

FOUR

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

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Strategic thinking and effective leadership are essential to the pursuit of research competitiveness, as discussed by Irwin Feller and Harry Lambright in previous chapters.¹ Strategic planning is the activity through which academic leadership develops and applies strategic thinking to improve an institution's academic performance, including its research competitiveness.

Two axiomatic observations provide the premises for the following discussion. First, in the absence of a strategic plan, all management is reactive. A reactive approach may be adequate for maintaining the status quo, and even for maintaining one's relative position in a time of change. But the achievement of institutional progress relative to one's peers requires a vision of a future state, the articulation of goals and objectives for achieving that vision, and an implementation plan for realizing those institutional goals.

A second, corollary observation is that the absence of a strategic plan is itself the equivalent of a plan. It is a plan to devote institutional resources on an ad hoc basis, based on immediate needs. In the absence of an open, participatory planning process with built-in reviews, it is likely to be a plan to maintain or reinforce existing power relationships and current activities, without a considered re-

gard to a changing environment. It is, at best, a plan for maintaining the status quo and, perhaps, a plan for achieving mediocrity. Universities that are serious about enhancing their academic stature in general, and their research competitiveness in particular, must engage in strategic planning in order to achieve their goals.

THE VALUE OF ACADEMIC STRATEGIC PLANNING

In recent years, many academic administrators have come to realize the value of strategic planning. In the first half of the 1990s, declining state budgets for higher education and a growing political concern with fiscal accountability in many state legislatures led to a renewed emphasis on strategic planning in many public university systems. In some states, legislatures actually imposed planning and reporting requirements on state universities in an effort to promote accountability. In other cases, universities turned to strategic planning as a preemptive way to exhibit a commitment to the sound investment and expenditure of the public funds entrusted to them.

At the same time, certain changes in the global technological context have had important impacts on all of the university's three traditional missions of education, outreach or service, and research. New information technologies, most notably the emergence of the World Wide Web, have begun to change the way universities disseminate knowledge through their education and outreach activities. Distance education, Web-based instruction, and off-campus access to libraries and databases have become common academic practices. Advanced networking technologies have also begun to influence the ways we do research. They have facilitated inter-institutional collaboration, supported remote access to field sites, and made possible laboratories housing remotely accessible scientific instruments (the use and expense of which can be shared by several institutions).

The need for technological innovation represents one of many competing demands on a university's resources. Academic administrators must choose when and how best to invest limited resources in the new technologies that make up the modern educational and research infrastructure. But other political and societal

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

changes impose their own demands on the academy's resources. The growth of knowledge and continuing trends toward specialization require strategic planning in curriculum and research. Few, if any, institutions have the resources to stay at the leading edge of all fields of human knowledge. Those schools that wish to serve as research institutions must choose where to invest their resources in order to work at the leading edge of selected fields of inquiry. Strategic planning is necessary to anticipate emerging opportunities for competitive advantage, to create synergies among research programs, and to forge collaborations where needed to achieve breadth in the approach to a specific research problem.

These decisions, moreover, must be made at a time when the research role of the university is shifting to emphasize new roles in technology transfer and in local and regional economic development. The university's research and outreach missions are being combined in new ways in order to serve new constituents. At the same time, global political and economic changes are creating a new context for academic research. The past decade has seen the end of the Cold War and a declining emphasis on technological innovation for defense. Emerging fields such as biotechnology, advanced networking, and nano-materials science are providing new opportunities for research and innovation, while emerging global problems in areas such as epidemiology, climate change, and declining biodiversity are shifting research priorities in other fields. Such changes in the social, political, and intellectual environments make the pursuit of the status quo a risky strategy indeed, whether pursued by intention or default. They also present opportunities for advancement for those institutions that can flexibly plan and successfully act to achieve academic and research competitiveness in a changing world.

Recent publications express a growing recognition of the importance of strategic planning in the academic sector. For example, in the June 30, 2000, edition of *The Chronicle of Higher Education*, Peter Schmidt observed:

More states than ever are using strategic...plans to chart a course for their public colleges, mainly out of a belief that the institutions must be better positioned to deal with rapid

technological and economic change. At least two dozen states or university systems are putting together such plans right now. Although such plans have been put into effect in years past, many were dismissed as vague or unrealistic, and simply sat on a shelf. What is different now, say many state higher education officials, is the sense of urgency behind the planning efforts, which stems from a belief that public-college systems face bigger challenges and more competition than ever before.

The latest plans also are structured much more consciously to bring about results, with clearly defined objectives and mechanisms for holding higher education officials accountable for meeting specific goals. (1999, p. A27)

The global scope of the movement toward accountable academic strategic planning is illustrated by this assessment by the Australian Department of Education, Training and Youth Affairs (1999, p. 22):

The steady state university belongs to a long gone era, if it ever existed at all. A modern university cannot possibly survive without at least a sense of direction and a capacity to manage change—it would be extraordinary if it tried. Strategic planning involves the management of change.

A search of university Web sites confirms that a large number of universities in the United States and abroad are currently engaged in strategic planning. A number of books and guides have been published on the subject of academic strategic planning (e.g., Perlman et al., 1988; Rowley et al., 1997; and Dolence et al., 1997). One can detect in these sources a general movement to improve the strategic planning process as practiced by the academic community.

This chapter considers academic strategic planning as a tool for achieving research competitiveness as one of the academy's missions. It first examines general issues of academic strategic planning and then considers aspects of strategic planning that are of special importance to the research mission.

STRATEGIC PLANNING HIERARCHIES

In complex institutions such as research universities, strategic planning is a hierarchical activity. It takes place at several levels. A complete academic strategic plan might include planning documents at the levels of the department, the college, the university, and the university system, as well as the various support and administrative offices. Elements of a complete plan will address educational, outreach, and research missions; the interactions among them; and infrastructure support issues at each level, as appropriate to the unit preparing the plan. For public universities, research planning may also be linked to state science and technology plans or economic development plans. In recent years, for example, the National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR) has encouraged strategic science and technology planning at the state level in order to promote public stakeholding in academic research, and to provide a context for evaluating resource allocation at the university and unit level.

The inevitable conclusion is that strategic planning for research competitiveness cannot be effectively conducted in isolation. Research is but one mission of the university. Synergistic interaction among the university's missions and the effective allocation of resources requires horizontal collaboration with education and outreach. Moreover, decision making and implementation for research take place at several levels, typically including the university level, the college level, the academic-unit level and the level of principal investigator. Research engages a broader range of stakeholders, including participants (students, postdoctoral fellows, junior faculty, and technical staff), customers (e.g., business firms and nonprofit research centers), and supporters or investors (alumni, state government offices and legislatures, and the taxpayers they represent). All of these constituents have potential roles in the strategic planning process.

