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CREATING CAMPUS SOLUTIONS

Campus Planning-Creating the Framework for Decision-Making

Everyday, college and university campuses change—usually imperceptibly and occasionally dramatically. Programs change, people change, financial resources change, buildings change, land and landscapes change, environs change. The way our campuses look today is the result of all the minor and significant, casual and formal, rational and irrational decisions that are made in the day-to-day dynamic interaction of a living institution responding to such changes. The impetus for new construction of college and university buildings in the 1950's and '60s was increasing enrollments and expanding programs. Today, the forces for change on campuses are a myriad of complex issues and include such factors as:

- Changes inherent in the academic disciplines

- An increase in and awareness of interrelated disciplines

- Decreased federal and state funds for programs, operations, research, and facilities

- Increasing awareness of environmental issues and concerns— "green architecture" and campus design

- Increasing competition of for-profit institutions and on-line programs

- Increasing interrelationship between business, industry, and educational institutions

- Increasing numbers of faculty and students (including undergraduates) involved in research at both the university and college level

- Increasing federal and state regulations and standards for life safety and building safety

- Increasing use and sophistication of instrumentation, computers, and various presentation and communication media

- Pedagogical changes such as an increasing effort to involve students in the process of learning by doing—experiential learning

- Student consumer-shopping for the college of his or her choice

- The "ticking time bomb" of deferred maintenance

Given all these forces, colleges and universities must plan deliberately, carefully, and rationally. Planning must become a fundamental and underlying theme woven tightly into the day-to-day operations and interactions of the institution, whatever its type. The future health of higher education depends upon better planning and management. The planning process described below is necessarily generic, but can be tailored and shaped to fit the needs and circumstances of all.

Campus planning is the process of identifying and guiding those institutional decisions in higher education that have spatial implications. The responsibility of academic leaders, it is a process of guiding the development of a campus so that it supports functional, aesthetic, and economic goals within the context of an institution's history, mission, and vision for the future.

There are today over four thousand (4,000) colleges and universities in America; they differ by mission, by academic objectives, and by program emphasis. Enrollments range in size from several hundred students to more than 50,000 students. The institutions differ from the perspective of numbers of faculty and staff; resources fiscal and physical, including levels of endowment; and forms of governance. And today, we must add the for-profit category to this simple taxonomy.

However, higher education is more complex than that simple differentiation of public, private, and for-profit suggests. The taxonomy can be expanded to include residential and commuter; and institutions with national, regional, and local focus. Even that taxonomy is too general, for institutions can be further described as: urban, suburban, or rural; a city college, state university, land- or sea-grant institution, research university, liberal arts college, or community college. The definitions can be even further expanded to include coed, male, female, religious, military, and historically black. Some can be further refined, for example, by subject: business, law, or engineering.

CAMPUS PLANNING

Although higher education is notable for its great diversity, each and every one of the institutions it encompasses is being driven and affected by the same national forces, in addition to being influenced by regional and local circumstances and characteristics. Thus there is, despite this great diversity, a systematic approach to campus planning that can be applied at institutions of all types, sizes, identities and missions. This planning must be integral to the operations of the institution. It must involve those responsible for the long-term distinctiveness, quality and economic viability of the vocational school, college, or university.

> Every institution needs to have a forcible champion of good management and planning. It should be the president. But if he or she is not able to be, the president must support unwaveringly the provost or whoever else is the active leader for better quality controls, academic management, and strategy making.
>   - George Keller[1]

> The planning effectiveness of a campus depends on the planning effectiveness of its presidential leadership. There is no escape from this situation.
>   - John Millett[2]

Conceptually, the campus planning process can be divided into different components that are addressed sequentially, iteratively, and/or concurrently. Although these steps for planning are generic and can be used in a variety of contexts, for institutions seeking to build and sustain strong undergraduate programs in mathematics and the various fields of science, this comprehensive planning process is crucial. See Diagram One, Planning Process. Maintaining strong programs in these fields is a costly endeavor, over the short- as well as the long-term. Institutional leaders, who must make decisions about using resources prudently and creatively, have to decide at every step about the cost of decisions made and those not made. For the number of students involved, the costs of maintaining strength in these STEM[3] fields may appear disproportionate, particularly in comparison to other departments with higher enrollments. However, as science and technology have an increasing impact on all life and work, colleges and universities and those leading them have a responsibility to make a rigorous encounter with these fields an integral part of the undergraduate curriculum for all students.

