think I heard "Amen" in this corner.)

Since I believe many of you are directly involved in or responsible for institutional research on your campuses, I would like to make some comments on some of the conditions which I feel will contribute to the effectiveness of your work. Some of these may seem unrealistic, but that does not stop me from saying them.

The office of institutional research or analysis or studies, etc. should be staffed and placed in the organizational structures of the institution to best meet the purpose of that institution. The office needs reasonable autonomy to ensure independence from special interests, to sustain the credibility of its findings, and to protect the staff from excessive involvement in short-range operating concerns and crises. Thus, an office of institutional research with emphasis on management related studies and activities might report to the president, while offices which are more involved in research on students, curricula, teaching, assisting faculty, and other committees with self-studies might report to the academic vice-president. The proper place in the institutional structure for the office depends on the pecularities of the specific institution. Regardless of organizational location, it is imperative that the office of institutional research have institution-wide access to basic information. It is also important that the office be regarded as the principal source of reliable institution-wide data

The office should be free, within its charter, priorities, and resources, to provide services to anyone on request. This is a broad charter but the intent of the statement is to make you aware that the institutional research office should not be perceived solely as an arm of the administration. If possible, you should try to help your college senate or legislative body and its committees when they are working on policy questions. If you can develop the ability to respond not only to administration requests but also to requests from other components of the college community, your chance of being viewed as objective will be enhanced.

In some institutions, the staff of an office may consist of a single professional person. Occasionally, a faculty member may be given the institutional research assignment while continuing with a reduced teaching schedule. Still other institutions use special faculty committees for the study of specific issues and rely on various administrative offices for the continuing data needs. It is probably not economically nor politically feasible to staff the office of institutional research with the full range of permanent staff analysts who would be needed to meet all of the legitimate demands made for institutional research services. The capabilities of a given staff of an office of institutional research should be supplemented, as needed, by calling on the skills of other institutional personnel, notably faculty with the broad range of expertise represented in the various disciplines.

Offices of institutional research may differ on the basis of operating style and degree of professional involvement in support roles. For example, one office may act only, or mostly, in response to specific requests, internal and external, for statistical data. Such an office might be characterized as operating in a passive mode. In contrast, an office with an active style is characterized by the ability to anticipate need for institutional research services. It may anticipate simply the need for specific information, or the need for improved information systems, or even the need for management tools and techniques to match the institution's management style. Working within the institutional management style and the realities of campus politics on which the ultimate effectiveness of its work depends and utilizing statewide and national information, an office of institutional research should anticipate, not just react, and should take initiatives which in the professional judgment of the staff will prove beneficial to the institution. The judgment of the director, and the director's relationship with administrators and standing with faculty colleagues can be important, even crucial, assets to the office.

Institutional research and the management process it supports have their politics, psychology and art, as well as their economics, technology and science. Since the collegial system of government of most institutions rests in part on shared responsibility and shared value systems, institutional research must be effective within the various facets of campus decision-making paradigms.

Operation of an office of institutional research raises some difficult questions of strategy and ethics. For example, the office may provide information for both administration and faculty in the collective bargaining processes, and this implies that the office must be trusted by the major sectors of the institution. The office of institutional research must be a part of the institution but it should be free of domination by the administration. The office must be perceived as an objective source of data. There will be a seminar at the

Association for Institutional Research Forum in St. Louis in late April on the subject of ethics and values in institutional research. This is an area in which very little has been written and I will be very interested in the suggestions which come from this seminar.

In the context of the value of the IR office being viewed as objective, and in view of the reliance of the IR office on the concept of data translated into "information", and, finally since we are in Washington today, I would like to read briefly from a *Washington Post* report of a CBS Radio broadcast by George Herman last November.

The knowledgeable connoisseur of the Washington language will want to take a very careful look at a recent Department of Justice release about counter-intelligence programs. Bad enough that such programs are called co-intel-pros. But even more astonishing, on page 18 one discovers with that rare thrill of discovery, that linguistic look of wild surmise, that federal agents sought to confuse target groups by various means to "to provide disinformation."

Disinformation! A brand new coinage to be culled from this long dull release and lovingly preserved between the pages of a big dictionary in which it does not otherwise appear. At least not yet.

In time, not knowing about disinformation will surely be a grammatical disdemeanor. It may not exist in the English language, but in Washingtonese, I predict a mistinctly brilliant future for it. There is no end to the malicious disthief and endless disconduct that may now spring up as a result of this marvellous distake. It's a new world where disinformation is officially mispensed and the gullible are disled.

"Disinformation" – this is what I want you to avoid.

There is a challenge to the institutional researcher and to the development of an adequate management information system in support of institutional research. I think that challenge is great and it calls for a complex variety of skills – technical, communicative, and analytical – if the objectives are to be met. Thank you.

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Workshop
Admissions, Registration, and Student Records

Cleveland Thomas
Consultant
Institute for Services to Education, Inc.

ABSTRACT

This workshop group will examine the relationship of the Admissions and Registration areas to the program planning and budgeting process of the institution. As we consider the number of students who apply, are admitted, enroll, graduate, or drop-out of the institution, there are many ramifications related to this process. It will be our aim to discuss this from a functional point of view.

Our task for this session will be to answer the following question:

What are the desired elements of a system that will sufficiently satisfy the requirements of the Admissions and Registration areas and support the program planning and budgeting process?

This will be developed around the following areas.

- Data Requirements
- Procedural Requirements
- Processing Requirements
- Resource Requirements
- Reporting Requirements

Introduction

At the outset, I think it is important to refer to an earlier presentation, "MIS-Program Planning and Budgeting," before developing the specifics of this workshop. The relationship of the various administrative units within the institution and the total program planning effort is a critical one. Even though the focus of the presentation was a Program Planning and Budgeting System (PPBS), there are certain elements of PPBS that are common to any systematic planning approach you or your institution may be using. Planning, Management and Evaluation (PME) or Management By Objectives (MBO). All of the approaches involve the development of an institutional mission statement, the assignment of program goals to each program and administrative unit, and, finally, the accomplishment of program objectives that result in goal achievement and fulfillment of the institutional mission.

Where Does Admissions/Registration Fit Into the Total Plan?

In a more comprehensive way, let us view the overall Management Information System (MIS) as it relates to the planning effort and where each of us in the Admissions/Registration areas fit into the total scheme. (See Management Information System Diagram, Figure 4.) As stated above, the planning effort defines each of the program units and determines their goal(s). The definitions and initial program unit goals shall be used in shaping program objectives and activities for each unit – for our purposes, (a) Admissions and (b) Registration. Our discussion will focus on how each of us is involved in determining goals for these two areas. In other words, what is the involvement in the development of guidelines for planning the program analysis process, and schedule of reports for the two program units?

Another facet of our concern is an analysis of the organizational structure as it relates to the decision-making process. Clearly we realize that the MIS is only a tool – a means to an end and not the end in itself. It assists institutional managers by providing them with necessary data to make decisions. A clear understanding of the three levels of management are necessary in the development of our task. For our purposes, we will define these three levels, as follows. (See Organizational Analysis As Related to Decision-Making Chart Figure 16.)

Policy

Institutional policy defines the principles which guide the overall management and operations of the college. These policies are wide and general in scope, and they range anywhere from philosophy and objectives to procedures for institutional personnel, from admission criteria to guidelines for fund-raising.

The following sample questions need to be answered in order to provide some insight into the decision-making process:

- What are the admissions/registration criteria?
- What kind of information is needed?
- How is this information gathered, by whom, and how often?
- How is this information reported, to whom and by whom, and for what purpose?

Managerial

Managerial decisions interpret policies and delineate procedures to be followed by personnel at the operations-level. The answers to the following questions will clarify and assist in the development of a registration system.

- What information is used in managing the registration process (i.e. data, reports)?
- What are the registration guidelines (i.e. what is the rationale behind the present registration form, its usage)?
- What kind of reports are generated to inform both policy-makers and operations staff?

Operations

Operations decisions translate both the policy and managerial decisions into the day-to-day activities of the education enterprise. These functions are generally performed by those directly responsible for the activities of particular organizational units (i.e. admissions, registration, financial aid, housing) of the institution.

The operations staff, in answering the following questions, will provide the institutional management with the necessary tools to: 1) assess the existing admissions/registration procedure and 2) determine what modifications if any, are to be made.