On the one hand, the hierarchical nature of strategic planning creates difficulties for the academy because it requires both horizontal coordination and vertical reiteration with other elements of the hierarchy in order to complete the planning process. On the other

hand, these internodal relationships provide for a natural and reasonable division of labor in the planning and review process. At any rate, the complete process of institutional strategic planning requires a level of communication and consensus across unit boundaries that represents a healthy counterforce to disciplinary introversion or isolation. An effective plan at any level must take into account the unit's relationships with its peers toward the achievement of goals at the next higher level. It must address infrastructure issues that are common to many units, and it must allocate resources to its own constituent units and activities. In addition to such vertical communication, strategic plans must support horizontal communication among cooperating departments or units at any level. One desirable byproduct of effective horizontal coordination is a structurally reinforced opportunity to consider collaborative and interdisciplinary activities (between universities, colleges, or departments) as part of the strategic planning process.

The hierarchical nature of institutional strategic planning raises some important issues for academic institutions. The academy is traditionally antipathetic to hierarchy, and embraces competing values, such as intellectual autonomy, that can hinder collaboration. The next section will consider these issues in more detail. Here it is important to note that vertical coordination need not be an authoritarian process, but should be one of consensus building. Institutional vision, priorities, and goals are articulated at the higher levels, through a consultative process that solicits contributions from constituent levels. Once established, institutional values and goals provide both guidance and context for articulating objectives and allocating resources at the next lower level. The formulation and implementation of specific actions is concentrated at the unit level—departments, centers, and offices. Most of the actions at higher levels in the hierarchy are in support of activities in the units. It follows that the strategic planning process must be a reiterative one. From the top down, it proceeds from an institutional vision and general goals to specific tasks that instantiate and seek to achieve that vision and those goals. From the bottom up, the emphasis is on developing, nominating, and selecting specific activities, consistent with available resources, that reflect the vision and goals of the next higher level.

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

Because strategic planning for academic research competitiveness ideally takes place within a broader institutional context, the following two sections address systemic issues of strategic planning. A final section considers the role of strategic planning as a vehicle for pursuing the strategies of research competitiveness identified by Feller in Chapter 2.

SYSTEMIC ISSUES IN ACADEMIC STRATEGIC PLANNING

Strategic planning is fundamentally concerned with the allocation of resources toward the achievement, over time, of institutional goals and objectives. Inevitably, the allocation of resources is threatening to some—in particular those who fear that they stand to lose resources. It may also be threatening to those who fear they will be excluded from the planning process, that their voice will not be heard, or that their interests will not be treated fairly. Other such factors may discourage participation. For example, both Morriss and the Australian Department of Education, Training and Youth Affairs note a brand of faculty skepticism about the value of strategic plans based on an orientation to discipline as the principal professional identification, or more generally on a failure to understand the broader social and contextual issues to which academic administrators must respond. (Anderson et al. 1999, p. 22; Morriss, 1998, p. 4) The first systemic issue of academic strategic planning is, therefore, one of support and participation.

If strategic planning is perceived as a threat or as a source of conflict it is natural to resist it. When strategic planning is adopted in the face of resistance, distaste for conflict can undermine the planning process. Indeed, many first-generation academic strategic plans appear to have been designed to avoid the possibility of conflict. It is easy to find plans that undertook the easy, first steps of articulating a vision and establishing lists of goals and objectives, but failed to undertake the crucial tasks of establishing priorities, allocating resources, and ensuring responsibility and accountability for action. Unfortu-

nately, such exercises have little value as strategic plans, and their inevitable lack of success serves to undermine the confidence of stakeholders in the strategic planning process.²

Strategic planning is not itself an inherent source of conflict, however. The core conflicts that are embodied and addressed in a strategic plan exist in the absence of the plan, although the plan may bring them to the surface and make them more visible. Competing and emerging demands for resources in the face of a changing political, social, economic, and intellectual environment are facts and situations that must be recognized and managed. If they are not articulated and managed through an open, strategic planning process, then they will inevitably be managed or mismanaged in some other way. Shooting down the strategic planning process is like shooting the bearer of bad news. It is ultimately an act of frustration that may make the problem worse, rather than a creative act that freshly confronts the underlying issues.

This is not to say that the strategic planning process is unproblematic, once an institutional commitment is achieved. In addition, certain systemic, methodological issues must be considered in strategic planning in an academic context. Those issues are made salient by a comparison with strategic planning in business and in the military.

In all cases, strategic planning concerns the allocation of resources to achieve institutional objectives over time. The business case is the simplest one because the products of the activity are readily identifiable and often tangible. The measure of effectiveness—return on investment—is a singular one, with a standard and universal methodology for its application. Moreover, the organization and governance structure of a business firm is ideally one in which responsibility and accountability for implementing the activities of a strategic plan are apparent and of consequence. Salaries, promotions, and job security depend on effective participation, and they provide a motivation for collaboration and zeal.

The situation is more complicated in the military sector. The goals of military strategic planning in democratic countries are readily recognizable. First, the military seeks to prevent military conflict

through readiness, and second, to win a conflict should the first objective fail. Although the goals are straightforward, the stakes are so high and the political context so complex that military planners must come up with alternative measures of effectiveness as proxies for battle, victory, and defeat. Readiness ratings, military exercises, computer simulations, and a complex series of standards, tests, and evaluations provide these pragmatic measures of effectiveness at different levels of the military hierarchy, from platoon to joint military commands. Although these measures lack the scientific cachet of the discipline of economics, taken together they do form a set of community-wide paradigms for measuring military readiness and capability and assessing the impacts of a particular investment strategy. As in the business case, the military emphasizes responsibility and accountability at each level of command.

The academic enterprise is more complex. Its product is the creation and dissemination of knowledge, generally through research, education, and outreach. No universally agreed upon science exists for measuring the return on investment in knowledge production or dissemination. There is no paradigmatic way to compare the impact of a marginal investment in research vs. education or (traditional) education vs. outreach. Unlike the business practice of strategic planning (and to an extent much greater than in the military case), academic strategic planning faces a systemic problem in measuring the results of resource allocation decisions. The problem of how to measure outcomes must be resolved as part of a planning process. This problem is inextricably tied to the problem of accountability, since one must be able to measure outcomes in order to hold anyone accountable for them.

Measures of effectiveness for investments in knowledge creation and dissemination may be manifold. They may be indirect. In the absence of an *a priori* convention or paradigm, however, they must be articulated and agreed upon by each academic community as part of the planning process.³ In the absence of a universal convention, it is important that an academic community reach local agreement on the appropriate measures of effectiveness and that the measures be articulated clearly in the strategic plan.

It would seem obvious, but perhaps it is not, that appropriate measures are those that can be related to the academic mission of knowledge creation and dissemination. Because the business criterion of return on investment is both well-known and universally accepted within the business domain, and because there is an appropriate concern with holding state universities accountable to the people and governments that support them, there has been some tendency to apply economic measures of effectiveness to the academy. But this is a naïve approach. It makes no more sense to judge the academy or the military using monetary return on investment than it does to judge a business firm in terms of victory or defeat, or the extent to which it creates and disseminates knowledge. In the academic context, the “marketplace” of ideas and “return on investment” are metaphors, not to be taken literally. The fundamental returns on our investments in education, research, and outreach cannot be captured in terms of profits, although they may sometimes be monetized to establish a common unit of measure for comparison (for example, dollars per student or dollars per year). The fallacy is evident in the example that educating a student in English literature is more productive in terms of dollars per student than educating a student in chemistry or engineering, although tuition income is the same. It would be an erroneous conclusion that a university should drop engineering and chemistry to focus on the field of English, which provides the highest return on investment. More subtle and more appropriate measures are needed. The need to establish appropriate measures of effectiveness is the second systemic problem for academic strategic planning.

