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New Ideas for Developing Organizations

Cover Sheet

This chapter offers techniques that can help institutional researchers play a more active role in the process of creating and modifying instructional programs to meet workforce needs.

Using Research to Align Programs[1]

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At most institutions, more energy is expended on maintaining an inventory of existing programs than on adjusting them or even creating new ones to better meet market needs. Where an external review process exists, fear of program discontinuation has generated great concern and spurred time-consuming effort to collect a variety of internal data on trends in student credit hours, faculty productivity, graduation rate, and outcome data on graduate placement. All this activity subtracts from the energy necessary to gather external data that can be used to alter an existing program or test the viability of a new one.

Institutional researchers have traditionally played a fundamental role in gathering internal data for use in program review. In this chapter, I argue that institutional research offices can assume a larger role in institutional health by gathering and analyzing data, chiefly external, to guide institutions through the process of program generation. Although program review presents a structure for scaling down and eliminating programs, careful assessment of market opportunities holds the promise of strengthening institutional vitality. This chapter offers a framework for assessing the market potential for new programs relying on techniques that should be in the arsenal of most professional institutional researchers.

Program-Market Opportunity Matrix

Kotler and Fox (1995) recommend that institutions identify market potential through use of a program-market opportunity matrix. This nine-cell matrix allows an institution to place present and future programs along two dimensions: markets (existing, geographical, new) and programs (existing, modified, and new). This matrix yields terms associated with market potential that are used in this chapter:

Existing program development. This consists of deeper penetration of existing markets, geographical expansion, or finding new market segments for existing programs. This is what many institutions do under the rubric of "marketing"; that is, colleges increase their promotion of existing programs or search for new market segments for existing programs.

Program modification. This occurs when an institution modifies programs with either existing or new markets in mind. The natural tendency of most institutions when faced with an enrollment shortfall is to repackage existing courses and programs under other labels and offer them at differing times and in varying formats in order to attract students. This process can promote short-term institutional survival but may not produce the fundamental change in programs necessary for long-term institutional health.

New program development. This refers to the process of creating new programs for existing, modified, or totally new markets. Total innovation occurs when an institution decides to create new classes, departments, or schools designed specifically for new markets. Creation of "universities without walls" during the 1960s and 1970s represents total innovation because of the focus on serving hitherto underserved populations of nontraditional students.

Points of Departure

Institutions embarking on a path leading to program modification or new program development must ask a series of interrelated yet fundamental questions at the outset. First, what is the relationship between current programs and a proposed new one? New programs must be balanced with existing offerings to ensure that the new mix is compatible with existing structures. A new degree program usually requires a general education component that must be accommodated through "service" courses. A certificate, or short-term training program, may carry no requirement for general education. A new program, particularly one planned for market segments with special needs (for instance, low-income single mothers), may also require new college services. Given a documented need, will college trustees, the administration, and the faculty be willing to add to or modify service classes and student services to accommodate new market segments?

Second, what type of student will be served by the proposed program? A new program may attract a new type, resulting in a change in the composition of the student body. The opposite is true as well; a new program may appeal only to a narrow cross-section of current students and fail to attract new ones. Introduction of a dissimilar program may be perceived as an affront by current students, faculty, alumni, and other important publics. The development of the program may not hinge on the perception of current students, faculty, staff, and other stakeholders, but certainly changes in the campus and organizational culture should be among the factors accounted for in new program development.

Third, what is the impact of the proposed program on institutional resources? Even if totally self-supporting in the short run, campus constituencies may view a new program as diverting resources from existing ones. If a commitment has been made to preserve the status quo, though in the face of overwhelming evidence that fundamental change is imperative, an institution may be unable to afford new programs even in the best of circumstances.

Finally, how does the proposed program fit with the institutional role and mission? Operating in a financially constrained environment, most governing boards will hardly grant approval to new initiatives they do not perceive to be consonant with the institutional role and mission. The search for answers to these questions is the starting point in any process of new program development. The techniques described here can bring other questions into clearer focus.

Techniques to Assess the Market Potential of New Programs

Techniques used to develop instructional programs should be structured to answer two central questions: Is there a pool of prospective students who are likely to enroll? What is the market for program graduates? In the United States, fortunately, a variety of publications and datasets readily available through the Internet can begin to address both answers.

