Environmental Scanning
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Issues

Successful management of colleges and universities depends upon the ability of the senior leaders to adapt to rapidly changing external environment. Unfortunately, the lead time once enjoyed by decisionmakers to analyze and respond to these and other changes is decreasing. Traditional long-range planning models, with their inward focus and reliance on historical data, do not encourage decisionmakers to anticipate environmental changes and assess their impact on the organization (Cope, 1981). The underlying assumption of such models is that any future change is a continuation of the direction and rate of present trends among a limited number of social, technological, economic, and political variables. Thus, the future for the institution is assumed to reflect the past and present or, in essence, to be "surprise-free." However, we know that this is not true, and the further we plan into the future, the less it will be true.

What is needed is a method that enables decisionmakers both to understand the external environment and the interconnections of its various sectors and to translate this understanding into the institution's planning and decisionmaking processes. Environmental scanning is a method of accomplishing this.

Brown and Weiner (1985) define environmental scanning as "a kind of radar to scan the world systematically and signal the new, the unexpected, the major and the minor" (p. ix). Aguilar (1967), in his study of the information gathering practices of managers, defined scanning as the systematic

Editor's Note:

The Readers' Guide to Periodical Literature, published by the H.W.Wilson Company, is an index to English language periodicals of general interest available in most libraries. We consider a periodical to be readily accessible if it is indexed in the Readers' Guide. For those periodicals not included in the Readers' Guide, we provide the address and, in most cases, the phone number to guide you in your scanning.

The Encyclopedia of Associations, published by Gale Research, Inc., is a guide to over 22,000 national and international organizations. Information about how to contact the organizations mentioned in this chapter is from the 1992 edition of The Encyclopedia of Associations and is available in most libraries.

collection of external information in order to (1) lessen the randomness of information flowing into the organization and (2) provide early warnings for managers of changing external conditions. More specifically, Coates (1985) identified the following objectives of an environmental scanning system:

- detecting scientific, technical, economic, social, and political trends and events important to the institution,
- defining the potential threats, opportunities, or changes for the institution implied by those trends and events,
- promoting a future orientation in the thinking of management and staff, and
- alerting management and staff to trends that are converging, diverging, speeding up, slowing down, or interacting.

Fahey and Naravanan (1986) suggest that an effective environmental scanning program should enable decisionmakers to understand current and potential changes taking place in their institutions' external environments. Scanning provides strategic intelligence useful in determining organizational strategies. The consequences of this activity include fostering an understanding of the effects of change on organizations, aiding in forecasting, and bringing expectations of change to bear on decisionmaking.

A number of writers on educational planning encourage college and university decisionmakers to use environmental scanning as part of their strategic planning models. This chapter reviews several environmental scanning models and discusses how environmental scanning is used in higher education. Also included are suggestions on establishing an environmental scanning process at your institution and a listing of useful scanning resources.

For a discussion on environmental scanning in higher education planning, see:


Environmental scanning is one of four activities comprising **external analysis**. As illustrated in **Figure 1**, external analysis is the broader activity of understanding the changing external environment that may impact the organization. In describing external analysis, Fahey and Narayanan (1986) suggest that organizations *scan* the environment to identify changing trends and patterns, *monitor* specific trends and patterns, *forecast* the future direction of these changes and patterns, and *assess* their organizational impact. Merged with **internal analysis** of the organization's vision, mission, strengths, and weaknesses, external analysis assists decisionmakers in formulating strategic directions and strategic plans.

The goal of environmental scanning is to alert decisionmakers to potentially significant external changes before they crystallize so that decisionmakers have sufficient lead time to react to the change. Consequently, the scope of environmental scanning is broad.

**Defining Environment**

When we scan, it is useful to view the environment in a mariner that organizes our scanning efforts. Fahey and Narayanan (1986) help by identifying three levels of environment for scanning. The **task environment** is the institution's set of customers. In higher education, this may include students and potential students, parents of students and of potential students, political leaders, and employers and potential employers of students. The task environment relates to a particular institution. Although the task environments of a community college and a research university within 20 miles of each other may overlap, they also differ.

The **industry environment** comprises all enterprises associated with an organization in society. For higher education, factors such as public confidence in higher education or student aid legislation are industry factors affecting all institutions.