The third systemic problem is the tension between traditional academic values and governance on the one hand, and the accountability of a public institution responsible for the expenditure of public funds on the other. The traditions and governance of academic institutions were established in this country in the 19th and early 20th century based, in part, on European precedents extending centuries earlier. They are largely concerned with the protection of intellectual freedom for the individual and the academic community. They focus

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

on individual intellectual responsibility and accountability to a community of scholars.

During the last century, however, universities have become more universal, expanding their educational missions in ways that emphasize vocational as well as intellectual education. Student bodies have grown to include not only a more diverse and larger body of undergraduate students but also working professionals and graduate students with vocational goals outside the academy. During the same period, academic research embraced the role, articulated in 1945 by Vannevar Bush, to become an agent of national development in defense, health, and industry. State governments have also assigned new roles to state universities and Land Grant institutions. In short, by expanding the breadth of its constituency and its role in the national economy, the academy has outgrown its traditional institutions of governance and patterns of accountability. In particular, traditional departmental organization and the safeguards of intellectual freedom and autonomy have been used as a conservative force. These traditional values can hinder organizational change intended to facilitate the academy's ability to meet the needs of newer constituents.

If the academy is to fulfill its evolving social roles, it is inevitable that it will find ways to satisfy the demands of its constituents for accountability for the resources they provide. The only sustainable alternative is to abandon those roles to other institutions. The systemic problem and corresponding tensions evoked by this issue are well illustrated by a planning document from West Virginia University (2000, p.1.):

Times are changing and that is particularly true for institutions of higher education. The demands and needs for our contributions (products) have never been greater. New organizations have assumed our teaching-learning role, a franchise we recently held in an uncontested manner. The global economy is no longer a vision on the horizon; it affects us in our daily choices. Our supporters require results at a pace unfamiliar to our traditional processes. We are in an age of accountability. Our traditional methods are under stress in

the face of new (and accepted) technologies. In short, we are living in a fast-paced, changing environment. Our circumstances require a different approach to planning.

The first systemic problem of academic strategic planning, then, is to ensure a consensual planning process that minimizes potential threats to participation and works to resolve conflicts among participants. The second and third systemic problems represent potential sources of conflict to be resolved as part of the planning process. The selection of measures and the assignment of responsibility and accountability for outcomes will become contentious when they evoke conflicting values or interests within the academic community.

One way to avoid conflict is to avoid addressing the issues. Conflict avoidance may be one reason that in the past strategic plans have created lists of objectives without proceeding to consider measures and accountability for achieving them. But because the incentives for strategic planning have become so strong in recent years, some universities have made concerted efforts to resolve these problems. The following section draws upon publicly available documents to explore some of the ways universities have addressed these problems.

ADDRESSING SYSTEMIC ISSUES

Information Technology and Consensual Planning

New technologies of networked communications can support and facilitate a consensual planning process and thus help to make academic strategic planning a more feasible practice. All university campuses have by now implemented comprehensive Web sites. Most universities provide universal access to those Web sites for members of the academic community, including students, faculty, administrators, and staff. Off-campus constituents such as state government agencies, business firms, and legislators can gain access to open Web sites, which gives them immediate and interactive access to documents, surveys, listservs, and e-mail supporting the strategic planning process. As familiar as these tools have become, it is worth noting that their universal availability is a new phenomenon which did not

exist during the last round of a typical strategic planning cycle, usually 5 or 10 years ago.

By integrating the tools of strategic planning and Web-based communications, universities can overcome many of the barriers to horizontal and vertical cooperation and provide a planning process that is highly consensual. Posting draft planning documents on the Web and providing for public comment provides an opportunity for all stakeholders to participate in the process. The technology readily supports a reiterative process of progressive drafts with revisions at each stage clearly identified, and provides for an audit trail of the evolving plan. Moreover, this is an open process, which should minimize any unit's concerns of being overlooked, uninformed, or left out. It is a process where those who care about an issue can be heard, while those who do not can abstain. Reference documents such as mission statements, vision statements, recommended measures of effectiveness, or evaluations of context are readily available to all who participate in the process. Far-flung units can readily interact, face-to-face committee meetings can be minimized, and the process of coordination can be made more timely.⁴

Although the extent of use and level of sophistication vary widely, a tour of university Web sites and a search on the term "strategic plan" quickly reveals that many institutions are already employing networking technologies to support the strategic planning process. Many universities are using the Web to disseminate plans at the end of the planning process. Others, including Pennsylvania State University and Carnegie-Mellon University, use the Web to provide information to their communities for use in the strategic planning process. Some, such as the Universities of Nebraska and West Virginia, have used the Web to communicate information vertically from system to campus-level planners. Others, including New Mexico State University and Georgia State University, posted draft plans for comment by the university community and the public. Many individual units, such as Auburn University's Office of the Vice President for Research, have posted drafts of their sections of a plan for information or for comment.

Few, if any, universities have yet employed the full capability of network technologies to support the strategic planning process, but all of the components are there, and the strong trend is toward increased use of information technologies to support strategic planning. The first systemic issue—ensuring a consensual planning process with community support and participation—can be addressed and mastered using increasingly familiar and widely available network technologies.

Benchmarking and Peer Review to Measure Outcomes

Thomas Kuhn suggested that the difference between the sciences and other practices is that the sciences have achieved consensus regarding a set of paradigms—exemplary approaches to problem solving. Practitioners thereby avoid the need to defend their methods and can get on with their work. (1996, p. 13) Since there is no science of applied epistemology, academic strategic planners will need to select, present, and defend their methods as part of the strategic planning process, unlike business planners who can draw on economic paradigms for measures of effectiveness.

Since profits are not the goal of the academy, economic measures such as return on investment are inappropriate. Although both sociologists and economists have studied aspects of knowledge production in recent years, there is no social science comparable to economics for measuring the increase or dissemination of knowledge. Over the years, however, the academic community has developed two methodologies or practices for self-evaluation that can be useful in strategic planning: benchmarking and peer review. These familiar methods can provide a basis for accountability in academic strategic planning, as well as provide the means for the quantitative and qualitative evaluation of strategic investment outcomes, based on a comparison with community standards.

Benchmarking and peer review are both comparative methodologies. In peer review, the comparison is mediated through the professional experience of the peers who compare the activity at hand with all of those in their individual and group experience. Some types of benchmarking involve the direct comparison of institutions. This

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

method typically involves specifying the peer institutions and then comparing such measures as numbers of graduates, books, or research papers; dropout rates; research expenditures; or mean time to graduation. This kind of comparison might be useful for articulating targets and milestones, but it is probably not appropriate as a method for the direct evaluation of strategic planning outcomes. For example, it would be reasonable to establish a target for increased research grants based on a knowledge of grants at peer institutions. Evaluation of results would then proceed by comparing outcomes over time with the target figure. But too many unaccountable variables exist to justify the use of direct benchmarking in this case (e.g., surpassing a particular peer institution in research grants within 5 years).