Other Elements of the Discussion

Facets of Admissions That Will Require Planning and Policy Decisions:

- Recruitment Factors
  - Areas of Concentration
    - Academic
    - Geographic
  - Economics
  - Ethnic
  - Numbers
  - Early Recruitment
- Screening and Evaluation
- Acceptance/Rejection
- Confirmation
- Closure
- Development of Master List

Facets of Registration That Will Require Planning and Policy Decisions:

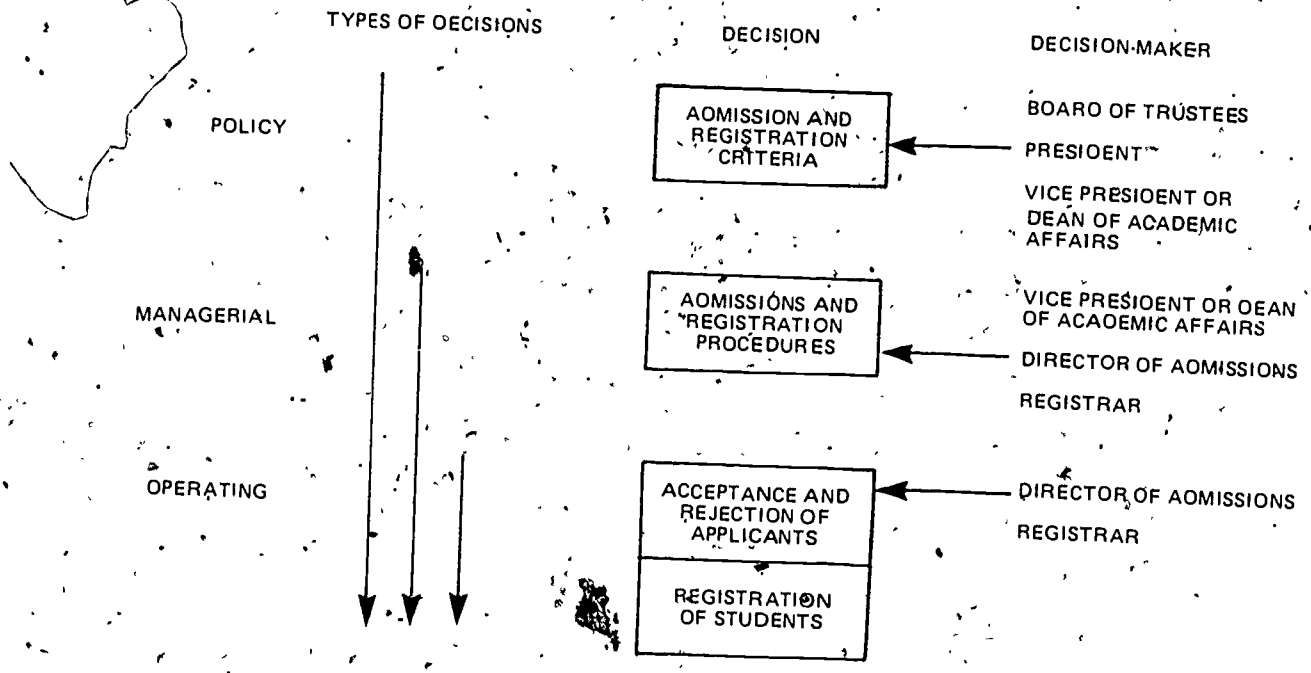


Figure 16. Organizational Analysis for Decision-Making

- Preparation of Master Schedule
- Registration Preparation
- Pre-Registration
- Registration
  - New Students
  - Transfers, etc.
  - Probationary, etc.
- Changes (Drop/Add)
- Closure
  - Development of Class Rolls and Their Dissemination
- Registration Master List

Admissions/Registration Impacting Other Areas:

- Financial Aid
- Housing
- Health Services
- Personnel (Faculty/Staff)
- Facilities
- Finance
- Grants Management
- Student Records

Types of Data Input:

- Quantitative Reporting
- Cost Analyses
- Non-Requested Recommendations
- Information for Monthly, Quarterly and Annual Reports
- Direct Reporting (Eye-to-Eye)
- Functioning on Committees
- Third Party Involvement
- Federal and Non-Federal Data (HEGIS, etc.)

Types of Data Output:

- Annual Report
- Report Calendar
- Self-Study Report
- Faculty Manual
- Student Handbook
- State Education Agency Report
- Instructional Reports
- Fact Books
- Federal and Non-Federal Reports

Workshop
Personnel Systems and Budget-Decision Making

Lawrence J. Brailsford
President
National Institute for Community Development

Concepts and Relationships

The use of personnel systems as management decision-making tools is a relatively new idea. Historically, the bulk of personnel information within an organization has been viewed as limited to the payroll mechanism. In recent years, however, many institutions, public and private, have contributed to the development of personnel management concepts that have gone far beyond the limited payroll mechanism utility.

Within the context of the small college or university, personnel systems have a larger potential role than in a production or service environment and there appears to be a greater need for their expanded use. In the absence of products or services for which clients make payment and/or other production/output-mode operation and resulting feedback, these small colleges or universities must learn to use personnel systems to measure their effectiveness and improve management decision-making

Management information systems are useful to the extent that they capture and report relevant data in usable form and on a timely basis to a decision-maker capable and willing to *use* the data generated. Most MIS operations are budget-oriented, however, and devised for use by financial managers or other decision-makers. Within the small college and university world, the financial managers' decisions apparently are most often concerned with personnel matters. If this is true, and most of the data reviewed indicates that it is, then there is a major relationship between the personnel system and financial and budget decision-making. The main purpose of conducting a workshop concerned with personnel systems and financial and budget decision-making was to place specific focus on the benefits to be achieved from using data provided by an efficient personnel system in the process of financial and budget decision-making among small colleges and universities. Within the total program presented in the workshop, however, were several other considerations.

- Admissions
- Registration
- Financial Aid
- Housing
- Health Services

Models of each of these information sub-units are being developed, tested, and prepared for use by other participating small colleges at a host institution. The personnel system model (process) is being hosted at Washington Technical Institute in Washington, D.C. A comprehensive manual is nearing completion in which the process is documented and procedures and sample forms updated. This manual is designed to provide assistance to other institutions in implementing a total personnel system or as an evaluation tool which may lead to small or large modifications to existing personnel systems.

Financial and budget decisions have two major functions. the identification of how available resources can be allocated to achieve program goals, and the provision of a system through which interim program changes can be achieved. Those responsible for insitutional research are increasingly in the forefront of the decisions surrounding these functions. Institutional research officers, more than others, need to become effective interface agents within institutions; they clearly must be deeply involved in the process by which personnel and financial decisions are reached if they are to meet their growing responsibilities.

The Personnel System Model (A Process)

Any system (even one that is process-dependent) must have specified bounds, usually made clear in the definition of the system or model For the purpose of the workshop, we accepted as a model the system being developed by Washington Technical Institute.

Of the many possible perspectives from which the personnel system could be viewed, we choose the functional view. This approach makes possible comparison with budget line items, if the institution has adopted a functional cost accounting system. A personnel system embraces a range of activities, and the logic for including a group of tasks under a single responsibility category must be consistent with the overall organizational structure of the institution. Failure to adhere to this will result in an imbalance between authority and responsibility and duplication of effort. A typical range of activities assigned to the personnel system begins with developing the job classification scheme and extends to record-keeping and evaluation. A listing of the functional components might include the following:

- Job Classification
- Recruitment

- Supervision
- Record-keeping and Reporting
- Selection Process
- Hiring
- Communications
- Evaluation

The *job classification* activity starts with designing a scheme which includes the logic and criteria for establishing job positions within an institution, and for the review process. This latter aspect is often overlooked. Job classification is not a one-time task. Educational institutions are dynamic in nature and change, even among the most conservative institutions.

The extent to which this activity is undertaken will determine how much unnecessary catch-up work must later be done within the college. It is important to note that mistakes are apparently inevitable in this area. The lack of insight that contributes to a less-than-complete job in the creation of a useful job classification scheme usually is the same blindness that prevents the identification of effective remedies.

The sequence in which the personnel systems' functions are listed is intended to reflect the chronology in which they influence each other. An effective job classification scheme should be a prerequisite to the selection process; the selection process is a major data source for the feedback evaluation system for the job classification function.

