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ABSTRACT
                In planning for higher education, budgets should be
developed that reflect not merely the status quo but rather provide a
realistic picture of what occurs relative to what should occur in
current programs. This requires setting up an informational framework
to provide a mechanism for generating and evaluating alternate ways
to achieve objectives--in essence a program budgeting system (PBS).
This paper discusses: (1) the basic features of program budgeting;
(2) the problem areas in developing a PBS; (3) the need for all
levels of the institution to participate in the development of the
PBS and the educational effort involved in getting this
participation; (4) the necessity of effective coordination of
development activities; (5) the need for the development and
maintenance of an analytic capability; (6) the need to decide who
does what in developing the system; and (7) the first step in
academic planning within a PBS at the department, school, college,
university, and system level. (AF)

DEVELOPING A PROGRAM BUDGETING SYSTEM AS AN
AID IN PLANNING HIGHER EDUCATION

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DEVELOPING A PROGRAM BUDGETING SYSTEM AS AN AID IN PLANNING HIGHER EDUCATION

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INTRODUCTION

Planning higher education has been discussed from many points of view, depending on the discipline of the discussant and his role in the process of higher education. The areas of concern range from the voice the student should have in the planning and administration of his education to the merit of alternative ways to finance higher education. Each viewpoint is supported with comfortable and familiar statistics as long as the discussion remains peripheral to the core of the problem--what are the expenditures for higher education buying now and what should be bought in the future? As soon as these questions are raised, these old statistics become relatively irrelevant. The student/teacher ratio, often used as a proxy for faculty productivity, and the space utilization rate, for example, retain some meaning in assessing how well an institution is doing in comparison to similar institutions. But data of this nature do not provide the information base needed for determining a more effective use of the resources allocated to the higher education process.

What is needed is information about what the institution is doing now, in terms of its aims and operational objectives. What programs should be initiated, what programs should be stopped, and what changes should be made in the way of doing business so that these objectives can be achieved more effectively. The systematic generation of this type of information requires a different approach to planning higher education. It means, in most cases, asking questions that may be difficult or painful to answer, and striking out from the secure shelter

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of the traditional measures of success in educational administration.
It means taking a look at the future consequences of today's decisions
and really looking at the consequences, not just the dollar impact.

This is the most important single fact about typical budget
projections; the academic status quo is projected for five or ten
years with no major changes in the composition of the university
system in terms of Schools, Colleges, Departments, or even courses
offered. It is not enough to say that one two-year program will be
added each year. Some attempt should be made to consider the future
demands for different professional expertise, for different technical
skills. Some attempt should be made to assess the direct impact of
technology on the instructional methodology (computer-assisted in-
struction) and the indirect impact of technology on the programs
offered (space technology) or on the content of the courses (data
processing in the accounting curriculum). The demands of society
should be translated into changes in programs offered (ethnic studies
or urban planning programs).

These impacts are then the basis for developing a consequence-
oriented budget--a budget that provides a realistic picture of what
is happening in relation to what should be happening in terms of
programs. The programs in the budget are the collection of activities
that contribute to meeting its specified objectives. The focus is
on identifying these objectives, developing the programs necessary
to meet the objectives and evaluating how well the objectives are
being met. This informational framework then provides a mechanism
for generating and evaluating alternative ways to achieve objectives.
It becomes, in essence, a program budgeting system.

BASIC FEATURES OF PROGRAM BUDGETING

Program budgeting has been discussed by proponents and opponents
to such a great degree that man, of its basic characteristics, or
features, have been obscured. This is partly due to the fact that
program budgeting means quite different things to different people.
The list of features shown below provides a means of picturing these

different ideas; the features of program budgeting are rather loosely
ranked from the more simple to the more complex.

- o Output-related arrangement of items of expenditure by
  program.
- o Capital budget items included by program.
- o Extended time horizon for planning.
- o Resource/cost model developed.*
- o Criteria and measures of effectiveness developed.*
- o Up-to-date financial plan.
- o Mechanisms for control of funds by program.
- o Organizational alignment by program.

To some people, program budgeting must include all of these features
or it is not program budgeting. To others, program budgeting develop-
ment stops after you have rearranged the expense budget by program,
after you have extended the time horizon of the budget, or after you
include capital budget items in the display of the expense items.