At the broadest level is the **macroenvironment**, where changes in the social, technological, economic, environmental, and political (STEEP) sectors affect organizations directly and indirectly. For example, a national or global recession increases the probability of budget cuts in state government and, consequently, budget reductions in publicly supported colleges and universities.

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For reports on scanning activity in colleges and universities, see:

Defining Scanning

There are a number of ways to conceptualize scanning. Aguilar (1967) identified four types of scanning. Undirected viewing consists of reading a variety of publications for no specific purpose other than to be informed. Conditioned viewing consists of responding to this information in terms of assessing its relevance to the organization. Informal searching consists of actively seeking specific information but doing it in a relatively unstructured way. These activities are in contrast to formal searching, a proactive mode of scanning entailing formal methodologies for obtaining information for specific purposes.

Morrison, Renfro, and Boucher (1984) simplified Aguilar's four scanning types as either passive or active scanning. Passive scanning is what most of us do when we read journals and newspapers. We tend to read the same kinds of materials--our local newspaper, perhaps a national newspaper like The New York Times or The Wall Street Journal, or an industry newspaper like The Chronicle of Higher Education. However, the organizational consequences of passive scanning are that we do not systematically use the information as strategic information for planning, and we miss many ideas that signal changes in the environment.

Active scanning focuses attention on information resources that span the task and industry environments as well as the macroenvironment. In active scanning, it is important to include information resources that represent different views of each STEEP sector.

Another way of looking at scanning was described by Fahey, King, and Narayanan (1981). Their typology views scanning as irregular, periodic, and continuous. Irregular systems are used on an ad hoc basis and tend to be crisis initiated. These systems are used when an organization needs information for planning assumptions and conducts a scan for that purpose only. Periodic systems are used when the planners periodically update a scan, perhaps in preparation for a new planning cycle. Continuous systems use the active scanning mode of data collection to systematically inform the strategic planning function of the organization. The rationale undergirding active scanning is that potentially relevant "data" are limited only by your conception of the environment. These
data are inherently scattered, vague, and imprecise and come from a host of sources. Since early signals often show up in unexpected places, your scanning must be ongoing, fully integrated within your institution, and sufficiently comprehensive to cover the environments important to your decisionmakers.

**Scanning in Higher Education**

Many colleges and universities incorporate environmental scanning in strategic planning. Friedel, Coker, and Blong (1991) surveyed 991 two-year colleges in spring 1991 to identify those institutions that currently conduct environmental scans. Based upon a 60 percent response rate, they found that 40 percent of the responding institutions conduct some form of environmental scanning. Of these institutions, 20 percent use an irregular system, 40 percent use a periodic system, and 32 percent use a continuous system. Meixell (1990), in a survey of 134 public research and doctorate-granting institutions, found environmental scanning activities in the planning processes at half of the institutions surveyed.

The best discussion of how post-secondary institutions implement environmental scanning is found in Pritchett (1990). Pritchett discusses how three institutions, a public doctoral-granting university, a comprehensive university, and a two-year college, use environmental scanning in the planning process. Two institutions use an ad hoc environmental analysis committee appointed by the president. At the other institution, the committee is directed by the planning and budget office and consists of experts and community representatives.

Pritchett found common patterns in how the environmental scanning activity developed in these institutions. New presidential leadership and active governing boards were critical in two institutions; reductions in state appropriations and enrollment declines were influential at all three. In all institutions, presidential recognition and support for the formal scanning process were essential elements of the planning process.

**Getting Started**

The first step in establishing environmental scanning is to decide which level of scanning commitment is best for your institution at this time: irregular, periodic, or continuous. Most colleges and universities


General Periodicals

Newspapers


The Miami Herald, 1 Herald Plaza, Miami, FL 33132-1693. Phone: 800/825-MAIL.

The Chicago Tribune, Tribune Tower, 435 N. Michigan Ave., Chicago, IL 60611. Phone: 800/TRIBUNE.

The Los Angeles Times, The Times Mirror Company, Times Mirror Square, Los Angeles, CA 90053. Phone: 800/LATIMES.


The Times (of London), 1 Pennington St., London E19XN, England. Phone: 071-782-5000.