The *selection process* must take into consideration sources by job class. Each source must be monitored to insure that its usefulness is the same as the last time it was used or better. Selection sources are subject to a variety of influences that may change their usefulness to a particular institution, for example, changes in management, changes in conditions in the area, financial reverses, the loss of confidence in their clients, or the termination of their business.

The selection process should be a stated policy and that policy should require review and evaluation consistent with the job classification function.

Selection has a great deal to do with the administrative, academic, and operational efficiency of an institution and generally is more costly than most people realize. If well done, it will contribute to low turnover in all job classifications and allow sufficient time to fill planned and unexpected vacancies which can be a major contribution to a healthy working climate. Selection should be done in such a way as to avoid placing staff in positions not deserving of their capabilities.

In the construction of budgets, the costs associated with selection beyond direct salaries often do not get considered, yet they are real dollar costs. Selection and recruiting are often confused. We have chosen one of many useful distinctions. Recruiting is initiated if the selection process has identified a potential candidate for a specific work requirement. Many excellent professional people have been successfully selected but lost due to poor recruiting. During the selection process an attempt is made to find a person with the skills and other attributes that will result in getting a particular job done at a level of excellence. During recruitment, the emphasis changes to demonstrating that the needs of your identified candidate will be met if he becomes a member of your institution's team.

Data should be maintained to permit review and evaluation of selection methods, costs, and policy analysis. As knowledge of the field increases a means must exist to capture such knowledge, update policy and procedures where useful, and monitor the impact of the modification within your institution.

After the selection and recruitment functions have been carried out, hiring is the next step. Salesmen refer to this as closing. The subjects for discussion between the applicant and the institution include such things as timing, type of contract, policies and procedures, his/her authority and responsibility, etc. The extent to which the other functions of the personnel system have been thought through clearly and completely, and been kept up-to-date and documented will have great impact on getting your candidate-turned-applicant signed on as a team member.

These functions—job classification, selection, recruiting, and hiring—are all intake efforts. What follows is a different phase of a personnel system.

Once on board a new team member represents new challenges to the institution. If he is good, can the institution keep him? If he's less than what the institution is prepared to deal with, . . . how can he be terminated? There are a number of considerations worth discussion regarding this range of possibilities—each should be covered by a written policy and evaluated regularly and often. Employees in small colleges and universities are the major resource and the major cost, representing more than just their salary.

In each of the functions in the personnel system leading to hiring a new team member there is a clear relationship to financial and budget decision-making. Employees' salaries have an even greater role in financial and budget decision-making. A large investment has been made in bringing a competent team together and that investment must be protected. Turnover places burdens on an institution's budget in obvious and not-so-obvious ways. Assignments left uncovered or covered by staff already over-committed usually results in im-

portant tasks not being accomplished. Any task scheduled, assigned, and reassigned to an over-worked staff person, must be followed-up on. Any review of how well tasks are performed under these circumstances should convince anyone that better answers must be found.

Scheduling tasks, budgeting staff time, and maintaining a full team are some ways to avoid over-loading, misusing, and under supervising staff that an institution would like to keep. The ability to do these things is a direct reflection of having enough money allocated to the priority tasks.

The personnel policies and procedures should cover the entire range of options for employee behavior within an institution. The policies should be comprehensive and flexible – comprehensive in that they should be based on how to treat any given personnel situation rather than being just a compilation of do's and don'ts and flexible to allow for special circumstances.

Each major category of personnel management should have a written policy. Promotions, grievances, holidays, fringe-benefits, and tenure each should be the subject of a specific section of the policies and procedures manual and each section should be easy to identify. Since the manual is used as a constant reference, a good index system is essential for smooth and ready access.

These and other aspects of a personnel system were discussed during the workshop. Our focus remained constant – "How does the personnel system relate with the financial/budget decision making process?" was the question raised again and again

The need to have a policy within the personnel system covering how information of all types is communicated should be quite clear by now. Neither the supervisory nor the administrative functions could be effectively carried out without such a written policy. Assuming that these are the *only* functions affected by the absence of a written communication policy (and not addressing the comprehensiveness of the policy for the moment), can you imagine the confusion that would be present in an institution and to what extent it would undermine getting the work done if the policy did not exist?

The thrust of all that went into the workshop was data. The outer bounds of the personnel system is data collection (record-keeping), reporting that data to the proper person within specified time constraints, and having policies which are *enforced* and cause the data to be used in making decisions. Among the decisions made, evaluation should be stressed as a tool in decision-making and as part of the process by which decisions are made. In this context, the interrelationship of personnel systems and financial and budget decision-making is more likely to be observed and considered

Cases Discussed in the Workshop

Practical use of theory is necessary to illustrate the soundness of the theory. During the workshop several attempts were made to relate the concepts of a relationship between personnel systems and financial and budget decision-making.

Almost every college and university (small or large, Black or White) is faced with the problem of accommodating outstanding scholars. The issue to be tested is the usefulness of a working personnel system in reaching a financial and professional arrangement with such scholars. One issue is how and where to find the money to pay outstanding scholars. The discussion made it clear that they are expensive and Black scholars are even more so.

One of the institutions represented at the workshop reported recent efforts to select, recruit, and hire an outstanding Black scholar. It was reported that the program he would be assigned to was important and that his presence at the head of the program would be essential to its acceptance and success. The representative shared with the group the selection process used. He, with the help of friends and associates, identified the candidate. After many efforts, selection advanced to recruitment. The answer to the question, "What feedback was useful from previous efforts in hiring outstanding Black scholars?" was "There were no records, memory, or feedback in the institution from these efforts." They lost the benefit of improving their "hit" record. Another question raised the issue of what policies covered recruiting outstanding Black scholars; the answer, "There are none."

When the money had to be found, the officer responsible conducted a careful trade-off analysis and identified areas in the budget that in his mind were less important. He reduced several budget areas, being careful not to completely destroy any particular one. A presentation was made to the President of the institution, and a firm decision was made only to be reversed later.

In this case there may have been outside pressures that caused the President to change his mind. Even assuming this to be true, the lack of a functional relationship between the personnel system and the financial and budget decision-making process is clear and costly.

Had feedback been available and used by the decision-makers, greater understanding of *all* the ramifications of hiring the scholar would have been on the table before the President reached what turned out to be a premature decision. The trade-off analysis conducted by a department head would have been the product of a wider group's decision and would have carried a more substantive recommendation to the President. Whatever the external forces, they would have been a part of the analysis and perhaps a different recommendation would

have resulted. A great deal of time and money was lost because there was no system or the one in existence did not work. Institutional research officers can serve more effectively when necessary tools are available which are understood by all the users and supported by the institution.

At the other extreme, one institution represented at the workshop reported a vacancy in the business manager's office. The vacancy had existed for over a year and, during this period, the business manager has been performing the tasks left undone by the vacancy. Also, during this time *he* has advertised in local and regional newspapers and canvassed employment agencies and friends; all to no avail.

This institution does *not* have a written personnel system or anyone to charge with the responsibility for carrying out the duties even on an overloaded basis. The workshop group was able to trace the causes of the problem described to the absence of a well developed personnel system tied to the financial and budget decision-making process.

No data was available regarding how the position was filled previously. The need for the position has not been evaluated recently, and the selection, recruitment, and hiring functions are not formalized. The business manager has no professional help in filling his vacancies.

These two cases were among several discussed and analyzed during the workshop. The significance of the workshop to the participants was evidenced by their questions and obvious enthusiasm.

On-going Development (Washington Technical Institute)

The personnel sub-model is under continuing development at Washington Technical Institute (WTI); the full manual should be available in the near future.

Personnel information requirements have grown enormously at WTI in recent years. Increased flexibility in employee deductions, new types of taxes, additional requirements for statistical reporting, union contracts, and just the general increased internal requirements for knowledge about employees have all combined to place a severe strain on the capabilities of our personnel system.

Further complicating our task of providing the necessary information is the fact that the payroll system to which we must relate is under the management of the local government. Historically, payroll has been among the first systems to be automated and, therefore, is the oldest and least flexible of all. The net result was that little or no personnel reporting capability existed. Thus, a second system was maintained by the Institute, with the attendant lack of synchronization.

The guiding philosophy in our new systems design was and is that, the management of program resources at WTI is an expression of educational policy for effective utilization. Nearly three-fourths of the fiscal resources of the Institute are allocated to personal services in the form of salaries and fringe benefits.