To many, program budgeting, as a tool for long-range planning,
has merit even without the budgetary control aspect--if, and this is
an important if, the system-analytical aspect has been developed.
The analytical capability need not be sophisticated; it can be as simple
and as direct as described throughout this report. Computers and auto-
mated management information systems are useful aids but are not pre-
requisite to achieving a workable system-analytical capability. A
great deal can be accomplished with quantified common sense especially
when it is tempered with a conscious effort to account for the non-
quantifiable facets of both the problem and potential solutions.

Program budgeting, by providing a framework for organizing the
educational and operational data of higher education and by providing
consistent guidelines for the analysis of the data, offers the means
to make the most of the effort expended on educational planning. A
program budgeting system encompassing the first six features of the

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  *These features are, of course, the basic tools needed for the
systematic analysis of alternative courses of action.

above list can be designed, and effectively used, to achieve this improvement in planning.

PROBLEM AREAS IN DEVELOPING A PROGRAM BUDGETING SYSTEM

The features of program budgeting and the impact they collectively have on the design, implementation, and operation of a program budgeting system have been sketched in Fig. 1. The effects of these impacts are grouped into four broad areas: (1) the area of data-related problems, (2) the area of people-related problems, (3) the area of system effectiveness, and (4) the area of the cost of the system. These areas are not contrived, but rather are natural focal points of concern in developing a program budgeting system.

In most cases, additional features cause an increase in all of the problem areas. An exception might be, for example, the successful development of a resource/cost model. In the near-term activity in the development of the program budgeting system, this feature would generate significant data-related and people-related problems--constructing the model demands an extensive data collection effort and, more importantly, model builders are a scarce resource. In the long run, however, the availability of the resource/cost model would enhance the analytical capability of the program budgeting staff. Less time would be required to examine the consequences of more what-if questions and it is possible that a better quality of analysis would be attained from the same data and from the same staff. The end result would be, in most cases, fewer data-related problems and fewer people-related problems.

The reality of impact in the areas of effectiveness and cost is relatively clear, but its actual measurement, in the cause and effect sense, is the subject of current and extensive investigation. For this reason, the emphasis will be on the problems that arise from the data requirements for a program budgeting system and on the problems that are people-related in nature.

By its very purpose, a program budgeting system is a gigantic consumer of data. These data are of concern to all within the institution. The sources of data and the means of collection and analysis
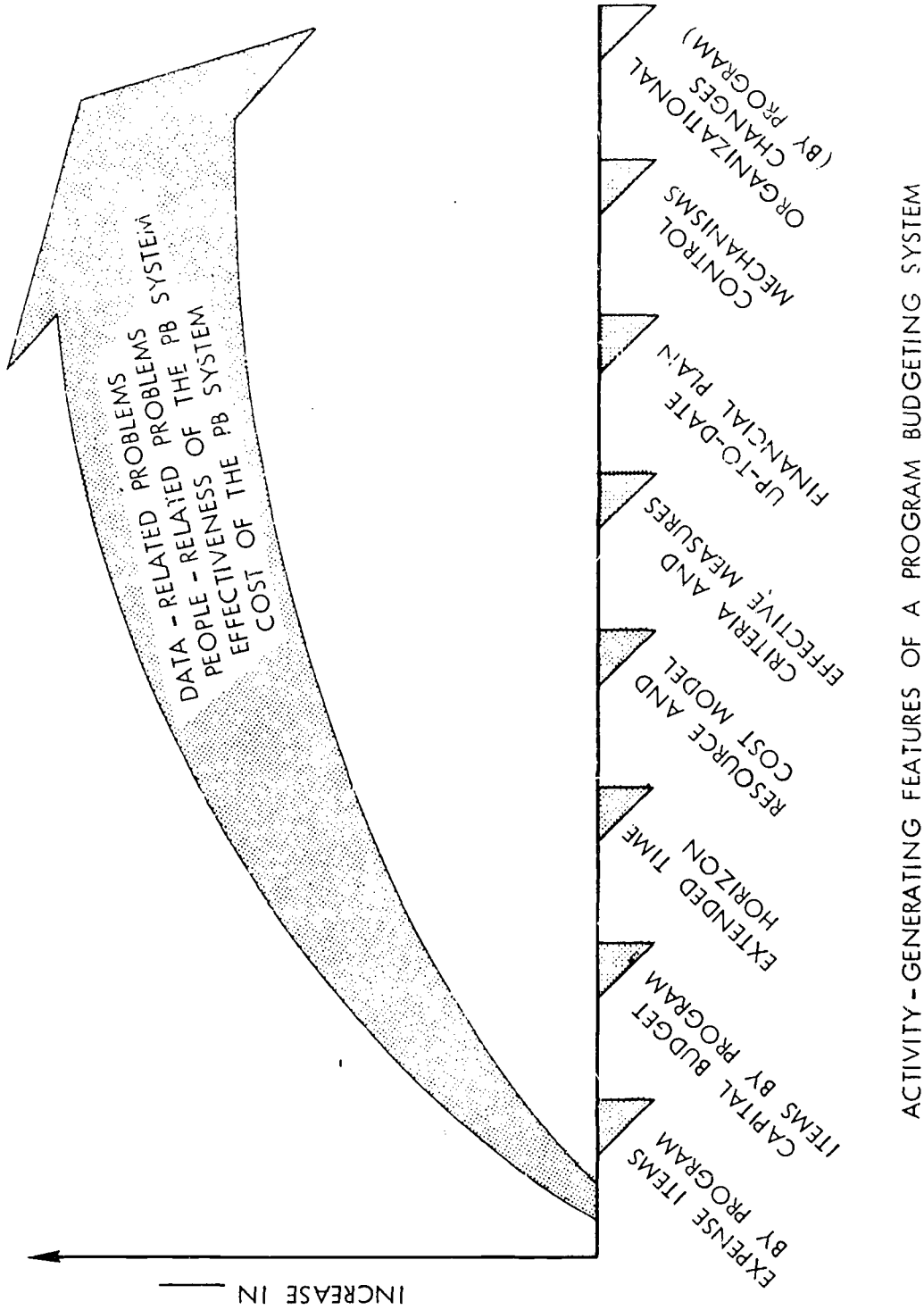
Fig. 1--The impact of features of a program budgeting system
on its design, implementation, and operations