Magazines


Across the Board, Conference Board, Inc., 845 Third Ave., New York, NY 10022. Phone: 212/
operate an irregular or periodic system, focusing on the task environment. These levels require less resource commitment from the institution, but they only address the immediate needs for information about the external environment. You may satisfy the requirements of these levels through several means. A quick way of getting started is to interview major decisionmakers regarding their view of the most critical trends and developments that could affect the institution. Use the interviews and conversations with your colleagues (including those at other institutions) to identify critical trends and potential developments. Also examine past program reviews, the last institutional self-study, and the most current master plan.

Establishing a continuous scanning system requires more effort and resources. First, secure a resource commitment from the senior official responsible for planning. At a minimum, a continuous scanning system requires a professional and a support person to devote half of their time to the enterprise. Further, a continuous scanning program requires a number of scanners who agree to rigorously and systematically review specific information resources. Assuming that you secure the resources, your next step is to recruit and train volunteers to perform active scanning.

**Training**

One approach to recruiting scanners is to offer a half- to full day environmental scanning workshop. Invite faculty members from all disciplines as well as key administrators from all functional areas. Be sure to include members of the institution's planning committee as well as senior executives and members of the board of trustees and/or board of visitors, if appropriate. Heterogeneity of backgrounds, experiences, and perspectives guards against parochial viewpoints and will help you see into the future with less hindrance from the "blinders" of the past.

The invitation should convey the idea that environmental scanning information is essential for the institution and its academic departments. Also stress that the information obtained in the environmental scanning process will inform the ongoing strategic planning process. Participants are scanning for information that impacts the future of the institution and its programs.

759-0900.

_Time_. See Readers' Guide.

_Newsweek_. See Readers' Guide.


_Atlantic_. See Readers' Guide.

_The Nation_. See Readers' Guide.

_Ms_. See Readers' Guide.

_The Futurist_. See Readers' Guide.

**Social/Demographic Periodicals**

_American Demographics_, Box 68, Ithaca, NY 14851-0068. Phone: 607 / 273-6343.

_Public Opinion Quarterly_.
American Association for Public Opinion Research, University of Chicago Press, Journals Division, 5720 S. Woodlawn Ave., Chicago, IL 60637. Phone: 312/753-3347.

_U.S. Government Agencies_
After explaining how environmental scanning fits into external analysis and how external analysis is merged with internal analysis to formulate strategic plans (see Figure 1), initiate a series of exercises where participants identify and prioritize critical trends and emerging issues. These exercises allow participants to bring their individual knowledge of the external environment to the discussion and to develop an event and trend set to guide monitoring. Instruct participants to:

- **Seek signs of change.** Review the STEEP sectors, looking for signs of change. This requires examining sources for movement in relevant variables. For example, changes in the average SAT score of entering college freshmen or percentage of Black males applying for college could be significant to your institution.
- **Look for signals of potential events on the horizon.** For example, research on Alzheimer’s disease may produce a drug with side effects to enhance memory capabilities. New research on solar or wind energy may portend significant savings in energy costs. An increasing number of interactive videodiscs and CD ROMs may signal a major change in how information is presented to students. All of these trends could have significant impact on higher education, with implications for faculty development programs.
- **Look for forecasts of experts.** Some experts maintain we are moving toward a sustainable world in which attention will focus on energy efficiency, recycling, protection of biological and environmental bases, and the feeding and stabilization of the world population. Ask participants to consider the implications of the experts' forecasts for your institution.
- **Look for indirect effects.** It is important to remember that many trends or events that do not have direct implications for your institution may have second- or third-order effects.
- **Be aware that there are few guidelines on how to do scanning.** There are no hard and fast rules that lead to "correct" interpretations. The data do not speak for themselves. Scanners' skills, abilities, experiences, and judgments are critical to interpreting the data.
- **Write abstracts.** Abstracts are excellent vehicles to crystallize thoughts and communicate what is known about changing trends and patterns.
When preparing abstracts, write the lead sentence in response to these questions: "If I had only a few minutes to describe this trend to a friend, what would I say? What is the most important idea or event that indicates change?" The response to these questions should be contained in a one-paragraph explanation. Whenever possible, include statistical data. Limit the summary to no more than one-half page of single-spaced, typewritten copy. Depending upon your institution's culture, you may want to include a statement of the implications of the article for the institution.