These facts made it imperative that we find a solution to the problem of rapidly expanding information requirements, yet accommodate our mandated relationship with the local government. Thus, the Manfile System was born, and is now a full grown adult.

The Manfile System is computer-based, and provides the Institute with a comprehensive reporting system. The heart of this system is a dynamic stored master file that continually accumulates and maintains current personnel information. The file contains all of the current desired employee information. Additional or overflow records can be added as necessary. With the exception of certain basic information required by the system, the contents of this file are entirely at the discretion of the personnel office.

Currently, twenty-seven distinct reports are generated from the Manfile System. The distribution ranges from campus at-large to a single office. The frequency of distribution ranges from semi-monthly to annually.

The following is a listing of most of the current regular reports:

- Manning Table Permanent Positions
- Manning Table Non-Permanent Positions
- Alphabetical Listing of Employees
- Employee Listing by Position Title
- Position Status Report
- Campus Directory A
- Campus Directory B
- Home Directory
- Position Summary by Pay Basis
- Non-Permanent Positions by Expiration (NTE) Date
- Non-Permanent Employees Appointment Expiration (NTE) Date

- Benefit Enrollment Data by Program Activity
- Exceptions Report of Benefit Enrollment by Type of Benefits
- Mandatory Date for Individual Contributions to TIAA-CREF Retirement Annuity
- Optional Group Life Insurance Premium Change Date
- Retirement Eligibility Profile Date
- Academic Employees Tenure Eligibility Data
- Academic Employees (Faculty Distribution by Rank)
- Academic Employees (FAC) Distribution by Program Activity
- Academic Employees (FAC) Profile Data by Dept.
- Employee Distribution by Sex
- Employee Ethnic Distribution
- Employee Listing by Occupational Category
- Staff Profile Data
- Increment Eligibility by Pay Basis
- Campus Address Mailers
  - by program activity
  - by date of birth
  - by occupational category
  - by department
- Annual Vacation Leave Data by Department

The Manfile System was designed to provide a basic framework within which the most complex requirements could be met at a cost far less than that of the original development. If further information is desired you may contact us through the offices of Mr. J. Welch, TACTICS.

Workshop
Facilities and Housing Management

Frederick A. Fresh
Staff
Institute for Services to Education, Inc.

Introduction

MIS is currently compiling a manual on Post-secondary Educational Facilities and Housing Management processes. The manual will highlight the organizational structure and information and processing required to effectively operate and manage the institution's physical plant. The relationship between facilities and housing management and the programming, planning and budgeting process will also be described.

This workshop is designed to share information gathered to date and to gain feedback from the participants on their local facility and housing management needs. The workshop will include:

- Workshop Objectives
- PPB and Facilities/Housing Management Relationships
- Facilities Organization
- Facilities/Housing Data Flow
- Input Data Types and Sources
- Facilities Planning Process
- Facilities/Housing Data Processing
- Output Report Types and Destinations
- Summary
- Feedback and Questions

Background

Facility-use statistics provide a measure of the cost-effectiveness of an institution's capital facilities. Since many costs of facility operations are incurred regardless of frequency of use, low utilization rates contribute to a high per capita operation cost.

The demand for the services of post-secondary educational institutions has led to a significant increase in capital facility investment in the past two decades. As the costs of providing these facilities has increased, the need for more effective planning and use of these facilities has become a major concern of institutional administrators and funding agencies. One result of these concerns has been a requirement for explicit justifications for proposed reallocation of existing space and construction of additional space. Such justification must be based on quantitative evaluation of existing space and careful projection of future needs. Institutions must have information and procedures for accomplishing the evaluations and projections.

Some institutional utilization studies began in the 1920s. However, widespread interest in these studies increased around World War II due to war-induced shortages. At that time, the American Association of Collegiate Registrars and Admissions Officers (AACRAO) sponsored the first of its many major contributions to the evaluation and projection of facilities needs. The first of these projects emphasized the magnitude of the post-war enrollment growth. (*College Age Population Trends*, 1940-1970, published in 1953 and *The Impending Tidal Wave of Students*, published in 1954.) Publications of increasing depth and scope on methodologies and criteria for evaluating institutional space use have followed.

At the national level, the first comprehensive data on the scope and nature of higher education facilities was obtained by the U.S. Office of Education (USOE) in 1957-58 through a nationwide inventory of building facilities. The data compiled in that study provide the basis for estimating the nation's future higher education facilities needs and helped lay the foundations for passage of the Higher Education Facilities Act of 1963. This act provided federal funds for construction of college facilities and created state commissions to manage the distribution of these funds. Funds were provided to the state commissions for improving comprehensive statewide planning of higher education facilities requirements.

The institution of the Higher Education General Information Survey (HEGIS) by USOE in 1966 unearthed the need for consistent and comprehensive data on a range of activities including that needed for facilities construction. Out of that need grew the "Higher Education Facilities Classification and Inventory Procedures Manual" sponsored jointly by the National Center for Educational Statistics and the Bureau of Higher Education, Division of College Facilities. It has gained widespread acceptance at all levels of the educational community, and has served as the basis for gathering data needed by state and federal agencies and institutional administrations.

MIS Manual Development

Documentation on the structure and operation of physical plant organizations is available to educational institutions. Some are listed in the bibliography. Membership in professional associations such as the Association of Physical Plant Administrators is a source of current information. Institutions, however, do not seem to be taking advantage of available information.

What difference then will a MIS-developed facilities and housing manual make? The difference is in the MIS approach which ultimately involves putting into operation facilities and housing management procedures at an institution. The ability to visit an institution which has implemented the process defined by the manual reduces reluctance to make recommended changes.

The facilities and housing manual development began with a consultants' workshop. During this workshop, information and management reporting needs for facilities and housing were explored. A set of data collection and report formats were proposed. These formed a point of departure for development. Additional work has involved review of the literature and site visits to institutions for interviews with physical plant managers. The information gathered will be incorporated into the manual. The manual will be further refined through implementation at an institution.

The objective of the facilities and housing manual is to provide procedures to:

- Collect data and a data base for the institution's Space Management Program.
- Provide consistent reporting of facilities and housing data to all levels of management and review.
- Support fiscal accountability of physical plant resources.

Facilities Organization

Facilities organizations seem to have evolved to suit the needs and size of the institution, but some common functions are found. Ideal organizations could be discussed but generally these are modified to suit the institution. It would be a useful group exercise to develop an organization to serve a hypothetical institution of given characteristics.

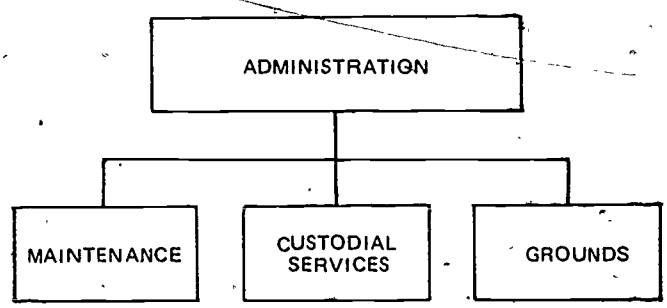
The objectives of the exercise are to: determine functions to be performed, list specific activities, and design a management structure (organization chart).

- Institutional Characteristics (Given)
  - Rural, within 5-10 miles of a large town
  - 1,000 acres owned
  - 500 acres in active use
  - Public utilities available
  - Contract trash collective
  - 1,000-1,200 student enrollment (FTE)
  - Day and evening courses
- List range of management activities which might be needed.

BASIC FUNCTIONS	*Administration*	Planning Personnel Financial
	Maintenance	Repairs Scheduled Operations
	Custodial Services	Academic Space Support Space Housing
	Grounds	Maintenance Improvements

OTHER FUNCTIONS
- Utilities Distribution
- Major Repairs and Renovations
- Security and Safety
- Capital Facilities Planning/Management
- Communications
- Mail Distribution
- Solid Waste Disposal
- Transportation and Moving

- Arrange the selected activities into a suitable organization



(Details of tasks to be performed under these activities, additional activities to be performed, and placement of supervision and staff are expanded as part of the exercise.)

Facilities and Housing Data Flow

The types of data collected and used in facilities and housing management are dictated by the applications supported by the data and resulting reports. The applications embrace two types of operations—PPB or Programming, Planning and Budgeting and day-to-day operations.