Benchmarking as an element of strategic planning, therefore, like peer review, is a method of evaluation where the norms and values of the community provide a standard for comparison. Where peer review provides a more holistic and qualitative evaluation of a knowledge-producing activity, benchmarking provides a more quantitative and reductionist approach. The two methods can work well together. Part of the strategic planning process should consist of specifying in advance what combination of measures will be used for each activity and objective that is part of the plan. Although consensus or agreement on measures cannot be taken for granted, the familiarity of these methods to the academic community should facilitate the building of consensus on appropriate measures during the development of the plan.

Benchmarking has the appeal of simplicity and directness. Benchmarks such as enrollment, graduation rate, or student-faculty ratio are easy to construct, readily comprehended, and immediately comparable to target values. Most activities, however, do not have a single, uncontentious measure to choose as a benchmark. Multiple criteria are generally preferred in order to characterize or to bracket the results of the activity. Part of the necessary agreement on measures is the selection of appropriate benchmarks.

As academic institutions have come to realize the importance of setting priorities and measuring outcomes, academic administrators have turned their attention to the selection of benchmarks. Be-

cause many universities share similar goals, activities, and values, it stands to reason that the benchmarks developed by different universities will tend to converge on a relatively small set of measures. Differences in context will lead to differences in weighting, and even in selection of benchmark criteria. These selections and relative weights cannot be taken for granted, and must be identified as part of a strategic plan. But the selection process can be simplified and facilitated by drawing upon the prior research and knowledge of peer institutions.

An exemplary case is the effort of the University of Nebraska's Commission for Development of Criteria for Evaluation and Prioritization of Academic Programs (2000). Reported in draft in April 2000, this effort is working to develop a common set of evaluative criteria for academic strategic planning on all campuses of the University of Nebraska system. The effort represents a conscientious attempt to achieve accountability at the level of the academic program in the current round of strategic planning at the university, taking as its starting point system-level mission and vision statements and the prior-round plans of the four system campuses. The document identifies nine general (categoric) evaluation criteria and then expands each of these into a set of "specific indicators," most of which have the form of quantitative benchmarks.

At a different level in the strategic planning hierarchy, a group at the University of Florida has recently proposed a set of 10 benchmark measures to gauge the return on investments at leading research universities. (Lombardi et al. 2000) Although these performance "indicators" were not developed specifically for strategic planning, the authors of the report, titled *The Top American Research Universities*, explain that, "Universities that seek to rise into the ranks of the nation's elite research institutions need reliable measures of performance that will reflect their success in the competitive higher education marketplace." (p. 6) In effect, they are proposing a set of paradigmatic benchmarks for strategic planning for research competitiveness at major universities. The ten benchmarks or indicators they propose are presented in the figure below.

Figure 1. Indicators of Performance

(Lombardi et al., p. 9)

Total research expenditures (\$/yr)
Federal research expenditures (\$/yr)
Endowment assets (\$)
Annual giving (\$/yr)
Faculty members in the National Academies (#)
Faculty awards (#/yr)*
Doctoral degrees (#/yr)
Postdoctoral appointees (#)
Entering freshman SAT scores (median)
National merit & achievement scholars (#)
* From 23 identified sources

Clearly neither of these proposed sets of benchmarks is canonical. Different universities and units will select different benchmarks for evaluating their progress based upon differences in mission, vision, and values. Each institution, perhaps each activity, that participates in a strategic plan will want the option to identify, defend, and negotiate its preferred set of measures. But exemplars exist, even though they are not universal in scope, and precedents are common. The process of selecting benchmark measures will more often resemble selection from a menu than construction from a whole cloth. Given the renewed emphasis on measuring performance as an essential part of strategic planning, and given the common characteristics of many universities, it may be that a set of paradigmatic benchmarks will emerge—more likely several sets for different kinds of universities. Until then, adoption and specification of target benchmarks of performance as part of the strategic planning process can provide a viable method for measuring the results of strategic investments.

Peer review is already a common academic tool for evaluating proposals and publications. In peer review, a panel of knowledgeable practitioners judge a document or text and the activity it repre-

J. SCOTT HAUGER

sents against the standards of the community and against any additional criteria (boundary constraints) established by the journal or solicitation. Sometimes the evaluation is more directly comparative, for example, when a proposal is in competition with others. For large grant proposals, peer review may include a site visit to extend the evaluation beyond the representations of the text.

It is a straightforward extension of these uses of peer review to the support of strategic planning. Peer review can be used to evaluate proposals for inclusion in a strategic plan in much the same way it is used to evaluate grant proposals. Peer review can also be applied to assess the outcomes of strategic investments, especially when the investment is in a complex project with multiple objectives. Over the last 5 years, AAAS staff has had the opportunity to observe and then to advance the use of peer review in these kinds of applications within the context of the NSF EPSCoR program.

In recent years, the major thrust of that NSF program has been to support research through long-term infrastructure grants, with cost sharing by the EPSCoR states. For at least six years, NSF has required states participating in EPSCoR to prepare their proposals within an explicit context of a statewide, strategic, science and technology plan. After the AAAS Research Competitiveness Program was established in 1997, several state programs requested AAAS to provide an evaluative review of centers that were established under previous infrastructure grants. For example, some of the earliest reviews were requested by the Optical Technology Center at Montana State University and the Spatial Data Visualization Center at the University of Wyoming. In both cases AAAS assembled a panel of three directors, or former directors, of similar centers. The panels reviewed documents, conducted interviews on-site, and prepared an evaluative report. Although these *post hoc* reviews were not conducted within the explicit context of strategic planning, in retrospect that is the function they served. The demand for such review has been such that AAAS established a Research Competitiveness Service in 1999 to provide expert support to any institution.⁵

It would be a simple and appropriate step to integrate such reviews into the evaluation segment of the strategic planning pro-

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

cess. According to this method, strategic plans would articulate desired outcomes that would be reviewed at a target date by a panel of peers. These targeted outcomes would typically be complex, multivariate ones subject to professional judgment. Examples might include, “To establish a nationally competitive research center in field X,” or “To provide unique regional resources for the study of Y.” Such general outcomes would be coupled with appropriate quantitative measures in the form of benchmarks to provide a rich interpretation of the outcome of a strategic investment.

Peer review has also been adapted to support the establishment of priorities and thus the allocation of resources in strategic planning. Many of the state EPSCoR project directors have approached their NSF infrastructure grant proposals as a strategic planning process. They invite stakeholders across the state to nominate strategic investments for consideration as part of the state infrastructure grant proposal. Some states have used a formal, internal peer review process to assign priorities to the proposed investments. More recently, some states, including West Virginia, Kentucky, and Idaho, as well as Puerto Rico, have called upon AAAS to provide an external peer review of such investment proposals as part of the strategic planning process.

The extension of peer review to strategic planning is not a new practice. Many individual academic administrators have used ad hoc panels to review their projects, and senior advisory panels sometimes provide a critical evaluative function. The final step in the adoption of the practice of peer review to strategic planning is to specify within a plan that peer review will provide a measure of outcomes. This would include the specification within the plan of the time for the review and an identification of the specific milestones, objectives, and issues to be reviewed (as always subject to modification based on lessons learned). It would include the allocation of resources for the cost of the review.