are, of course, obvious concerns. Not so obvious, but just as real, are the fears of the individuals supplying the data about the intended uses of the data. In any attempt to plan--or even understand what is going on--data about people, the things they use, how they use them, and how well they use them are necessary. The result is that the data-related problems are closely related to the people-related problems.

Data-related problems are usually more direct and mechanical and their solutions can be sought in a direct and mechanical manner. People-related problems, on the other hand, are often subtle and pervasive; their solution demands a different approach. A basic component of this different approach is "knowledge"--the catalyst in the process of developing a program budgeting system.

PROGRAM BUDGETING EDUCATIONAL EFFORT

All levels of the institution should participate in the development of the program budgeting system. This means that all personnel should know what is happening; they should know what their role is in the development of the system; they should know what demands the system might make on their operations; and they should be encouraged to have a voice in the development of the system. Knowledge of this nature demands an educational effort that parallels the development of the system. This is true whether or not the development of the system is being done by persons within or outside the institution.

The extent of the educational effort should be broad enough to include all levels of the institution; it should not be limited to the top administrative staff. Deans, Department Chairmen and all faculty have a role in the development of the program budgeting system. Their specialized knowledge of their field and potential changes is necessary in projecting programs. In addition, as a group they contribute their expertise to the system-analytical aspect of program budgeting that makes the system more than just another accounting scheme. The effectiveness of their contribution can be increased if the educational effort includes information about their interface with the design and operation of the program budgeting system.

COORDINATION OF DEVELOPMENT ACTIVITIES

Another facet of the educational effort that parallels the development of the program budgeting system deals with coordinating the activities of development. It is necessary to spell out who does what and with what authority. For the most part, this is a people-related problem area. And again knowledge serves as the catalyst in the process; the more the members of the institution know about what is expected of them, and why, the less are they inclined to jealously guard their bailiwick of information or to wait for the finished product and then react. They all become participants in the development of the system and, through this participation, increase the likelihood that they will be users of the operational system.

In this coordination effort it is logical to identify the main and supporting cast of characters. It is suggested that once the group has been designated, every attempt be made to quite frankly publicize its existence, to define its authority and to support its task. The group should be clearly visible within the organization, and its members should cut across organizational lines. In addition, the group should be recognized as having some operational life after the design and implementation phases of the program budgeting system; a temporary committee has rather obvious shortcomings. One of the main functions of the group would be to organize the educational effort described earlier.