Day-to-Day Operations

- Work order and maintenance scheduling
- Custodial services allocation
- Supplies purchase and inventory
- Cost control
- Personnel record-keeping

The operational mode comprises the data elements and reports required to support efficient daily operation. Personnel must be hired, trained, supervised, and evaluated. Records must be maintained to support these activities. Personnel and equipment must be allocated among the recurring maintenance tasks and as-required work orders for repairs or support services. Material uses must be monitored for inventory control and budgeting.

Programming, Planning and Budgeting

- Facilities inventory
- Space utilization
- Capital facilities planning
- Operational cost projection

The planning process depends on the data used in day-to-day operations. The planning activities generally occur less frequently than operational activities. Program planning occurs annually in support of the institution's annual budgeting cycle. Funding materials costs and labor rates data are provided during the process. Capital facilities requests, budgets, and space allocation are based on planning activities which involve a facilities inventory.

Figure 17, Facilities and Housing Management Data Flow, shows the interaction of the data elements and program activities. The innermost circle represents the two modes of facilities and housing management. The next band represents the sources and destinations of the data and reports within the institution. Administrative offices or functions within the institution are enclosed in parenthesis. External forces and agencies which affect this area are shown outside the circles.

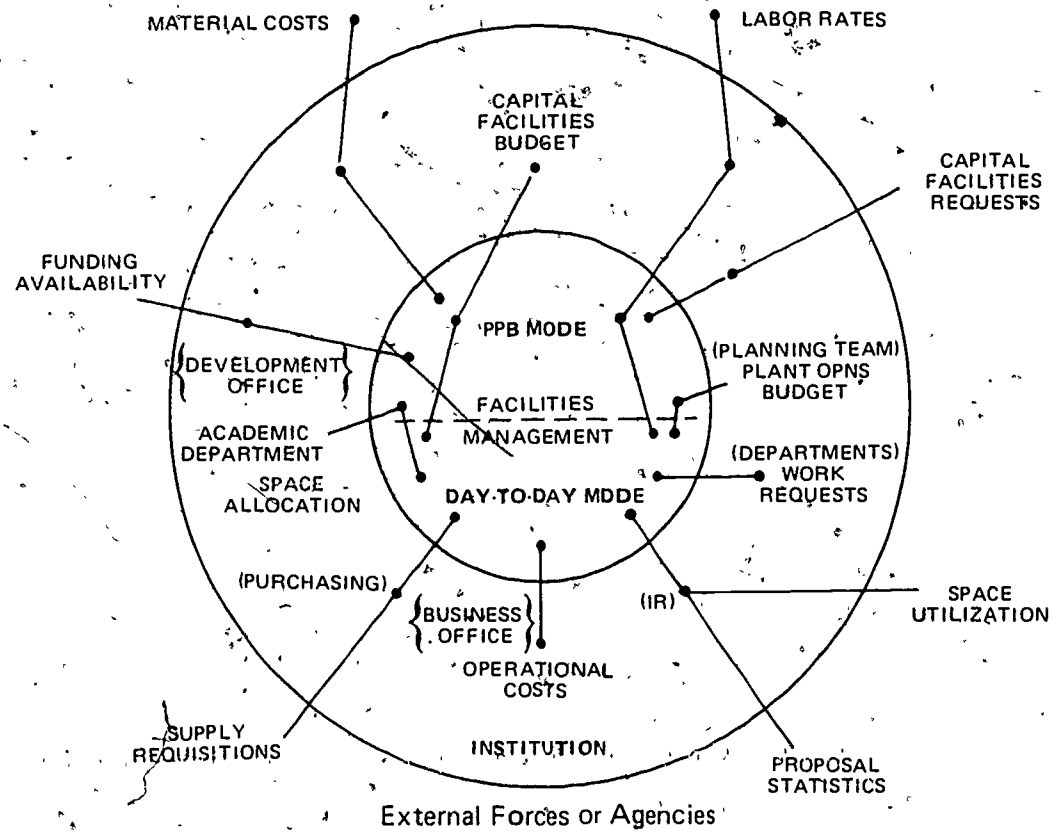


Figure 17. Facilities and Housing Management Data Flow

Steps in Facilities Planning Cycle

Institutional facilities should be built as the result of a rational and ordered planning process. Starting with the institutional mission, traditionally stated as instruction, research, and public service, it should be possible to develop specifications of the academic program for which a new building will provide a physical home. A detailed set of program specifications should yield information concerning students, faculty, their activities and the relationship of these activities to the facilities required to house them.

These program specifications can be converted into an expression of required building space after it is evaluated and adjusted to accommodate anticipated program changes, shifts in student loads at various course levels, changing student-faculty ratios, and other modifications over time.

The planning related to a specific facility can begin at this point. The whole step-wise process of the facilities planning cycle is outlined in Figure 18, Facilities and Housing Planning Cycle.

The facilities planning is one segment of the institutional programming, planning and budgeting process. In the larger context, the facilities planning is a support activity which necessarily occurs after the academic program planning has occurred. Inputs to facilities are academic program plans, internal and external planning assumptions, enrollment projections, and revenue estimates. Outputs are internally staffed, support program (facilities/housing) plan. Figure 19, PPB - Facilities and Housing Interface, shows a general flow of the institutional planning process. The planning activities for support areas are specified in the shaded area.

Facilities Inventory Definition

Good planning and management of the institutional facilities resource are significant for the following reasons:

- Facilities (buildings) house programs and, as such, tend to constrain the educational environment of the institution's instruction, research, and public service programs. The suitability of facilities for a use is directly related to the quality of instructional programs.
- Facilities consume most of an institution's capital dollars and some operating dollars. Inefficient use may create a disproportional drain on financial resources.
- Quality and condition of facilities affect the institutions public image. The implications of this are many.

Facilities are critical to the goals of an institution and deserve proper consideration in the planning process. However, no planning process can function well without reliable and comprehensive information. The facilities inventory is a methodology for accounting for a resource (buildings) in a consistent manner. The uses of the inventory data and the data types are listed in Figure 20, Facilities Inventory Definition.

Goals
- Statement of conditions sought
- Qualitative in nature
- Identify specific functional areas of endeavor

Objectives
- Specific ends to be achieved in functional areas
- Quantitive in nature

Program Definition
- Development of a proposed set of courses of action by which the desired ends can be achieved
- Planning assumptions

Program Planning
- Estimation of the program loads and the resources required to implement the courses of action

Facilities Planning
- Determination of the facilities resource requirements by organizational unit and type of space

Facilities Development Program
- Grouping of facilities needs into identifiable building units (both existing and new)

Site Planning
- Revision of the campus maps to reflect appearance of new facilities and disappearance of those scheduled for demolition

Capital Development Planning
- Establishment of priorities for building and remodeling projects and estimation of project costs

Building Programming
- Describes a proposed building or remodeling project in terms of detailed facility requirements

Design Development
- Development of a detailed set of building plans

Space Management
- Allocation of facilities resources to departments and programs and the continuous monitoring of these allocations