As an important note, “peer” review might be a misleading label for this process, although it is a label that is otherwise useful. As traditionally used, professional peer review refers to judgment by other professionals in a closely related practice. For some reviews,

this is still the case. Many academic enterprises today, however, are multidisciplinary. Even many departments are, in effect, multidisciplinary. A peer review of an anthropology department, for example, should not include a team composed only of physical anthropologists. In selecting a “peer” review panel for a complex or multidisciplinary enterprise an element of art, and of negotiation, is necessary. The members share the characteristics of being accomplished professionals, but often in different fields, so that their interpretations are often complementary or cumulative rather than convergent on a single set of norms and standards. The members of these review panels are “peers” in the original, social sense: they are of the same level of experience, competence, and authority as those being judged. But they are not peers in the professional sense of persons with a single, highly related technical background.

The results of peer review in strategic planning are advisory, not juridical. Nor should they be. Strategic planning involves an inherently self-evaluative process. Measures, however quantitative or precise, are selected and interpreted by the planners. Final responsibility for strategic planning lies with the beneficiaries of the plan, as described below. Their motive for integrity is built in. They are the ones who benefit from an honest evaluation and who suffer from the results of a bad one. Peer review provides them with a useful measure, one that is external, and for that reason, objective. Like all evaluative methods, peer review is fallible in several ways. First and foremost, it depends on information provided to the reviewers by the reviewed. It also depends on the dynamics of the on-site review process. It depends, to some extent, on the personalities, experience, and knowledge base of the chosen peers. For these reasons, among others, peer review is best used in conjunction with other indicators.

Nonetheless, peer review and benchmarking, taken together, provide the solid underpinnings of an approach to the systemic problem of measuring outcomes of investments in the creation and dissemination of knowledge in an academic environment. They are familiar. They are practical. They are relevant. They are both in the process of further development by the academic community, and models are readily available.

Responsibility and Accountability

Networking technologies can enable a consensual planning process. This addresses the first systemic problem of academic strategic planning. The use of benchmarking and peer review to measure investment outcomes offers a solution to the second problem. Taken together these practices provide a basis for addressing the third systemic problem, that of responsibility and accountability.

Implementing a method of measuring outcomes is itself a major step toward accountability. In the absence of criteria for success it is unrealistic to hold anyone to account. Every result is open to interpretation and counter-interpretation. Establishing measures and targets within a strategic plan provides the basis for accountability.

When measures of effectiveness are established as part of a consensual process, solutions to related issues of responsibility are also at hand. As a first order solution, areas of responsibility are set by job description. The areas of responsibility for the chair of the Physics Department are generally distinguishable from those of the chair of the Anthropology Department, and those of the Vice President for Research from those of the Dean of Students. Even so, there will be ambiguities, creative opportunities, and areas for negotiation, for example between computer science and computer engineering, or life science departments in the Colleges of Agriculture, Medicine, and Arts and Sciences. But more to the point, strategic planning requires commitment and responsibility not to a general area of endeavor, but for a specific task and a specific anticipated outcome.

The process of reiterative, consensual, strategic planning requires an individual holding a particular office or position to buy into a task, outcome, and measure, and thus to take responsibility for it. Accountability takes the form of task statements. In its simplest form:

Position P will be responsible for the achievement of task T to be accomplished by date D, with resources R and with target outcomes O, to be measured by methods M.

To achieve a measure of accountability, the incumbent of Position P must agree to the contents of the statement, and the state-

ment must be the product of an open planning process. Often, the statement will have been drafted by that incumbent, and survived the planning process unscathed. Other times, statements will have been drafted and proposed by others, either by a superior, a subordinate, or an external stakeholder. Sometimes variables will need to be adjusted. For example, outcomes or dates might be modified in the face of having resources less than originally proposed. Always, task statements will be in potential competition with others for a finite set of resources.

Open planning, of course, does not imply any change in governance or in responsibility for making resource allocation decisions. The responsibilities at issue here are those for the implementation of task statements. Deans and other administrators must still allocate resources. Faculty committees and senates must still approve plans. Task responsibilities must sometimes be assigned when no one accepts them voluntarily.

Open planning *does* provide an opportunity for participation, and all parties can nominate proposed tasks. It provides for review and comment by internal and external stakeholders before decisions are made final. It places a premium value on vision, goals, objectives, and even task statements arrived at by consensus. But when consensus cannot be reasonably achieved, and when resource allocations must be made, decisions are made in the traditional manner.

Individual responsibility for a task begins with one's position or office. It is enhanced by participation in framing and negotiating the task statement. It is sealed by acceptance of the task statement in its final form, as included in a strategic plan. No strategic plan should include task statements without the final agreement of the responsible incumbent. If a negotiated form of a task statement cannot be agreed upon, then either another incumbent must be found or a position created to take the responsibility, or the task statement must be omitted from the final plan.

Accountability follows the task statement. The strategic plan, so construed, has the nature of a best-effort type of contract. In return for the allocated resources and other considerations, the in-

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

cumbent will do his or her best to accomplish the task in the indicated way.

Human foresight is limited. Conditions change. Incumbents depart their positions. For these and similar reasons, reasonable accountability can be maintained only when tempered by flexibility and the mechanism of amendment. A robust strategic plan must include a mechanism for such amendments. A vital strategic plan must be regularly amended when changes occur, or else it will become obsolete and its provisions for accountability will lose credibility. When an incumbent retires or leaves, for example, the successor, working with his or her superior official should reaffirm or modify task statements, perhaps reassigning responsibilities, perhaps endorsing certain new interim tasks, perhaps eliminating others. Although a full review of such amendments is impractical, changes should be posted to the Web for a period of comment and review before becoming operational. As when a departing, elected congressman is replaced by an appointee to fill out a term, so these interim task statements should be subjected to the complete strategic planning process at the time of the next scheduled “election.” For this reason, as well as that of the current pace of change in the external environment, the strategic planning cycle should probably be a 5-year process.

Current emphases on responsibility and accountability for the investment of academic resources is such that at least three universities have adopted a more rigorous system than espoused here. Called “compact planning,” this method has been employed by the University of Minnesota (1999), North Carolina State University (2000), and the University of Texas—Austin (2000). A description is provided by the Office of Budget and Finance of the University of Minnesota: (1999, p. 1)

In the fall of 1998, the University of Minnesota launched substantial changes in its strategic planning process and the tools used for University management. The University moved to a system of agreements, or compacts, between the administration and each of the campuses, colleges, and many of the University’s support units.

The compact process is designed to align the goals, directions, and overall investment strategy established by the President and Board of Regents with the academic priorities established within each unit by deans, directors, faculty, and staff. Through this process, the goals of decentralization of authority and responsibility to campuses and colleges are achieved, yet these decentralized efforts and investment strategies are organized through the compact process around broader University themes such as those established by Board and the President through the capital request, the academic supplemental request, and the biennial request. Furthermore, unit and University accountability is stressed, as the compacts contain specific outcome measures and indicators of progress (linked to the University's critical measures), emphasizing quality, efficiency, effectiveness, and service.