Another function of the group (and also part of the educational effort) is the development of the techniques that enable the administrators to use the program budgeting system output. This means a conscious effort to spell out the role of program budgeting in the decisionmaking process. The questions of how the program budgeting system will be used, by whom it will be used, and for what purpose, must be answered very early in the development stage.

DEVELOPING AN ANALYTICAL CAPABILITY

There is another problem area that is partly data-related, but for the most part is people-related. That is the development and

maintenance of an analytical capability. In most current efforts to develop a program budgeting system, the lack of an analytical capability has been identified as a major problem. The best way to solve the problem is still largely a matter of conjecture. One possible approach might be the most direct--just begin, going from the more simple to the more complex techniques and. in the process, learn. Concurrent with this approach, two activities would be carried on. One activity would be the initiation of a training program. The other activity would be an attempt to separate those analytical techniques required for the routine operation of the program budgeting system from those required for the development of supporting models (student flow model, for example) and of estimating relationships. Those techniques required for the routine operation of the program budgeting system would be the first area of study in the training program. This effort should be reinforced with the development of the more complex techniques by an analytical staff serving many institutions, such as WICHE (Western Interstate Commission for Higher Education). There are, of course, many trade-offs within the different approaches to developing and maintaining an analytical capability. The point is that solutions to the problem are well within the state of the art.

ACTIVITY AREAS IN DEVELOPING THE SYSTEM

For discussion purposes, a distinction has been made between data-related problems and people-related problems; this distinction remains a useful guide in seeking solutions to the overall problems of developing a program budgeting system. It should be obvious that solving. the people-related problems as a first order of business would have a direct effect on the magnitude of the data-related problems.

In the schematic of activity areas in the development of a program budgeting system shown in Fig. 2, it is rather easy to trace the origin and flow of data requirements. Less clear, however, is the "who does what" requirement so necessary to the effective development of a program budgeting system. In some respects, the people who possess the data can be identified as the starting point for the "who

INVENTORY OF EDUCATIONAL SYSTEM

- Describe student population
- Describe resource base

  Personnel
  Staff support
  Facilities
  Equipment
  Supplies
  Other

- Describe community profile

  Socio-economic
  Demographic

- Define management structure

  Administration hierarchy
  Decision process
  Information system

- Determine data availability

DEVELOPMENT OF STRUCTURAL ASPECT

- Define broad goals
- Define operational objectives
- Identify activities
- Define programs
- Define program elements
- Develop program structure

  (Group activities)

DEVELOPMENT OF ANALYTICAL ASPECT

- Determine resource requirements
- Determine cost of activities
- Develop program cost estimates
- Develop estimating relationships
- Determine criteria of effectiveness
- Determine measures of effectiveness
- Identify alternatives
- Evaluate alternatives