First, in addition to the major census conducted every ten years the U.S. Census Bureau updates demographic information periodically by location. For institutions that draw students from regional or national markets, state summaries of census data may be aggregated. For those serving an explicitly defined geographical area, census data are reported by more discrete units termed census tracts, the boundaries of which are configured so that they contain an average of four thousand people.

Second, government and quasi-governmental agencies—regional governmental planning agencies, state labor departments, legislative clearing houses—use census data and data developed by the research arms of private and nonprofit entities to prepare reports on demographic and employment trends. Given a sufficient rationale, these agencies can also prepare reports customized to institutional specifications.

Third, chambers of commerce, banks, utility companies, and similar agencies and employers operating within a given geographical area generate reports that focus on demographic trends, employment data, and economic forecasts. These information sources can give institutions the basic data needed to begin addressing the question of where new students can be found; the sources can serve as an indicator of employment opportunities for students enrolled in programs leading directly to careers. As a starting point, this off-the-shelf data can illuminate other potential questions necessary for program development. Institutional research offices can help their institutions through maintaining digital collections of these data for rapid extraction as requested by administrators and other stakeholders who are interested in external trends.

Surveys of Prospective Students.

Most institutions conduct surveys of potential employers; few survey prospective students. Lack of information about prospective students is a significant shortcoming in assessing the market potential for a new program. At a minimum, a survey of prospective students seeks to identify the demographic characteristics, educational aspirations, and current education level of respondents. At the most, the study also seeks to determine preferences for any specific type of instruction, scheduling choice, the extent to which information on existing programming reaches its intended audience, and perception of institutional image. In addition to profiling career-related preferences, surveys of this nature can also point to the desire to increase general knowledge in liberal arts areas. A random survey of adults residing in Arapahoe Community College's service area in Colorado (Voorhees and Hart, 1985) was instrumental in pointing to market potential. The Arapahoe study found, among other adult educational preferences, that as the respondent's

age increased so did the perceived need for classes in the liberal arts. Also crucial to the college's planning for off-campus classes and services was the finding that 77 percent of all adults surveyed indicated they would not drive more than ten miles to attend college classes. Although specific results may have changed in the last twenty years, such surveys still serve a major role in identifying trends, needs, and preferences and can help an institution better plan its offerings.

The opinions and aspirations of currently enrolled students and the insights they might offer about program development are often overlooked in the new program development process. Since these students are currently enrolled in one or more college classes, they are easily accessible and serve as a microcosm of the opinions of new students. It is reasonable to expect that the perceptions current students hold about such institutional services as job placement, parking, and child care do not differ significantly from those of new students. Perceptions of institutional image and the quality of campus life may, however, differ with the socioeconomic background, previous educational experience, and age of prospective students.

Several commercially available instruments can supplement an institution's efforts to capture student attitudes and opinions through a home-grown instrument. They include the American College Testing Service's Evaluation Survey Service (ESS), the Cooperative Institutional Research Program (CIRP) surveys developed by the Higher Education Research Institute at the University of California at Los Angeles, and the Student-Outcomes Information Service (SOIS) surveys developed by the National Center for Higher Education Management Systems and the College Entrance Examination Board. In the UK, the well-established Student Satisfaction Approach initially developed at the University of Central England is an adaptable and portable technique that can serve such purposes.

Several newer instruments, notably the National Survey of Student Engagement (NSSE) and its counterpart the Community College Survey of Student Engagement (CCSSE), assess among other factors student perception of institutional practices that are highly correlated with student learning and retention. Institutional researchers can glean important clues from these normative instruments that inform the total institution, and where their authors have made it possible to identify a respondent by returning a student identifier to the institution, important information is fed back to existing programs. At most campuses, the institutional research office is deeply involved in surveying students and can serve as the place where trends are monitored.

Market Segmentation. The past two decades have been marked by rapid improvement in market research spawned by technology. Until the 1970s, market research in the private sector was dominated by demographic segmentation—that is, classification of potential consumers by age, income, level of education, and other quantitative variables. The emergence of the baby boomers (whose consumer habits were radically different from those of previous generations) and the disappearance of the captive housewife (as more women entered the workforce) contributed to the demise of demographic research as the sole technique for determining target markets; people were no longer behaving or consuming products in ways that traditional research could explain. Moving from demographic segmentation through geographic segmentation and

now to psychographic segmentation, market research has assumed a mantle of sophistication brought about by increased access to data and accelerated use of survey research.