Figure 18: Facilities and Housing Planning Cycle

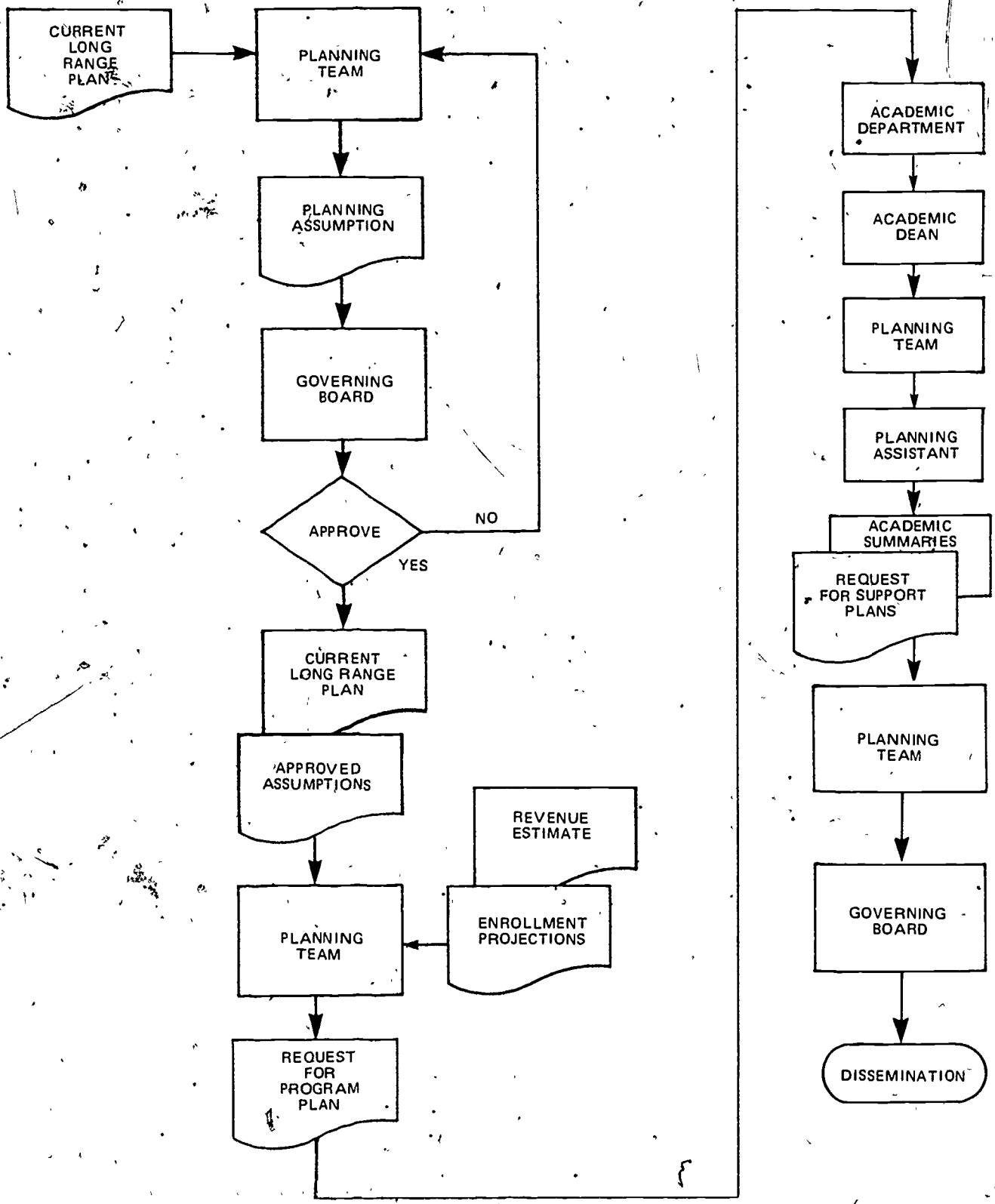


Figure 19. Facilities and Housing Management
PPB—Facilities and Housing Interface

- System of accounting for facilities uniformity
- Used internally for:
  - Scheduling and assigning space
  - Determining program costs
  - Predicting need
  - Comparison with other institutions
- Used externally for:
  - Criteria for construction funding
  - Support for legislation
  - Prediction cost impact of commission policy decision
- Data type
  - Building characteristics
  - Building cost
  - Building location
  - Building ownership
  - Room use
  - Program affiliation by room
  - Room characteristics
- Data collection procedure

Figure 20. Facilities Inventory Definition

The data collection and storage procedures may be totally manual. The extensiveness of the task and frequency of need to manipulate data would dictate the level of automation needed. Factors to be considered for a facilities inventory are as follows:

- Determine buildings to be inventoried
- Exclude buildings located on remote institutional properties seldom used
  - Investment properties
  - Unowned hospitals
  - Public schools not owned
  - Federal Contract Research Centers (FCRC)
- Collect building characteristics on:
  - Gross area
  - Assignable area
  - Estimated replacement cost
  - Condition
  - Year of construction
  - Ownership
- Collect room data
  - Gross area
  - Assignable area
  - Type of room use
  - Institution organizational unit
  - Number of stations
- Room-use categories
  - Facilities inventory and classification manual
- Program classification
  - WICHE program classification structure
- Program category
  - HEGIS taxonomy

Data Input, Processing, and Output

The discussion of actual data elements and their processing was designed as a group exercise. At this point, sufficient information should have been made available for the participants to project the data needs, sources, processing required and destinations.

Figures 21, 22, and 23 summarize the information to be gathered by this exercise. Input Data Types and Sources, Figure 22, and Output Data Types and Destination, Figure 24, are divided into data elements with planning and those associated with day-to-day operations.

Summary

A separate feedback and evaluation session proved useful for exchanging information with workshop participants who had attended concurrent sessions. This section outlines the summary presentation and presents some conclusions based on the question and comment which followed.

Summary Outline

Scope of Facilities Function

- Capital Facilities
  - Inventory
  - Budgeting
  - Design
- Plant Operations

- Administration
- Building Maintenance
- Grounds
- Custodial

- Security

- Housing
  - Utilization Statistics
  - Maintenance

Relationship to Programming, Planning and Budgeting

- Support to Academic Programs

- Long-range Facilities Planning

PPB

- Academic Program Summaries--Planning Assistant
- Environment Assumptions (External)--Planning Assistant
  - Price Trends for Goods and Services
  - Labor Rates
  - Education Policy Trends
  - Funding Availability
- Environment Assumptions (Internal)--Planning Assistant
  - Enrollment Projections
  - Curriculum Changes
  - Student Aid Levels
- Revenue Estimates--Business Officer
- Request for Support Plans--Planning Assistant

Day-to-Day

- Staff Turn-Over Rate--Personnel Records
- Staff Non-Productive Time--Personnel Records
- Building Characteristics--Built to Specifications
- Room Utilization--Academic Departments
- Equipment Reliability--Equipment Specifications
- Equipment Maintainability--Equipment Specification

Figure 21. Input Data Types and Sources

Importance of Facilities Planning

- Utilization Reports

- Space Allocation

- Legislative & Institutional Policy Impact

Feedback

The relationship between Student Financial Aid and Plant Operations was discussed. There is a need in some institutions for more management of student labor to increase productivity.

- Building/Room Utilization
  - Number of Stations
  - Courses Offered
  - Students Registered
- Housing Needs Projection
  - Projected Enrollment
  - Percentage Boarding
- Class and Laboratory Needs Projection
  - FTE Student Projection
  - Academic Program Plan
  - Projected Course Load
- Maintenance Supply Costs
  - Supply Cost Projections
  - Supply Utilization By FTE Student
  - FTE Student Projection
- Maintenance Labor Staffing/Cost
  - Projected Labor Rates
  - Housing and Academic Space Needs Projection
  - Course Schedules
  - Manpower Utilization Experience Records
  - Maintenance Schedules
- Maintenance Schedules
  - Facilities Inventory
  - Equipment Reliability Data
  - Equipment Maintainability Data
  - Maintenance Records
  - Administrative Galendar

Figure 22. Data Processing

It was considered inefficient to schedule students for less than two hour segments for maintenance operations. Too high a percentage of time might be consumed in starting and ending tasks, leaving little time for the principal task.

The desirability of student involvement in classroom building and dormitory planning was stressed. Greater flexibility of design might be achieved if the needs and uses of the occupants are considered at an early stage. Greater student attention to the facilities care and maintenance might be promoted through student participation.

While facilities maintanance was a concern of several individuals, their work area and thus primary concern was in a concurrent session. It was suggested that consideration be given to repeating individual workshops to avoid all-or-nothing selection of workshop sessions.

PPB

- Support Program Plan Planning Team
- Capital Facilities Development Plan Planning Team
- Physical Facilities Requirements Planning Team

Day-to-Day

- Detailed Expenditure Estimate Business Office
- Staffing Table Personnel
- Supply Utilization and Cost Business Office
- Budget Status Report Business Office
- Housing Occupancy Dean of Student Affairs
- Facilities Utilization State, Business Office

Figure 23. Output Data Types and Destination

Workshop
TACTICS Evaluation Training

Wiley Bolden
Consultant
TACTICS Coordinating Office

Upon completion of the 1975 fiscal year, the TACTICS II program will be evaluated by a team of analysts. Unlike the evaluation made last year at the end of the TACTICS I program, this evaluation will be a progress review of the first year of a new program cycle. Thus the evaluation will focus on the TACTICS program over the period beginning July 1, 1974 and ending June 30, 1975. Understandably, many of the TACTICS II Institutions have some program objectives that involve long-term institutional development. Similarly, some of the TACTICS component program objectives require more than one year for full accomplishment. Nevertheless, evaluations of the 1975 fiscal year programs, both those that represent the termination of short-term goals and those that denote progress toward the completion of long-term objectives, should furnish useful information for future TACTICS program development.