RESOURCE AND COST MODEL DEVELOPMENT

METHODS AND PROCEDURES

DEVELOPMENT OF DATA BASE

Intra-system data

Extra-system data
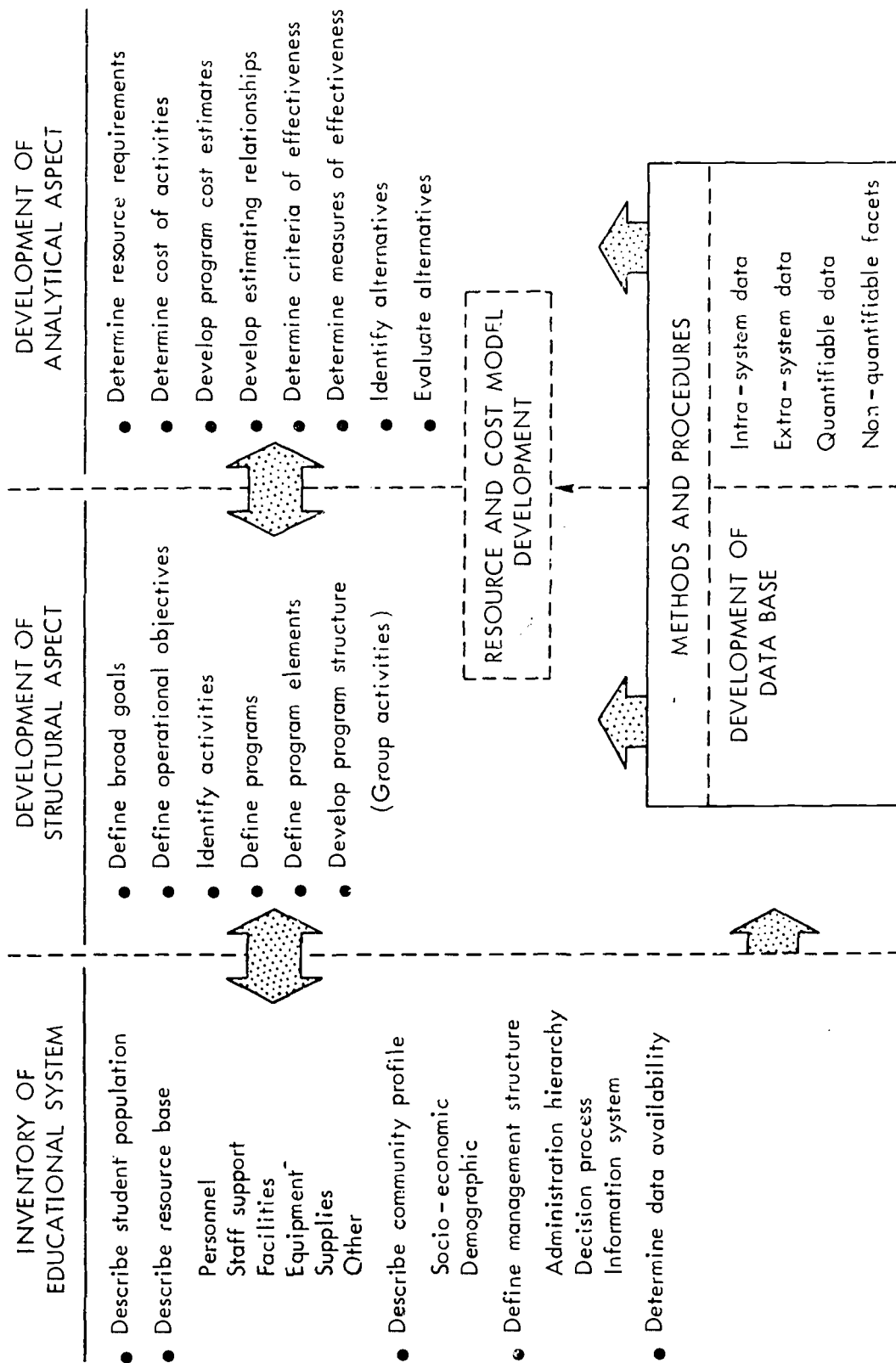
Quantifiable data

Non-quantifiable facets

Fig. 2--Schematic of activity areas in the development of a program budgeting system

does what" requirement; the important idea is to bring these individuals into the development of the system at an early time.

For example, there should be lines of communication set up·between the individuals concerned with the development of curricular changes, individuals concerned with evaluation of educational programs, and individuals with knowledge of the resources needed to achieve a particular activity or program change. If these lines of communication are opened early enough, fears about the uses to which the data are to be put and fears about program budgeting, in general, can be greatly reduced; all individuals are participating in an endeavor they understand.

Not mentioned explicitly, but certainly needed, would be the line of communication to the administrative staff--the level responsible for ensuring that the particular activity or program change is, in fact, a means to accomplish either an operational objective or a broad goal. This line of communication, as well as all lines of communication among the activity areas of Fig. 2, is a two-way communication line. The lower levels of administration, which have the knowledge to generate alternatives, must be aware of the objectives of the institution and, conversely, the top-level administrative staff must be provided with the output of the analytical effort of the lower levels. It is through this process that the evaluation and selection of alternatives is accomplished.

If we were to rearrange the activity areas of Fig. 2 to reflect the "who does what" requirement, the activities under the development of the structural area would be primarily the concern of the top-level decisionmakers and planners; efforts by individuals in the other activity areas would flow to this structural area. In a sense, all the other activities would be supportive to the activities in the structural area. This, of course, would be during the developmental phase of the program budgeting system. In the operational system all activities would be part of the decisionmaking process, part of the program budgeting process.