Values and Lifestyles Typology (VALS). The Values and Lifestyles Typology (Scientific Research International, 2003) is an example of lifestyle research that has evolved since it first appeared in the late 1970s. Primarily used to predict consumer behavior, VALS can serve academic planners as an additional tool to gauge corresponding interest in a given program's proposed content or format. VALS divides adults into eight consumer types, identified by lifestyle. These types, or segments, are grouped into four lifestyle categories on the basis of attitudes, consumption patterns, demographics, and resources available for consumer expenditures.

VALS research, for instance, suggests that "achievers," with their goal-oriented lifestyle, focus first on family and career, avoiding situations that produce a high degree of stimulation and change. Achievers also prefer premium products that demonstrate success. Knowing this, academic planners may wish to match programs to this segment that are short-term, available conveniently (perhaps online courses), and carry prestige. "Experiencers" are searching for the unconventional and might be best matched with programs that differ from traditional academic fare, perhaps a hybrid program that emphasizes new societal trends. "Survivors," because of their lack of higher education and despairing attitudes, would be the most difficult group to match with new programs. Alternatively, "innovators" have usually completed a college education but come back to the college classroom to further their interest in leadership, especially as it applies to new techniques and technologies. Scheduling options, delivery mechanisms, and even program content designed for these groups would need to be significantly different.

Psychographic Research. Psychographics represents a refinement of lifestyle research. By structuring more operational dimensions underlying consumer behavior than lifestyle research does, more precision is brought to marketing efforts. Psychographics estimates consumer interests, activities, and values and plots these dimensions with reference to demographics. One simply needs to search the Internet for psychographic research to know that this area has become a large business. The underlying demographic and geographic data for these services is taken from periodic surveys undertaken by the U.S. Census Bureau as well as proprietary databases sampling consumer behavior.

In addition to information that an institution can find for free from the U.S. Census Bureau for a given jurisdiction (median income, household size, average home value, age, education status, employment by sector, and gender), commercial psychographic firms can also furnish estimates of the amount spent on a variety of goods and services by households residing in the area of interest. These data then can be segmented by lifestyle descriptors that allow decision makers a fuller picture of potential learners residing in a given area. Environmental Systems Research Institute (ESRI, 2004), for example, can combine consumer choice data according to two or more of sixty-six "community tapestry" segments. Of these segments, several are identified with readily seeking more education.

Psychographics research can be costly. It may also not differentiate among consumers at the lowest level of analysis (in other words, at the block level). Even with these limitations, however, psychographics can offer insight into potential learning markets that has been heretofore unavailable to institutions that rely solely on demographic profiles. Psychographics also makes heavy use of geographic information systems (GIS) mapping, allowing a visual overlay of consumer characteristics and attitudes to produce a spatial representation of target markets.

Employment Surveys and Studies. The employer survey, in which employers are asked to estimate their future need for trained personnel, is the most popular type of study for determining the marketability of career program graduates (Table 3). Employer surveys are used most often in local markets because the proximity of employers to the institution ensures a higher rate of return. Properly conducted, these surveys can be the first step in involving employers in program development. Employer estimates of personnel requirements, however, often suffer from reliability and validity problems. This is especially true among smaller employers who might lack the expertise to anticipate future technological developments that affect their position within a given employment field.

Less frequent among employment surveys are econometric studies, in which an array of input variables are used to model demand by occupational category over a ten-year period. These studies, produced by the Bureau of Labor Statistics, U.S. Department of Labor, are perhaps more reliable and valid than institutionally produced employer studies. However, they are built on assumptions that forecast productivity, consumption, and overall economic output, each of which may be expected to vary widely or at least unpredictably over the course of ten years. As recent decades have abundantly proven, forecasting technological change or economic trends is at best a risky business. For this reason, many organizations have turned to environmental scanning as a strategic planning technique. Environmental scanning can give decision makers information on the latest developments in key issues related to organizational survival, including unfolding trends in technology, employment rate, relocation of major industries, productivity rate, and consumer patterns. One can easily see how environmental scanning can inform all phases of program development in general, and econometric studies, trend extrapolation research, and job vacancy studies in particular.