As currently implemented, compact planning seems to emphasize hierarchical relationships, in that the compact is a formal agreement between an incumbent and his or her immediate superior, rather than a less formal agreement between the incumbent and the community at large. Compacts are for a one-year period. This time period is perhaps advantageous for formal accountability, but too short a horizon for strategic planning. Although compacts are meant to be based on some sort of strategic planning, it is unclear how compact planning and strategic planning will relate in practice.⁶ There would seem to be some danger that competing time demands will vitiate strategic planning at the expense of the short-term demands of the compact. Although open participation might be included in the compact planning process, it does not appear to be a core component.

Compact planning emphasizes accountability at the expense of other, more traditional, academic values. On the other hand, if the academy resists the acceptance of accountability in strategic planning, it is at risk of having accountability imposed by concerned administrators, state legislatures, trustees, or other stakeholders. By addressing the three systemic issues of academic strategic planning—providing for a consensual planning process, identifying appropriate measures of effectiveness, and ensuring responsibility

and accountability within the constraints of academic traditions and governance structures—we can establish an important practice for academic progress generally and for achieving research competitiveness in particular.

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

Some General Considerations

The site for coordination of strategic planning for research will vary by institution. Research universities may assign the task to the chief research officer, the Vice President, or the Vice Chancellor for Research. Smaller schools may assign the task to the Provost, a dean, or an experienced researcher. Colleges without a substantial research activity might assign research planning to each department chair. This section will discuss centralized coordination of planning as in the case of a Vice President for Research (VPR).

Other key contributors will include department chairs, center directors, and principal investigators, as well as units involved in knowledge dissemination, such as intellectual property and technology transfer offices. The content of a strategic plan may obviously include the establishment of new capabilities, new centers, and support offices. In a consensual approach to planning, as described above, the Vice President for Research works with these colleagues to articulate and refine a set of goals and objectives that reflect the university's mission, goals, and general priorities for research, consistent with anticipated resources. The VPR may pre-allocate resources by objective, or may defer allocation to a later step in the process. At any rate, the process should be a flexible one, able to accommodate new ideas and additional resources that emerge during the planning process, since in research many participants bring external funding resources to the table with them. The individual units will articulate and nominate local objectives and task statements intended to achieve those objectives. Presumably, the proposed task statements will exceed the number of activities that can be supported, and allocations and priorities will then be negotiated and decided at appropriate levels.

In addition to such vertical communication, research planners must coordinate horizontally. At the university level, this may mean coordinating the plan with other universities and research institutes, perhaps under the rubric of a state science and technology plan. It will also mean considering research goals and objectives in light of those for education and outreach. For example, the research mission and goals, some objectives, and task statements will normally support graduate and undergraduate education. Collaborative and interdisciplinary research will also be areas for coordinated task statements, whether between units, colleges, or universities. An open, Web-based process can support strategic planning of this kind, allowing access for review and the contribution of ideas from all interested parties.

The price is an institutional willingness to support a complex and extended planning process based on substantial support from information technology. The institution must also be willing to take the necessary time for reiterative planning, and accept the political consequences of an open process of negotiation followed by the necessity of identifying priorities and making resource allocation decisions. Because of the competing relationships and obligations of principal investigators to their disciplines and to their sources of external research support, the burden of institutional leadership and coordination is likely to fall upon the VPR. It would appear that the VPR's championship is a necessary prerequisite to a successful strategic research plan. Reciprocally, effective strategic planning provides a VPR with a tool for coordinating these disparate elements, agents, and resources and applying them to the achievement of institutional goals.

Although a strategic research plan will preferably be an integral part of a broader university plan, under some circumstances it might be desirable to develop an autonomous research plan. Information technology support for an open planning process is best provided at the university level, but the research community is generally competent enough in information technologies to provide the level of support necessary for its own planning process. Support of the President and Provost would surely facilitate horizontal communication with the other missions of the university, but researchers can independently seek input and collaboration from other communities.

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

With the VPR as champion, strategic planning for research competitiveness can be conducted as an autonomous activity, and a successful effort can inspire a broader, academic strategic plan.

Little more can be said about the strategic planning process in such a brief chapter. The rest of the story lies in the specific uses of strategic planning to meet local needs. Many resources exist for supporting those activities, including many documents available at university Web sites and accessible through their search engines. Many universities have in place a strategic planning process that can potentially be improved to provide a more effective plan, adopting some of the approaches outlined here.

I have tried to point out the value and the timeliness of strategic planning for academic competitiveness, with a special concern for research. I have identified three systemic problems that have hindered effective planning by academic institutions in the past. I have suggested that new networking technologies and improved methods for measuring the results of academic investments in knowledge production and distribution can provide solutions to those systemic problems. I have argued for an open approach to strategic planning that employs these methods, emphasizing both participation and accountability. The chief research officer of a university can be a champion and agent for change, applying these tools to improve the strategic planning process and thus to improve his or her university's research competitiveness.

By way of a conclusion let us consider how the strategic planning process might relate to the strategies for academic research competitiveness identified by Feller in Chapter 2.

A Consideration of Proposed Strategies

Feller's ten strategies for enhancing research competitiveness take the form of strategic goals, primarily at the institutional level, although some can pass directly down as lower-level goals. For example, increasing the number, size, and quality of research proposals, pursuing a research niche, or catching a new wave of science can represent general goals for a university, a department, or even a principal investigator. Other strategies discussed by Feller, such as build-

ing a medical school or bootstrapping from university resources, apply only at the institutional level. In all cases, however, achievement of the goals requires their translation into specific objectives and task statements, including the allocation of resources to the tasks.

Bootstrapping, for example, might begin with the allocation of university resources to specific research initiatives thought to have the best likelihood of a return on investment. Auburn University provides an excellent example of this general strategy in implementation. Under its “Peaks of Excellence Program,” Auburn taxed each unit of the university a percentage of its budget, and reallocated those funds based on a competitive evaluation of 5-year strategic plans from the departments. The initiative is providing more than \$17 million over a 5-year period to seven selected units. The Peaks of Excellence Program was presented in the FY00-05 strategic plan of the university’s Office of the Vice President for Research. The plan includes a task statement with identified resources, assigned responsibilities, target dates, and expected results. It does not specify outcome measures, except in a general way. The VPR’s plan is part of a university-wide strategic plan. Contributions from each vice president and college of the university are presented in a common format at the Auburn University Web site.

Only a small number of American universities have unambiguously identified nichemanship, another of Feller’s strategies, as a goal during their strategic planning process. The University of Houston—Clear Lake City identifies as one goal the pursuit of external research funds, “...matched to faculty expertise and targeted niches.” (Hodgin, 1998) An open letter from the President of Boise State University discusses Boise State’s “...research center that specializes on the first 500 meters of the Earth’s crust, ... a research niche that few other universities occupy.” (Ruch, 1999) Spelman College and the University of Georgia each refer to the goal of “...establishing a national research reputation in a particular research niche...” (Spelman College, 2000, p. 9; University of Georgia, 2000)

It is noteworthy that the University of Georgia has created a Vice Presidency for Strategic Planning and Public Affairs. This university’s extensive strategic planning process includes posting on

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

the Web the first, second, and final drafts at the college level, with a provision for public online comments on the drafts. The quality of the plans varies by college. Some articulate only goals and objectives. Others include the identification of resources by objective. The plans' outcomes and measures, however, are general, and are not related to individual tasks. In none of the posted materials for these plans is the general goal of pursuing niche research opportunities clearly related to an identifiable set of individual task statements.