The advice that follows outlines considerations for trustees, presidents and other academic leaders in early stages in considering making a major investment in facilities that support learning, teaching, and research in mathematics, technology and the various fields of science and engineering.

1) Institutional Plan

There are five interrelated elements of the institutional plan: mission statement, academic plan, staffing plan, capital budget plan, and the operating budget plan.

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[1]George Keller, Academic Strategy, The Johns Hopkins University Press, 1983, p 165

[2]John Millett, "Relating Governance to Leadership" Improving Academic Management: Handbook for Planning and Institutional Research, Jossey Bass, 1980 p 501

[3]Science, Technology, Engineering, and Math

Of the five, the academic plan is the most central, but without a solid statement of mission in place that outlines a vision of the institutional future, there should be no final decisions made about the academic plan. This is because there must be a campus-wide understanding about how building and sustaining strong programs in science and mathematics connect to the institutional mission. However, once underway and guided by the mission statement, academic planning becomes the pivotal element.

An academic plan should have a point of view about programs and curriculum; about enrollments and staffing; and about programs that will grow, remain constant, be reduced or eliminated, or nurtured as special resources. All other institutional planning will flow from the goals, objectives, and priorities of the academic plan. On many campuses, building consensus and reaching closure during the academic planning process will take several years.

2) Building, Program, and Campus Analysis

Following or coincident with institutional planning is an institutional audit of the physical infrastructure: an assessment of the existing buildings, campus, infrastructure, and environs. Here generic questions about spaces and the physical infrastructure need to be asked:

- How much space does the institution have to support its mission and academic plan, today and into the future?

- Are the amount, condition, configuration, and utilization of space appropriate?

- Are the spaces sufficiently flexible to support programmatic change over time?

- Are the buildings capable of sustaining network, media, and communications improvements?

- What are the critical spatial relationships, patterns of interactions?

This analysis of campus and environs usually consists of some combination of an assessment of building location and use, land ownership, open space and landscape, pedestrian and vehicular circulation, parking, topography, and utility infrastructure. In some instances, a detailed infrastructure analysis is conducted prior to or as a separate part of the campus planning study.

The analysis then moves to an assessment of the academic programs relative to campus resources, in terms of the degree to which those spaces and environs support current and planned changes in learning, teaching and research. In the context of making decisions about serving a mission and academic plan that focuses on strengthening student learning in fields of mathematics, science, engineering, and technology, questions such as the following need to be asked:

• How many faculty, students, and staff are there today, and how many will there be tomorrow?

• What is the level of research activity expected of those faculty, and of the engagement of undergraduates in that faculty research?

• What is the nature of each department's pedagogy, what new approaches are being considered?

• What will be in the impact of technologies in undergraduate learning?

• How will the pedagogy change, and do the physical resources help or hinder the program?

• What are the critical programmatic affinities?

• Are new interdisciplinary programs anticipated?

• Is there to be an increase of students engaged in learning these fields?

3) Description of Needs

The goal of this analysis of facilities, program, and campus is to provide a foundation for developing a description of precise facilities needs required to support the mission and academic plan. Needs may vary: from minor staffing requirements or cosmetic changes, to improvements that may involve renovating or adding to an existing building, to the construction of an entirely new building. Campuses with different missions and identities will arrive at a distinctly different set of needs, but at institutions of all types the 'grounding' questions for this analysis should be what difference will this make to our efforts to strengthen student learning?

Developing this list of needs, like attending to the mission statement, must be through a participatory process involving a broad spectrum of the community. A key objective here is consensus; however, the list of needs must not be a "wish list" reflecting individual wants and desires. Comparisons with peers, the use of standard guidelines, and the application of best p ractices can play

a role in keeping the "needs" in line with reality. (This is a point at which academic leaders must be certain that they and their faculty colleagues are connected to colleagues beyond their campus, aware of the achievements of others pursuing similar educational and institutional goals.) Each item must be carefully vetted and justified in the context of the institutional mission and the consensus in regard to the academic plan. Finally, agreement should be arrived at in regard to priorities from that list, and this agreement document should be publicized widely. This is particular important in considering the major financial investments that are probable if new spaces for science are to take shape. The entire campus community must buy into the need, and this will only happen as they are convinced that addressing these needs serve the larger institutional mission and goals.