Focus of the Evaluation

The evaluation will focus on two related aspects of TACTICS the services and activities of each of the seven TACTICS components and developments within each of the 68 participating institutions. Specifically the evaluation will involve:

- An assessment of each institution's progress against its own work statement (or plan) for the achievement of its TACTICS program objectives.
- An assessment of the effectiveness of the services provided the institutions by the TACTICS seven components.

Instruments

The evaluation instruments will consist of two kinds of inventories or questionnaires that will be sent to the institutions. These instruments are as follows.

- A number of brief questionnaires, each pertaining to a very specific service or program of one of the service components.
- A general questionnaire containing two parts: (a) information on the extent to which the institution's TACTICS program objectives for 1974-75 were accomplished and (b) judgments on the value of the general services and programs of the TACTICS service components

Directions and Procedures

- Prior to the evaluation, a statement of each institution's TACTICS objectives will have been formulated by the appropriate institution representative(s) and submitted on the TACTICS II Program Work Statement form (Figure 23) to the executive director of TACTICS. A sample of this form follows this report. Check to determine whether your institution has completed and returned the work statement. If the work statement has not been prepared, or if the statement prepared earlier needs to be revised, the work statement that is to be used in the evaluation should be prepared now. Preparing the work statement is a necessary first step in an institution's participation in the evaluation. A copy of the institution's TACTICS objective is to be returned along with the completed questionnaire to the evaluation team.
- Based on the component programs that each institution has elected to take part in, a package of questionnaires along with supporting materials and directions will be put together for each of the 68 TACTICS II institutions. This package will be sent to the president of the institution or a person designated by him.
- Typically the questionnaires on specific component programs and/or services will be addressed to a person in a particular position or role. In any case, all questionnaires will demand special knowledge of the area of the program with which the questionnaire deals. Hence, the president, or the person designated by him, will be asked to solicit the cooperation of those persons whose experiences with TACTICS programs place them in a favorable position to supply the information or make the judgments that are required for the evaluation.
- The questionnaire that will be used to evaluate the Library Administrative and Development and Educational Technology Program will focus on the program sequence involving workshop, follow-up campus visit, follow-up report, workshop, and follow-up campus visit, etc.
- Presidents of the institutions have been notified that the evaluation packages will be mailed to the institutions during the month of April and that the questionnaires should be completed and returned to the specified address by May 25, 1975.

Wiley S. Bolden
Chairman, Evaluation Team

April 6, 1975

WORK STATEMENT

COMPONENT: Moton Consortium on Admissions and Financial Aid (MCAFA)

COLLEGE: John and Jane Doe College LOCATION: Smalltown, U.S.A.

PROBLEM: (Major Category) Enrollment

Statement of Problem

Freshman enrollments last fall increased slightly with increased recruiting effort. Recruiting effort needs to be intensified and made more efficient. Attrition, particularly in the freshman and sophmore classes, is running in excess of one-third of these class enrollments. Attrition needs to be reduced. Recruiting of transfer students for junior class is important need. Also, recruitment of white students is essential.

OBJECTIVES* as to Problem Resolution (Including Projected Time Goal)

By next fall, J & J D College hopes to increase freshman enrollment by 15%. For next falls its goal is to have a white population of 10% of the freshmen class (4% of the total enrollment). Its goal over the next three year period is to increase overall enrollment by 25% and to achieve a white student enrollment of 20%.

The goal is to reduce attrition the next academic year to 20% and over the next three years to no more than 10%.

*Please be specific and quantify objectives where appropriate.

DEFINITION OF NEED of TACTICS Services (With regard to the above problem)

1 Recruitment Program	Training of Admissions staff (and others on J & J D staff where appropriate) in innovative recruiting techniques, especially, how to organize recruiting campaigns and workers among alumni and church groups.
2. Information Study Program	Determination of types of information and statistical data helpful to both recruiting and admissions problems and to curriculum planners as well as to makers of typical college policies and decisions.
3. Curriculum Development Program	Assistance in analyzing and developing curriculum in the light of changing student needs. Help devise new offerings to appeal to community groups.

APPROVED: DATE:

Component Rep: _____ Institutional Representative: _____

Title: *Director* Title: *President*

TACTICS 10/30/74 USE OTHER SIDE FOR ANY ADDITIONAL COMMENTS

Figure 24.

Appendix A

Participants

MIS PARTICIPANTS

MIS/CIR Workshop
March 14-16, 1975

Calvin O. Atchison
Tennessee State University
Nashville, Tennessee

Porah D. Crosby
Prentiss Institute
Prentiss, Mississippi

Josephine Decker
Bethune-Cookman College
Daytona Beach, Florida

Edward H. Dickison
Barber-Scotia College
Concord, North Carolina

Pauline Ferguson
Winston-Salem State University
Winston-Salem, North Carolina

Walter M. Fordham
Edward Waters College
Jacksonville, Florida

Lee Roy Gorman
Coahoma Jr. College
Clarksdale, Mississippi

Benjamin H. Grooms
Albany State College
Albany, Georgia

Evelyn H. Henighan
Winston-Salem State University
Winston-Salem, North Carolina

Sister Janet M. Hoyler
Xavier University
New Orleans, Louisiana

Annie Mai Miller
Lane College
Jackson, Tennessee

Walter C. Howard
Miles College
Birmingham, Alabama

Leon Knott
Shaw College at Detroit
Detroit, Michigan

Virginia L. Lewis
Huston-Tillotson College
Austin, Texas

Kenneth J. Newman
Mary Holmes College
West Point, Mississippi

Abe Boykins, Jr.
Mary Holmes College
West Point, Mississippi

Calmetta Newsome
Prentiss Institute
Prentiss, Mississippi

Gerald R. Polinsky
Voorhees College
Denmark, South Carolina

Joe D. Page
Mary Holmes College
West Point, Mississippi

Julius D. Penn
Grambling College
Grambling, Louisiana

Herman F. Runkett
Southern University
New Orleans, Louisiana

Edward C. Scruggs
T. A. Lawson State Jr. College
Birmingham, Alabama

Ronald H. Starks
Langston University
Langston, Oklahoma

George B. Tutt
Miles College
Birmingham, Alabama

Artreele M. Wheatley
College of the Virgin Islands
Virgin Islands

Joseph L. White
Winston-Salem State University
Winston-Salem, North Carolina

Joseph S. White
Elizabeth City State University
Elizabeth City, North Carolina

Thelmara Williams
Stillman College
Tuscaloosa, Alabama

L. C. Wood
Paul Quinn College
Waco, Texas

CIR PARTICIPANTS

Ive Billingsly
Daniel Payne College
Birmingham, Alabama

Stephanie Brown
Coppin State College
Baltimore, Maryland

Margaret Fingal
Mississippi Valley State College
Itta Bena, Mississippi

John James
Mississippi Valley State College
Itta Bena, Mississippi

Ronald Perrote
Huston-Tillotson College
Austin, Texas

Kossappa Rajasekhara
Barber-Scotia College
Concord, North Carolina

Linda Trenfield
Shaw College of Detroit
Detroit, Michigan

Isiah Owen
West Virginia State College
Institute, West Virginia

Olivia Spaulding
Livingstone College
Salisbury, North Carolina

B. V. Burghardt
Bowie State College
Bowie, Maryland

Robert L. Marshall
Albany State College
Albany, Georgia

Syrene O. Mitchell
Southern University
New Orleans, Louisiana

L. E. Reed
Utica Junior College
Utica, Mississippi

Charles Reid
Coahoma Junior College
Clarksdale, Mississippi

Irma Moore
Florida Memorial College
Miami, Florida

John Williams
Knoxville College
Knoxville, Tennessee

Oliver Bell
Southern University Shreveport-Bossier City Campus
Shreveport, Louisiana