Program Need Index. For schools operating in geographical areas where more than one institution produces graduates in a given field, the Program Need Index (PNI) suggested by Nielsen (1981) may be a useful technique for assessing the feasibility of initiating a new program. Used cautiously, the PNI allows an institution to compare the relative strength of current and proposed programs in a geographically defined labor market while accounting for the presence or absence of similar programs offered at competing institutions. The PNI is given by a formula:

$$\text{PNI} = \frac{\text{Number of current employees in targeted employment area}}{\text{Number of graduates in area with related majors}}$$

For program planning purposes, the value computed for the PNI should exceed 1. Values lower than 1 indicate that there are more programs producing graduates in a given geographical area than the labor market can absorb. A hypothetical example for a planned master's degree program in petroleum engineering illustrates the PNI analysis.

$$\text{PNI} = \frac{\text{5,000 people employed as engineers in area}}{\text{250 graduating master's degree engineers from area colleges}} = 20$$

Example for an undergraduate petroleum engineering program:

$$\text{PNI} = \frac{\text{5,000 people employed as engineers in area}}{\text{1,000 graduating bachelor's degree engineers from area schools}} = 5$$

In these examples the index value for the graduate petroleum engineering program is 20, while the value for the undergraduate program is 5, suggesting that the competitive position for the graduate degree program is considerably better. However, before resources are shifted to support the graduate program as a result of these formulas, more research is desirable. Perhaps further research would indicate that baccalaureate-level training in petroleum engineering is sufficient for entry into the field and that a graduate degree is superfluous for entrance.

It would be disingenuous to accept the results of the PNI applied to an institution's programs without first realizing its limitations. In these examples we first have to carefully determine what percentage of available jobs are accessible to candidates with a graduate degree before we can entertain weighty decisions about where to direct institutional resources. The mobility of job seekers trained at other institutions and willing to move into the geographic area of interest is also not factored by PNI analysis. It is also more difficult to apply data-driven techniques such as the PNI to liberal arts programs for the simple reason that relevant data are scarce, especially since no convenient, one-to-one correspondence exists between these programs and specific occupations.

To be relevant for a given institution, more information, primarily student follow-up data, is needed to determine what percentage of liberal arts graduates enter graduate school, find immediate employment, or elect to pursue studies in another field. For those students electing to extend their education, institutions will want to know the types of subject they are studying. Similarly, for those graduates who elect to work, institutions should know which employment fields they enter. More knowledge of the postgraduation experiences of all graduates, particularly liberal arts students, can point the way to modification of existing curricula or the need for new program development.

External Advisory Committees. External advisory committees are more common among two-year institutions. These groups, consisting of qualified professionals from the field that the new program is intended to address, can be invaluable in determining whether a new instructional program will be successful. Representatives from the private sector can act as a sounding board for employment needs and offer priceless insights into the curricular content of a proposed program. Formed on a standing basis to assist institutional decision makers, and when properly constructed with an eye to wide representation of employers within a specific employment market, such a committee can save the college from making a false start in launching a new program and can confirm or dispel data that an institution has collected to support program development. Later, after the program is launched, the committee can suggest benchmarks for program evaluation and make valuable employment leads available to program graduates. A program advisory committee is most successful when it has fresh, reliable data about the program. Provision of such information is an important institutional research function.

Conclusions

Institutional research personnel should increase their involvement in instructional programming beyond the role required for program review and discontinuation. This chapter has presented techniques to assess the market potential for new programs, which institutional researchers can use to increase their involvement in this crucial component of institutional health. The need for institutions to demonstrate their connection to workforce development has been drawn even tighter during the recent economic downturn at the beginning of this century. Although some in academic circles will paint such activity as purely a vocational concern, it behooves institutions to be ready to answer where their programs align with the reality of labor markets.

Accordingly, the most frequently used techniques presented in this chapter focus on employers and employment needs. The advantages and disadvantages of seven specific employer surveys and study techniques have been presented. The most popular of these techniques, the employer survey, promotes employer involvement in program development but may also lack validity and reliability. Other employment-related study techniques are more sophisticated but may be insensitive to rapid changes in labor markets. Surveys of current students can produce invaluable insights for assessing market potentials. Among the information institutions should collect from these surveys are preferences for scheduling options, delivery mechanisms, perceptions of existing college services, and preferences for a specific program.