4) Alternatives for Addressing Needs

Once there is agreement on needs and priorities, campus leaders can explore alternatives for addressing the needs. Some alternatives might be operational: a change in the way in which rooms are scheduled, for instance; or the sharing of sophisticated instrumentation and equipment. Other alternatives may relate to the physical infrastructure, with little visible impact on the campus, while others may have significant impact on open space, circulation, aesthetics, and the campus as a whole. If this becomes the option, leaders will have to make decisions that address the domino effect that happens on a campus when a major improvement or new construction is considered.

Facility alternatives can vary in scale; they can be some combination of reallocated space and relocated functions requiring minor renovation, to significant renovation, to the construction of new space added to a building, to the construction of a new building. If a building has historic significance, restoration could be a major factor. Short-term solutions to nagging problems may surface at this stage, and leaders must be alert to this. Arriving at new spaces is, ultimately, an extended process, and some needs (student gathering spaces, more technological connections, classrooms with chairs on wheels) can be addressed quickly and at modest cost.

For many, this stage of the planning process is the most enjoyable and most exciting. New ideas and possibilities are explored. Large portions of the institutions community come together in small and large groups to discuss possibilities. The possibilities seem endless.

But they are not.

Just as the preparing of the list of needs should be done to avoid a "wish list," alternatives should be categorized by the degree of feasibility and necessity. The difficult part of this phase of the planning process is the selection of criteria against which the alternatives will be measured and judged. Criteria could include factors relating to construction, project, and operating costs; timing and phasing; the extent to which the alternative meets programmatic requirements; the extent to which the alternative meets specified spatial relationships and design goals; the extent to which the siting of a new building enhances the overall campus design; and so on.

An important reason to give serious attention to a wide range of alternatives is that as the project proceeds, unanticipated difficulties and opportunities will surface (not enough funds, an unexpected gift, a new faculty appoint-ment with research interests not served in planning, etc.). By having a wide range of alternatives already on the table, you will be better prepared to keep the project on schedule.

5) The Campus Plan

Once the above assessment of alternatives is complete, emerging from a broad-based, widely-participatory process, a campus plan begins to take shape. Often during this process, new alternatives have risen and others begin to connect in new ways. Finally, through fiat or consensus, one set of alternatives is chosen to address the defined needs and priorities. This then becomes the campus plan.

Since implementing at once all the elements of the campus plan is usu-ally impossible, campus leaders must set priorities to accomplish projects over a defined time period, ten to fifteen years. Most campuses reevaluate projects and their costs and benefits after five to seven years. Based on the needs and assumptions at that time, the plan is either confirmed or modified to reflect current realities.

Campus plans are usually summarized with graphics and text. Often the audience is both internal and external. For the college or university commu-nity, the plan is a record of the process, analysis, needs, alternatives con-sidered, and the plan itself. External audiences can be state offices respon-sible for funding or other governance entities, as well as potential donors.

The planning documentation will include sections on: context and back-ground, a description of the existing situation, a description of the analysis of current building and campus, an outline of programmatic initiatives and needs based on the institutional plan. There will also be a visual presen-tation of the campus plan, with a birds-eye view to illustrate the intention; there will be preliminary determinations about phasing and implementing the plan, along with the estimates of costs to be associated with each stage.

SUMMARY

Planning gives your institution an opportunity to ask fundamental questions about mission, program, fiscal resources, facilities, and environs. To be effective, planning must be participatory and involve those who will be affected by the plan—students, faculty, staff, and the community. Planning becomes the framework for addressing those questions in an integrated, open, and rational process.

Your campus, ultimately, is an expression of your mission and your educational philosophy. It reveals your understandings about the relationship between how and what and where students learn.   Those of us involved in this aspect of Project Kaleidoscope over the past decade have come to see how the planning of new spaces and structures for science can be a defining moment in the life of the institution. This is so because in this planning, decisions will be made that give evidence of how your particular college and university is responding to the contextual changes mentioned earlier—serving all students, infusing the learning environment with the excitement of discovery, accommodating new directions in science.