Nonetheless, it seems likely that a larger number of universities than the few we have been able to identify are pursuing niche research strategies. Individual investigators and departments are often seeking a particular research specialization where they can make their mark. Nichemanship may be more common as an individual investigator's strategy than as a departmental or institutional goal. Yet the practice does exist at these higher organizational levels. Montana State University's Thermal Biology Institute, for example, has been creating a research niche shared by seven faculty members and centered on the study of thermophilic organisms found in the hot springs and soils at Yellowstone National Park. The University of Alabama—Huntsville has fostered research on aerospace fields based on a long relationship with the U.S. Army's Redstone Arsenal and the National Aeronautics and Space Administration. The University of Oulu in northern Finland has taken advantage of its location to implement a university-wide strategy of pursuing research on the polar regions—in the sciences, social sciences, and humanities.⁷ No doubt many other examples can be found. One advantage of an open, networked strategic planning process is its capacity to support the articulation, development, and elaboration of such goals and the allocation of resources to their support.

One difference between the niche and the bootstrap strategies is that the latter draws upon one or a small number of internal, university accounts. Strategic planning, in this case, consists primarily of determining how to invest those funds in the best way. At the university level, nichemanship is more a strategy of encouragement and coordination, requiring leadership in generating new funds from multiple sources centered on a common theme. It requires stimulat-

ing innovative research proposals by multiple investigators in new areas, while providing a sustaining vision to multiple participants and constituencies. This is a more difficult task than the allocation of available funds: it requires a champion. Where such entrepreneurial leadership exists, strategic planning should facilitate the undertaking, proving itself a tool for transforming vision and goals into accomplishable tasks and milestones.

This argument applies to other strategies discussed by Feller: At the university level, the strategic goals of interdisciplinarity, catching a new wave, collaboration, and emphasizing industrial and applied research are all of this coordinative type. They require not only the prioritized allocation of resources, but also integrative leadership from the VPR or another leader. More than bootstrapping, these goals can benefit from a strategic planning process (based on a network infrastructure) that supports horizontal and vertical communication among participants, and thus reiterative decision making among many actors. In particular, Web-based strategic planning can support the strategic goals of collaboration and industrial and applied research, by supporting planning at a distance with other institutions.

If any university is using such a robust, open planning process it does not readily appear from a search of the publicly accessible parts of the Web. Many universities have posted final or draft strategic plans for public access or comment (although many of these stop with a listing of goals and objectives and do not include resources, measures, or responsibilities). A few universities have used the network for some aspects of intra-campus communications during the planning process. Several multi-campus university systems, such as the University of Nebraska, West Virginia University, and the University of Hawaii, have come to rely on the Web for inter-campus communications as part of the strategic planning process. No universities appear to have extended an open planning process to include collaboration with other universities or industrial sponsors.

It may well be that some collaborative strategic planning activities are taking place in secure or private areas of the Web. As Anderson et al. reported in their study of planning at Australian universities:

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

Broadly speaking, there were three types of strategic plans in evidence:

- A publicly available plan setting out at least the university's mission, values, broad goals, and objectives. In some cases, the plan goes on to provide details of quantitative targets and implementation strategies, including responsibilities and timelines. . . .
- A confidential written plan, containing sensitive financial and operational information, possibly extending to planned ventures and partnerships of a commercial kind, and/or strategic alliances with other educational and research institutions in Australia and abroad. . . .
- A plan or plans not committed to paper but carried around in the heads of the vice-chancellor and other senior managers as appropriate. These plans [are] often termed the "real" plans, to distinguish them from the formal plans that inevitably accentuate the positive aspects of a university's future. (p. 13)

Anderson and his colleagues go on to point out that some public plans are,

...very full, containing a mission statement, vision statement, discussion of context, goals, strategies, targets, timelines, designations for people responsible for integration, links to budget, performance indicators, and procedures for monitoring—all in the published plan. (p. 13)

It is clear that the Australian Department of Education, Training and Youth Affairs supports an open planning process much like the one advocated here, with an integral consideration of outcome measures, responsibility, and accountability. But the use of network-based technologies to support planning brings a new dimension to the practice by making salient the issue of who should have access to information at different stages in the planning process. When an open, public planning process is employed, information or knowledge that is closely held becomes visible by its absence in the public forum.

The Australian study highlights one reason for limiting access to information during the planning process: the possibility that certain information or knowledge is deemed proprietary. Such constraints might apply to academic researchers collaborating with industrial partners. They might also be self-imposed, for example, when a university is in competition for grant funds and does not wish to provide information that may be helpful to competing universities in writing their own proposals. The question of changing academic norms for the dissemination of knowledge is beyond the scope of this chapter. It is an issue that transcends that of strategic planning. Presumably the concern for confidentiality in these cases is at the level of the task statement and its associated objective. It is hard to imagine, especially for public universities, that there are missions or goals that should be kept from public scrutiny. If certain objectives and task statements must be kept confidential, information technologies are such that these statements can be made accessible by password only and kept secure. Presumably there would be few of these confidential items. An open strategic plan would acknowledge the existence of any confidential task statements, which would be generally characterized in the plan.⁸ Any confidential task statements should be reviewed frequently and made public as soon as possible, such as after a proposal is submitted.

Issues of openness are also raised by Feller's ninth strategy, which he terms "political leverage," and which is commonly referred to as "earmarking." This strategy includes the pursuit of research funds through special legislation or non-competitive set-asides. Many universities pursue this strategy, some with great success. According to a recent article in *The Chronicle of Higher Education*, Congress awarded more than \$1 billion in earmarked funds to academia in the past year (FY 2000). (Brainard and Southwick, 2000, p. A29)

Of course, open competition for resources, so that the "best science" wins, remains a public norm of the research community, and earmarking is not a strategy that is always openly pursued. Few academic strategic plans identify earmarked funds as specific objectives. Task statements related to generating resources through earmarking state or federal funds are likely to be among those "...car-

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

ried around in the heads of the vice-chancellor and other senior managers.” One reason, no doubt, is that foreknowledge by competitors could provide them with means to counter the initiative in the political arena.

It would appear that an open strategic planning process might inhibit strategies and task statements that challenge community norms. Or, an open planning process might accelerate any ongoing process of changing values. In other words, an open strategic planning process might inhibit earmarking. It might help legitimate the practice by bringing it into the open. More likely, earmarking will remain off-line, in the domain of “real plans” carried around in the heads of senior administrators.

Nonetheless, it is clear that all of Feller’s nine strategies for research competitiveness can be articulated as goals in the academic strategic planning process. They are reducible to task statements by departments and other units in a reiterative strategic planning process. Most of them could benefit from development through a network-based, open, strategic planning process. For some, the leadership of the Vice President for Research is crucial, because they require the articulation of a vision and goals at the institutional level, combined with the coordination of many departments’ task statements, to instantiate that vision.