FIRST STEP IN ACADEMIC PLANNING WITHIN A
PROGRAM BUDGETING SYSTEM

In the introduction, the core of the planning problem was identi-
fied as determining what the educational resources for higher educa-
tion were currently buying and attempting to rationally decide what
should be bought. It should be clear that some means should be pro-
vided to encourage a faculty voice in these decisions. If the budget
game is played on the basis of numbers alone, the academic staff is
relatively voiceless in the planning process. As Rathbun and Stein
state: "It is hardly an exaggeration to describe the typical college
or university budgeting process in the following sentence: It asks
each responsible officer what he needs, cuts that request by whatever
amount is needed to keep the institution from going broke and ships
the budget to the printer."[*] This is the essence of the numbers game
in budgeting. What is needed is a more rational mechanism--some way
to link the ideas of the academic staff with the facts and figures
available to the top-level administrator.

Within a program budgeting system as described briefly in this
paper, there is a direct link between the administrator and staff
that has the expertise to generate alternative courses of action
from the academic point of view. This link is a request for funds to
support a program that has been defined. Defined in this sense means
that the program has been considered in terms of its impact on the ob-
jectives of the institution and in terms of its impact on the financial
status of the institution. The proposed program is not just a wish-
list item of the it-would-be-nice-to-have category. It is, rather,
a well thought-out proposal with enough justification to provide a
basis for its selection (or rejection) in the competition for the
always scarce resources.

The first step in making this link viable is a request to the
total faculty as well as all the administrative levels. This request

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[*] Rathbun, Daniel and Herb Stein, "How to Make Your Budget Work for
You," College Management, May 1969, pp. 61-65.

is made after the staff has been informed of the program budgeting
effort in general and about the specific goal of the program budgeting
system. Enough information must be provided so as to insure that the
request will not be treated as just another request to be filled out
once and forgotten. This is important. The feeling that filling out
the request for information will have some impact must be conveyed.
This feeling may come only with time; on the other hand, advance pub-
licity could greatly increase the seriousness with which the request
is treated and, thus, increase the realism of the responses.

The next problem has to do with the information requested. In-
stead of describing the kinds of responses desired, it might be better
to provide general guidelines and then to list some mind-joggling
questions. The general guidelines, of course, would be provided by
the top-level administrator. The content of the format should include
the following items. (Items more specific to current problems should
also be included.)

Introductory Statement. Describe the nature of the activities of
your organizational unit in the 1975-1980 time period. At this time
do not consider the projected enrollment, the means of providing staff
or the cost of achieving the described activities.

At the Department Level: What courses should be added? How
should the course material be presented? In the same manner as today?
Should some mode of computer-assisted instruction be considered for
part of the instructional load? Are any changes possible in the
relationship of your Department with other Departments? Are there
any areas of organized research to be opened for your Department?
Does your Department have any potential role in an expanding public
service activity? Should new courses be added to meet the changing
social problems five or ten years from now? What courses should be
dropped or updated? Do you see ways in which a central data process-
ing system computing center could be useful to the academic aspect of
your Department?

At the School or College Level: Should new Departments be initi-
ated to reflect emerging disciplines? Or to respond to social pres-
sures? Do your Departments make an attempt to cooperate with other

Departments in maintaining interdisciplinary communication? What steps
could be taken to provide for this interaction? Would you recommend
the strengthening of any specific Department at the possible expense
of another? Should new institutes of research or bureaus of public
service be set up? What should the relationship of individual De-
partments or of several Departments be to these institutes or bureaus?
What voice should the students have in the construction of curricula
and in the instructional methods used? How will the relevance of the
curriculum be maintained?

At the University or System Level: Does the projected geographic
distribution of university system components provide an effective
availability of education to most of the population? Should this be
a goal? What programs can be expanded or added to attract the desired
quality of students? What programs are to be provided to retain state
educated graduates in the state? What will be the demands for con-
tinuing professional education in 1975 and in 1980? How may these
demands be met? Are the goals and objectives realistic? Can they be
met with the resources available or should they be modified? Do the
activities of the university system as described in 1975 and 1980 by
the components of the system contribute toward these goals? If not,
what changes should be made?

The activities described in response to these questions are
translated into their impact on resources in terms of staff, space,
equipment, and other resources. This is aggregated into the first-cut
program budget. It is not really as arduous a task as it seems on the
surface. After this is done, and the gaps, inconsistencies, or other
problem areas are identified and changed (new responses may be re-
quested), the search for alternative means to achieve the goals of
1975 and 1980 is underway. This search is the major thrust of planning.