References
Keller, G. *Academic Strategy*, Baltimore, Md.: Johns Hopkins University Press, 1983. Millett, J. "Relating Governance to Leadership." In P. Jedamus and M.W. Peterson (eds.), *Improving Academic Management: Handbook for Planning and Institutional Research*. San Francisco: Jossey-Bass, 1980

Diagram One: Planning Process
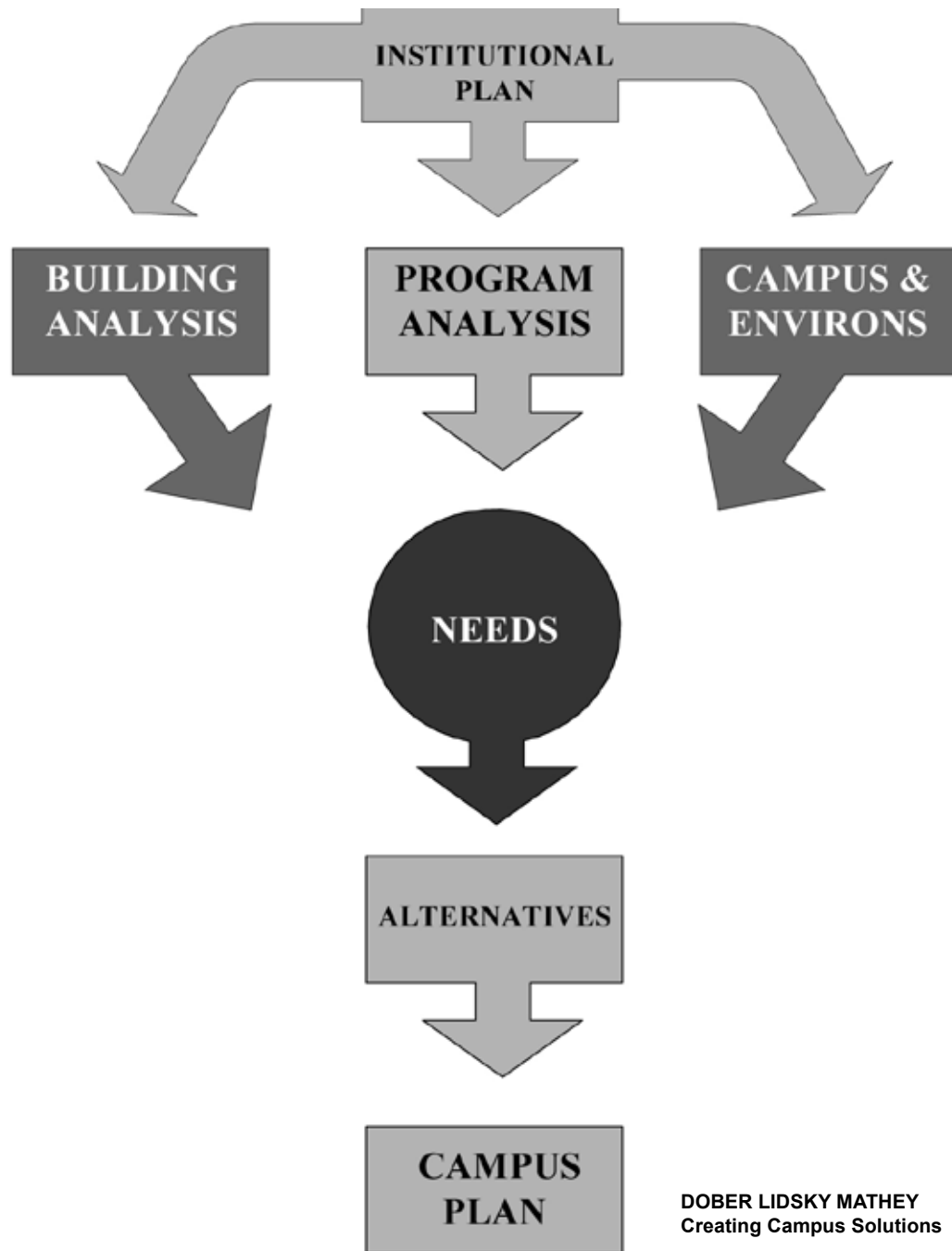
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