**Monitoring Taxonomy**

The trends and events identified in the initial workshop are the beginnings of a scanning/monitoring taxonomy. A scanning/monitoring taxonomy has two objectives: (1) to provide a comprehensive set of categories to organize information and (2) to provide a numbering method for storing information. The STEEP sectors are an elementary taxonomy. Each category is usually subdivided. For example, the social sector may be divided into education, values, and demographics. With an electronic bibliographic database program, it is easy to build your taxonomy "as you go," using keywords to denote categories. Be aware that developing, storing, and maintaining an environmental scanning database requires a good deal of time and effort.

**Scanning Structure**

The structure of the scanning system does not need to be elaborate. The chair of the scanning committee is responsible for assigning information sources to each scanner and for collecting and filing copies of articles and scanning abstracts. Assigning scanners specific materials for regular monitoring provides a measure of confidence that most "blips" on the radar screen will be spotted. In making this assignment, ascertain first what sources are reviewed regularly by the scanners. This list should be compared to the list of important information resources identified by the scanning committee. Assign scanners material they already regularly review. Also ask for volunteers to review material not regularly read by committee members. If there is an abundance of scanners, build in redundancy by having two or more scanners review the same information resource.
Periodically the planning committee should meet to sort, sift, and evaluate the significance of the abstracts the scanners write. At the conclusion, the planners should summarize by sector (i.e., social, technological, economic, environmental, and political) all abstracts for use in the institution's strategic planning process.

**Resources**

There is no lack of resources available for environmental scanning. The 1988-89 Future Survey Annual lists 454 futures-relevant periodicals. Marien (1991) reports there are 46 publications in international economics and development, 45 in environment / resources / energy, and 31 in health and human services that frequently have futures-relevant information.


The most important criterion for literature selection is diversity. To ensure that you adequately scan the task environment, industry environment, and macroenvironment, identify information resources in each of the STEEP sectors. If your institution does not have the human resources to implement a continuous scanning system, you may wish to employ a scanning service. Both Weiner, Erich and Brown, Inc. and the Wilkinson Group offer such services.

**The Macroenvironment**

In conjunction with its Program in Educational Leadership, the University of North Carolina at Chapel Hill publishes *On the Horizon*, the environmental scanning newsletter for higher education. A comprehensive list of information resources by STEEP sector in the macroenvironment includes the following:

**Readers' Guide.**

**U.S. Government Agencies**

- U.S. Department of the Treasury. See GPO Monthly Catalog.

**Environmental Periodicals**

- *Ecodecision*. Royal Society of Canada, 276 Rue Saint-Jacque, Oest, Bureau 924, Montreal H24IN3 Canada.

**Associations**

- Sierra Club, 730 Polk St., San Francisco, CA 94109.
• **Social/demographic/values/lifestyles.** Data from periodic publications or statistics from the Census Bureau and other federal, state, and local governmental agencies provide the basics on population trends and characteristics. The Department of Labor and the Department of Commerce's National Technical and Information Services make available specific types of demographic analyses. The National Center for Health Statistics provides data on trends in areas such as fertility and life expectancy. The U.S. League of Savings Associations studies changes in homebuyer demographics, and the American Council of Life Insurance's Social Research Services conducts demographic studies. The United Nations and the Organization for Economic Cooperation and Development publish periodic reports detailing international developments in this area.

• **Technology literature.** Discussion of technological advances and future possibilities can be found in a variety of periodic sources, including *Technology Review, Datamation, BYTE, Computer World, Discover, Infoworld, Science, Scientific American, The Whole Earth Review,* and *Proceedings of the National Academy of Sciences.*

• **Economic literature.** There are a number of periodicals focusing on economic trends and forecasts, including *Business Week,* *The Economist, Fortune,* *The Monthly Labor Review,* and *Money, Inc.* You can obtain monthly reports from the Department of Commerce's Bureau of Economic Analysis as well as reports from the Departments of Commerce, Labor, Energy, and Treasury. State and local governmental agencies provide regional economic data.

• **Environmental literature.** Recommended periodicals on the environment are *Ecodecision* and *Environment.* Several organizations publish futures-oriented reports on the environment (e.g., Global Tomorrow Coalition, Worldwatch Institute, and Island Press). The Audubon Society and Sierra Club also publish periodic reports in this area.