Several commercially available surveys—especially the ESS, CIRP, SOIS, NSSE, and CCSSE—can furnish researchers with a convenient means of comparing marketing information for currently enrolled students with national profiles. These data can point to needed information on existing programs and services, to illuminate the processes of new program development. Though more difficult to obtain, similar data should also be collected for new target markets. As institutions expand into new markets, the preferences of prospective students for scheduling, program content, and institutional services must match the institution's ability to deliver.

Among other techniques reviewed in this chapter are values and lifestyles research and the Program Need Index. These techniques are new ways of approaching the fit between a proposed program and the market need for new and existing ones. Psychographic research in particular represents a departure from traditional demographic market research and is a fresh framework for matching programs with student characteristics.

Interest in program development appears to be on the rise as more institutions realize that change is unrelenting. This trend calls for an activist role for institutional research offices. During the initiation and pre-implementation phases of program development, institutional personnel should forge alliances with personnel responsible for student recruitment, alteration in curricula, delivery systems, and student services. After a new program is implemented, immediate ties to other functional campus units can help the institutional research office evaluate its success. For the foreseeable future, public institutions will continue to face external pressure to eliminate nonproductive programs. This, in tandem with increased competition among institutions for students, constitutes an agenda that might appear to undercut institutional vitality. Against this backdrop, the techniques presented here for assessing the market potential of new programs merit serious consideration.

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1.Because of a copyediting error, this chapter was mistitled as, “Institutional Research and New Program Development” in New Directions for Institutional Research, Winter 2005. Portions of this chapter previously appeared in Voorhees, R. “Assessing the Market Potential for New Academic Programs.” In R. S. Lay and J. J. Endo (eds.), Designing and Using Market Research. New Directions for Institutional Research, no. 54. San Francisco: Jossey-Bass, 1988.

Table 1. The VALS Typology and Its Implications for Higher Education				
Segment	Percent of Adult Population	Motivation/Resources	Description	Consumer Behavior
Innovators	10	Varying degrees of all motivating types: ideas, achievement, and self-expression	Innovators are successful, sophisticated, take-charge people with high self-esteem. Because they have such abundant resources, they exhibit all three primary motivations in varying degrees. They are change leaders and are the most receptive to new ideas and technologies. Innovators are among the established and emerging leaders in business and government, yet they continue to seek challenges. Their lives are characterized by variety.	Innovators are very active consumers, and their purchases reflect cultivated tastes for upscale, niche products and services. Image is important to Innovators, not as evidence of status or power but as an expression of their taste, independence, and personality. Their possessions and recreation reflect a cultivated taste for the finer things in life.
Thinkers	11	Ideas/High Resources	Thinkers are motivated by ideals. They are mature, satisfied, comfortable, and reflective people who value order, knowledge, and responsibility. They tend to be well educated and actively seek out information in the decision-making process. They are well-informed about world and national events and are alert to opportunities to broaden their knowledge. Thinkers have a moderate respect for	Thinkers are conservative, practical consumers; they look for durability, functionality, and value in the products they buy.

Source: Voorhees, R.A. (2005). Using research to align programs. In R. Voorhees and L. Harvey (eds.), Workforce Development and Higher Education: A Strategic Role for Institutional Research. New Directors for Institutional Research No. 128. San Francisco: Jossey-Bass.

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Segment	Percent of Adult Population	Motivation/Resources	Description	Consumer Behavior
			the status quo institutions of authority and social decorum, but are open to consider new ideas. Although their incomes allow them many choices,	
Believers	16.5	Ideas/Low Resources	Like Thinkers, Believers are motivated by ideals. They are conservative, conventional people with concrete beliefs based on traditional, established codes: family, religion, community, and the nation. Many Believers express moral codes that are deeply rooted and literally interpreted. They follow established routines, organized in large part around home, family, community, and social or religious organizations to which they belong.	As consumers, Believers are predictable; they choose familiar products and established brands. They favor American products and are generally loyal customers.
Achievers	14	Achievement/High Resources	Motivated by the desire for achievement, Achievers have goal-oriented lifestyles and a deep commitment to career and family. Their social lives reflect this focus and are structured around family, their place of worship, and work. Achievers live conventional lives, are politically conservative, and respect authority and the status quo. They value consensus,	With many wants and needs, Achievers are active in the consumer marketplace. Image is important to Achievers; they favor established, prestige products and services that demonstrate success to their peers. Because of their busy lives, they are often interested in a variety of time-saving devices.