Bernard Crowell
Langston University
Langston, Oklahoma

Paul Decker
Bethune-Cookman College
Daytona Beach, Florida

Allen Henkin
University of Maryland Eastern Shore
Princess Ann, Maryland

Barbara Holmes
Fayetteville State University
Fayetteville, North Carolina

Edward Welch
Lemoyne-Owen College
Memphis, Tennessee

James Williams
Alcorn A&M University
Lorman, Mississippi

Appendix B

Workshop Brochure

AGENDA

Friday

March 14, 1975, 10 00 a m

REGISTRATION BEGINS, Ballroom A

CIR, GROUP MEETING ON IR CONCERNS AND FUTURE STUDIES, Degas

March 14, 1975, 12 30 p m

LUNCHEON, Ballroom A

Presiding
James A Welch, Director, MIS/TACTICS

Opening Remarks
Elias Blake, Jr , President, Institute for Services to Education

Speaker
Jack Lavine, Consultant, U S Office of Education, Office of Planning and Evaluation
"The Role of PME in Postsecondary Education"

March 14, 1975, 1 45 p m

REGISTRATION ENDS

March 14, 1975, 2 00 p m

MIS–PROGRAM PLANNING AND BUDGETING,
Joel Nwagbarocha, Director of Institutional Planning and Management Program/ISE, Degas

CIR–PROJECT REVIEW

INNOVATIVE INSTITUTIONAL RESEARCH CONSORTIUM
Joshua Williams, Coordinator, LaSalle

COLLEGES AND UNIVERSITY INSTITUTIONAL RESEARCH CONSORTIUM
Bernard Crowell, Coordinator, Lafayette

CURRICULUM CHANGE CONSORTIUM INSTITUTIONAL RESEARCH
Margaret Fingal, Coordinator Marquette

March 14, 1975, 5 00 p m

BREAK

March 14, 1975, 7 00 p m

WORKSHOP/GROUPS

MIS–WORKSHOPS

FINANCE MANAGEMENT, FINANCIAL AID, GRANTS MANAGEMENT, Degas
Quinn Shelton, MIS Staff

Recorders
Mary Coleman, Director, Moton Consortium on Admissions and Financial Aid
Leonard Dawson, Director, Moton College Service Bureau

CIR–SMALL GROUP SESSIONS
LaSalle, Lafayette, Marquette

March 14, 1975, 9 00 p m

RECEPTION, Ballroom A

Saturday

March 15, 1975, 9 00 a m

RESEARCH APPLICATIONS DEVELOPMENT,
Degas Linda J Lambert, Research Assistant MIS

STATUS OF MODEL DEVELOPMENTS
MODEL IMPLEMENTATION PROCEDURES
James A Welch, Director, MIS/TACTICS

IMPLEMENTATION CASE STUDY
Jarvis Christian College Registration System
Frederick A Fresh, Assistant Director MIS/TACTICS

March 15, 1975, 10 15 a m

COFFEE BREAK

March 15, 1975, 10 30 a m

ZERO BASED BUDGETING (OVERVIEW)
John Algee, Zero Based and Higher Education Daisy Bayton, Management by Objectives

March 15, 1975, 12 30 p m

LUNCHEON, Monet II

Presiding
Joseph Martin, Director, Institutional Research

Speaker
Lois Torrence, President, The Association for Institutional Research
"Relationships between MIS and IR in Post secondary Education"

March 15, 1975, 2 15 p m

WORKSHOP/GROUPS

MIS

ADMISSIONS/REGISTRATION, Lafayette
Cleveland Thomas, MIS Staff
Recorder Mary Coleman

PERSONNEL–(FACULTY/STAFF), LaSalle
Jack White, V P for Management Information Systems, Washington Technical Institute

FACILITIES MAINTENANCE, Marquette
Frederick A Fresh, Assistant Director MIS/TACTICS

CIR

ZERO BASED BUDGETING WORKSHOP
Degas

March 15, 1975, 4 30 p m

BREAK

March 15, 1975, 6 00 p m – 8 00 p m

MIS

TACTICS EVALUATION TRAINING, Degas
Wiley Bolden, Professor of Education
Georgia State University, Atlanta, Georgia

CIR

SMALL GROUP SESSIONS
LaSalle, Lafayette, Marquette

Sunday

March 16, 1975, 8 00 a m

WORKSHOPS/GROUPS

MIS

FEEDBACK AND EVALUATION, Montcalm

CIR

SMALL GROUP SESSIONS
LaSalle, Lafayette, Marquette

March 16, 1975, 10 00 a m – 11 00 a m

GENERAL SESSION, Monet II

ANNOUNCEMENTS, CLOSING REMARKS

MANAGEMENT INFORMATION SYSTEMS

SPRING WORKSHOP

MANAGEMENT INFORMATION SYSTEMS* AND CONSORTIA FOR INSTITUTIONAL RESEARCH

L'Enfant Plaza Hotel
Washington, D.C.

March 14-16, 1975

*MIS is a component of TACTICS (Technical Assistance Consortium to Improve College Services)

Workshop Emphasis

Management Information Systems (MIS)

MIS has developed a systematic approach to improved institutional planning and management. This approach utilizes a team of institutional administrators and MIS staff working together to adopt a set of "model procedures" such that the institution's planning and management information processes are optimized.

The "model procedures" which are the foundation of the MIS program approach are organized into a related set of documents covering various planning and management concerns as Program Planning and Budgeting, Registration, Grants Management, Personnel (Faculty/Staff), Finance and Accounting and Facilities Management. These documents are results of nearly four years of MIS cooperation with developing institutions and their administrators.

The MIS sessions are designed to offer institutional administrators:

- an introduction to the MIS modeling approach
- an opportunity to contribute to procedures currently under development, and
- a status report on MIS programmatic activities.

The model procedures to be highlighted during the workshops are described below.

Program Planning and Budgeting (PPB)

Three broad areas are considered in planning:

- Institutional objectives
- Fiscal resources
- Physical activities

Planning is a continuous process which relates people and their aspirations to the limitations of fiscal resources and the accommodation of physical facilities. The PPB system provides for systematic execution of this process. Excellent documentation exists in this area. Expanding on existing material, this workshop will concentrate on the implementation, data organization, and data analysis process associated with PPB.

Financial Aid and Grants Management

The financial aid office needs access to data on enrollment costs, academic programs, student population, socio-economic background of student's families and institutional objectives to develop submissions to the PPB's process. A determination of student expenses complement the information used to forecast total student aid funding requirements.

Grants are a vital source of funds for a variety of institutional programs. Grant use may be restricted, therefore provisions must be made to budget, monitor and account for grant fund expenditures.

This workshop discusses the mechanisms associated with developing Financial Aid and Grants related planning data.

Admissions, Registration, and Student Records

By necessity, a feedback loop exists between the planning process and the Admissions, Registration and Student Records areas. On one hand statistics are provided on the numbers and categories of students who have applied, been admitted, enrolled, graduated and attrited. On the other hand, the functional area is influenced by recruitment and retention objectives. This workshop will describe the feedback loop, the associated data and the processing requirements.

Facilities Maintenance and Housing

Institutional planning is incomplete unless it includes support services and facilities. The program objective must inform the planning for academic and housing facilities and services to maintain these facilities. This workshop deals with the programmatic input data, the processing and the reporting required to support the program planning and budgeting process.

Personnel - Faculty and Staff Services

The basics of personnel administration in educational institutions are similar to those in business and industry. Just as a business must systematically requisition the search for specific skills required for a particular business emphasis, educational institutions must plan for the acquisition and maintenance of appropriate faculty and staff skills to support the existent academic program plan. This workshop will present model personnel procedures and management reports used to monitor personnel administration.

TACTICS Evaluation Training

The major focus of TACTICS is *institutional development*. This means development of programs and administrative and management systems designed to support the central purpose and mission of the institution. The various components support this focus through programs in their areas of expertise. An essential ingredient in the effective management and coordination of TACTICS components is program evaluation. This produces a measure of the progress and degree of success in program delivery.

An Evaluation Training session is being offered to prepare the user of TACTICS services for the coming end of year evaluation process. Also this process will help institutions meet their requirements for program accountability.

Consortia for Institutional Research (CIR)

The consortia engaged in projects designed to evaluate the effect of Title III funds in the areas of institutional research and faculty development. Three research areas were identified and initiated. CIR workshop sessions will concentrate on the coordination and refinement of the current research projects. Additionally, one session is scheduled to discuss potential topics and methodologies for future studies.

CIR

Consortia for Institutional Researchers