• **Political literature.** What is happening in the political/legislative arena is covered by *New Republic,* *The National Review,* *The National Journal,* *In These Times,* *Mother Jones,* *Federal Register,* and *Congressional Quarterly Weekly Report.* Other sources include public opinion

Francisco, CA 94109. Phone: 415/776-2211.

**Political Periodicals**

*New Republic.* See Readers' Guide.

*The National Review.* See Readers' Guide.


*In These Times.* Institute for Public Affairs, 2040 N. Milwaukee Ave., 2nd Fl., Chicago, IL 60647-4002. Phone: 312/472-5700.


*Mother Jones.* See Readers' Guide.


**Institutes**

Hudson Institute, Hermann Kahn Center, 5395 Emerson Way, P.O. Box 26919, Indianapolis, IN 46226. Phone: 317/545-1000.


Brookings Institute, 1775 Massachusetts Ave., NW,
leaders, social critics, futures-oriented research institutes (e.g., the Hudson Institute and the Institute for the Future), public policy research centers (e.g., the Brookings Institute and the American Enterprise Institute for Public Policy Research), governmental documents, proposed bills to the legislature, and statements or opinions by social critics, experts, and activists. Finally, consult State Legislatures for a periodic summary of pertinent legislation being considered in state legislatures throughout the country.

- **Electronic databases.** There are a number of electronic databases containing up-to-date descriptions of articles (by title and, many times, by abstract) available on a subscription basis. ABI Inform, ERIC, and PAIS are a few examples.

**The Industry Environment**

Key sources on the higher education industry environment include The Chronicle of Higher Education, Education Week, and Higher Education Daily. A number of newsletters serving the industry environment are available as well. In addition, many individuals and colleges/universities put their environmental scans on ERIC.

Perhaps the most useful resource is your own network of friends and colleagues within the profession. Frequently you can phone a colleague at another institution and get information quickly. Or you can post your question in the Association for Institutional Research's or the Society for College and University Planning's electronic newsletters.

**The Task Environment**

Information resources for scanning the task environment include local, state, and regional newspapers, local and state government reports, and experts in demography, sociology, and political science departments in your institution.

**Communication**

A scanning newsletter brings important trends and events to the attention of all members of your institution and, at the same time, provides recognition for the efforts of the scanners. Make the newsletter a "stand alone" document and distribute it widely. You
may want to consider a logo, present the newsletter on distinctive paper, and have special boxes labeled "Wild Speculations," "Left Field," or "Wild Cards." The important point is that the newsletter only contain items that have implications for the institution. Solicit comments and contributions from all who read the newsletter, and make the format easy to read in form and content. An excellent vehicle for communicating the results of the scanning/monitoring committee's work is to distribute selected abstracts, drawing attention to the implications of a particular trend or potential event or series of interrelated trends and events.

**Remember**

We all do informal environmental scanning. However, continuous scanning is required if decisionmakers are to understand, anticipate, and respond to the threats and opportunities posed by changes in the external environment. It is important that campus decisionmakers participate in this process. Through participation, they develop a shared understanding of high priority issues and a view of the dynamics of the changing environment.

Remember that environmental scanning is something of an art form; guidelines on how to scan are necessarily few. There are no hard and fast rules to lead to a "correct" interpretation of information. Be careful to structure your scanning process to minimize the possibility of being "blind-sided" by a change in the environment that you should have seen coming. Finally, remember that environmental scanning is only one component of external analysis. It is the starting point, however, from which you and your colleagues can identify trends and events in the environment worthy of monitoring. More importantly, it provides a basis for discerning the strategic direction of your institution from which you may plan far more effectively.
Scanning Services


Wilkinson Group, 8128 Pine Lake Court, Alexandria, VA 22309. Phone: 703/780-6170.

The following newsletter editors agree to respond to your questions if you are thinking of developing a newsletter for your campus:

Donna McGinty, Center for Continuing Education, University of Georgia, Athens, GA 30602. Phone: 404/542-3451.

Lowell Lueck, Director of Institutional and Planning, Western Illinois University, 312 Sherman Hall, Macomb, IL 61455. Phone: 309/298-1185.

Robert Wilkinson, Director of Institutional Research, 212 Russ Hall, Pittsburgh State University, Pittsburgh, KS. Phone. 316/231-7000.