Many universities, experiencing the stress of technological, social, and economic change, have taken a fresh look at the strategic planning process. In the course of their efforts they are developing useful sets of benchmarks and finding new applications for peer review to provide measures of effectiveness for their investments in the production and dissemination of knowledge. At the same time, universities are rapidly taking advantage of new networking technologies to support an open strategic planning process that can provide for interactive contributions by many stakeholders, overcoming barriers of time and distance to support reiterative planning. Perhaps no single university has yet brought all of these elements together, but all of the tools exist to reduce the systemic problems that have hindered effective academic strategic planning in the past. The opportunity also exists for university Vice Presidents for Research to take

advantage of these tools and to exercise a new leadership in strategic planning for research competitiveness.

ENDNOTES

1. My thanks to Ed Derrick, Director of the AAAS Research Competitiveness Service, for his critical review and suggestions for this essay.

2. The problem of failed precedents in strategic planning is well-known and frequently acknowledged. For example, in establishing the agenda for the current strategic planning process at the University of New Mexico, President Gordon said, “Despite the fact that the need for strategic planning appears to be compelling, it is understandable that some on our campus might be skeptical about the outcome of such a process. After all, not all of our past planning efforts have yielded plans that have served our needs effectively. As we undertake this process this year, we must commit ourselves not only to planning, but also to doing it well, because our future depends on having a clear and workable framework for change and development on our campus.” (2000, p. 2)

3. As discussed below, a number of scholars and researchers have sought to develop a paradigmatic set of measures, and it seems likely that consensus is achievable through convergence as we gain experience with the practice of measuring the outcomes of investments in the creation and dissemination of knowledge.

4. Some problems with open planning are discussed in the last section of this chapter.

5. See www.aaas.org/rcs for a complete description.

6. For further information on Texas and North Carolina State’s compact planning process see the sources cited at the end of this chapter.

7. Boris Segerstahl, the University’s VPR, spoke at the AAAS policy conference that gave rise to this book. His presentation may be found at www.aaas.org/spp/dspp/rcp/coeur/Segerstahl/ppframe.htm

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

8. For example: “A proprietary task statement exists which describes research funded by the Mega Corporation, under the responsibility of the Chair of the Computer Science Department; or The Center for Unusual Physics is pursuing three classified projects in support of the Defense Agency for Unusual Projects.

REFERENCES

- Anderson, Don; Johnson, Richard; and Milligan, Bruce. 1999. *Strategic Planning in Australian Universities*. Canberra: [Australia] Department of Education, Training and Youth Affairs, Evaluations and Investigations Programme, Higher Education Division. ISBN 0 642 23905 3. May also be found online at <http://www.detya.gov.au/highered/eippubs/99-1/report.pdf> (last accessed on September 3, 2000).
- Auburn University. Office of the Vice President for Research. 1999. “Strategic Plan: FY00-05.” May be found online at www.auburn.edu/academic/provost/plans/research.pdf (accessed on September 25, 2000). Other plans are at www.auburn.edu/academic/provost/plans
- Brainard, Jeffrey and Southwick, Ron. 2000. “Congress Gives Colleges a Billion Dollar Bonanza,” in *The Chronicle of Higher Education* (Jul 28), pp. A29-A40.
- Dolence, Michael G., Rowley, Daniel J., and Lujan, Herman D. 1997. *Working toward Strategic Change: A Step-by-Step Guide to the Planning Process*. San Francisco: Jossey-Bass Publishers.
- Gordon, Bill. 2000. “UNM implementing workable long-range plan,” Column reprinted from University of New Mexico *Daily Lobo* (April 14). May be found online at <http://dailylobo.unm.edu/orientation/opinion/gordon.html> (accessed on July 18, 2000)
- Hodgin, Robert F. 1998. “Research Administration Strategic Plan—Brief Form FY 1998-2002. University of Houston, Clear Lake. May be found online at www.cl.uh.edu/research/ResearchAdmin/RA_ST.htm (accessed on September 30, 2000).

J. SCOTT HAUGER

- Kuhn, Thomas S. 1996. *The Structure of Scientific Revolutions*. Third edition, Chicago: The University of Chicago Press.
- Lombardi, John M., Craig, Diane D., Capaldi, Elizabeth D. and Gater, Elizabeth S. 2000. *The Top American Research Universities*. Gainesville, FL: The Center at the University of Florida. May be found online at <http://thecenter.ufl.edu/research2000.pdf> (accessed on September 17, 2000).
- Morriss, Susan B. 1998. "Strategic change and faculty participation: Problems and possibilities," in *Forum 98 Session Papers*. The Association for Institutional Research. May be found online at <http://ir-server.willamette.edu/forum98/15-501.htm> (accessed on September 3, 2000).
- North Carolina State University. University Planning and Analysis. 2000. Compact Planning at NC State University. May be found online at <http://www2.acs.ncsu.edu:80/upa/compact/> (accessed on September 24, 2000).
- Perlman, Baron; Gueths, James; and Weber, Donald A. 1988. *The Academic Intrapreneur: Strategy, Innovation and Management in Higher Education*. New York: Praeger.
- Rowley, Daniel J.; Lujan, Herman D.; and Dolence, Michael G. 1997. *Strategic Change in Colleges and Universities: Planning to Survive and Prosper*. San Francisco: Jossey-Bass Publishers.
- Ruch, Charles P. 1999. "President's Letters." Boise State University (October 1). May be found online at www2.boisestate.edu/pres/10199.htm (accessed on September 24, 2000).
- Schmidt, Peter. 2000. "States Set a Course for Higher-Education Systems," in *The Chronicle of Higher Education* (June 30), p. A-27.
- Spelman College. Office of Institutional Research, Assessment and Planning. 2000. "Part I: Strategic Planning Guidelines." May be found online at www.spelman.edu/oirap/part1strategicplanguide.html (accessed on September 30, 2000).
- University of Georgia. Office of the Vice President for Strategic Planning and Public Affairs. "UGA Strategic Planning." May be found online at www.strategicplanning.uga.edu/ugaplanning/timelines.html (accessed on September 29, 2000).

STRATEGIC PLANNING FOR RESEARCH COMPETITIVENESS

- University of Minnesota. Office of Budget and Finance. "1999. 2000-01 Biennial Budget." May be found online at <http://budoff.umn.edu/budget/bireq.htm> (accessed on September 24, 2000).
- University of Nebraska. Commission for Development of Criteria for Evaluation and Prioritization of Academic Programs. 2000. [Report] Working Draft. (April 10). May be found online at <http://www.uneb.edu/administration/Reports/CDCEPAP-Letter.htm> (accessed on September 19, 2000).
- University of Texas—Austin. 2000. Executive Vice President and Provost. Compact Planning Index. May be found online at <http://www.utexas.edu/admin/evpp/planning/compacts/> (accessed on September 24, 2000).
- West Virginia University. Office of the Associate Provost for Academic Programs. 2000. "Planning at West Virginia University." Draft 3/10/00. May be found online at <http://www.wvu.edu/~acadaff/Planning at WVU.htm> (accessed on September 3, 2000).