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Segment	Percent of Adult Population	Motivation/Resources	Description	Consumer Behavior
			predictability, and stability over risk, intimacy, and self-discovery.	
Strivers	11.5	Achievement/Low Resources	Strivers are trendy and fun loving. Because they are motivated by achievement, Strivers are concerned about the opinions and approval of others. Money defines success for Strivers, who don't have enough of it to meet their desires. They favor stylish products that emulate the purchases of people with greater material wealth. Many see themselves as having a job rather than a career, and a lack of skills and focus often prevents them from moving ahead.	Strivers are active consumers because shopping is both a social activity and an opportunity to demonstrate to peers their ability to buy. As consumers, they are as impulsive as their financial circumstance will allow.
Experiencers	13	Self-Expression/High Resources	Experiencers are motivated by self-expression. As young, enthusiastic, and impulsive consumers, Experiencers quickly become enthusiastic about new possibilities but are equally quick to cool. They seek variety and excitement, savoring the new, the offbeat, and the risky. Their energy finds an outlet in exercise, sports, outdoor recreation, and social activities.	Experiencers are avid consumers and spend a comparatively high proportion of their income on fashion, entertainment, and socializing. Their purchases reflect the emphasis they place on looking good and having "cool" stuff.
Makers	12	Self-Expression/Low	Like Experiencers, Makers are	Makers are suspicious of new

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Segment	Percent of Adult Population	Motivation/Resources	Description	Consumer Behavior
		Resources	motivated by self-expression. They express themselves and experience the world by working on it-building a house, raising children, fixing a car, or canning vegetables-and have enough skill and energy to carry out their projects successfully. Makers are practical people who have constructive skills and value self-sufficiency. They live within a traditional context of family, practical work, and physical recreation and have little interest in what lies outside that context.	ideas and large institutions such as big business. They are respectful of government authority and organized labor, but resentful of government intrusion on individual rights. They are unimpressed by material possessions other than those with a practical or functional purpose. Because they prefer value to luxury, they buy basic products.
Survivors	10	No primary motivation; often feel powerless	Survivors live narrowly focused lives. Survivors do not show a strong primary motivation. With few resources with which to cope, they often believe that the world is changing too quickly. They are comfortable with the familiar and are primarily concerned with safety and security.	Survivors are cautious consumers. They represent a very modest market for most products and services. They are loyal to favorite brands, especially if they can purchase them at a discount.

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Table 2. Employment Surveys and Study Techniques for Program Development			
Type	Purpose	Advantages	Disadvantages
Industry Survey	Determines all possible jobs within a given industry; points to all related jobs such as field workers, accountants, engineers, trainers, secretaries, and others	Provides a picture of the entire strata of jobs	Must be very complete to show need for related occupations
Job Survey	Determines whether an what programs are needed in a single occupation	Points to specific occupational needs; preliminary to curriculum development	Focuses on only one occupation; must survey across many employment settings
Employer Survey	Determines local of regional employment needs; more in-depth than occupations survey because employers are asked to project needs	Provides trends; involves employers in planning	Projections may lack reliability and validity
Econometric Studies	Conducted by the Bureau of Labor Statistics, U.S. Department of Labor, to determine ten-year employment needs	More reliable than employer surveys; sophisticated methodology	Statistics are national, not always useful for regional or local projections; predictability based on economic forecasts for ten-year period

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Table 2. Employment Surveys and Study Techniques for Program Development			
	based on population, labor force, productivity, consumption, and overall output; estimates openings by occupational		
Job Vacancy Studies	Combines econometric studies with local or regional data to analyze present employment needs	Customizes data for regional purposes	Deals only with present needs; does not predict future needs
Trend Extrapolation Studies	Forecasts trends on basis of past trends	Inexpensive; quickly accomplished	Does not account for rapid change in the labor market; useful only for very short-term predictions
Environmental Scanning	Ongoing search for select information from a wide variety of sources to inform program development	Can provide the latest information on economic trends, labor markets, and political climates	Time consuming; can be expensive; care must be taken to ensure that proper categories for program development are scanned

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