WORKING PAPER

WORKPLACE TRAINING POLICY:
Case Studies of State and Local Experiments

Rosemary Batt
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Economic Policy Institute
1730 Rhode Island Ave. NW, Suite 200
Washington, DC 20036
(202) 775-8810

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Introduction

This volume consists of four case studies of local and state training initiatives in five states. The cases include:

- State employment training programs in California and Illinois;
- Community college-based programs in North and South Carolina;
- Union/Management training programs: the Alliance for Employee Growth and Development negotiated by AT&T, CWA, and IBEW; and,
- Collaborative Regional Training Networks: the Massachusetts Machine Action Project (MAP).

For each of the cases, we begin with an introductory overview which briefly describes the program, highlights its unique characteristics, and summarizes statistics on financing and participation rates. The introduction is followed by a discussion of the structure of program administration and project implementation (in which we draw on one or more examples of local projects). Finally, we consider the issues and dilemmas raised by the experience of these programs and the broader implications for policy formation.

Case I

State Employment Training Systems: California and Illinois

California and Illinois provide examples of states that have funded employment training programs administered largely through private training providers and employers and conducted at the worksite. California's Employment Training Panel (ETP) funds new-hire training for displaced workers and upgrade training for at-risk workers in firms facing workforce reductions or plant closures due to changing competitive conditions. Illinois has two such programs. The older and substantially higher-funded Industrial Training Program (ITP) supports training tied to capital investments by firms that are expanding or locating in the state or otherwise retooling and upgrading their facilities. The smaller Prairie State 2000 program focuses on at-risk companies that must retrain workers in new technologies and quality control systems in order to remain competitive.

The common elements in the California and Illinois programs are a) their reliance on employers to determine training needs: b) their substantial use of employers, employer groups, and private trainers to provide services: c) their provision of training at the worksite: and d) their substantial commitment to state-financed training—California is first, and Illinois is third in terms of state funding for customized training (Creticos, Duscha and Sheets 1990). Additionally, California and Illinois are at the forefront of experimenting with objective performance standards to assess productivity gains resulting from retraining programs (Creticos and Sheets 1990).

These cases highlight some of the central questions posed by the public provision of employment training related to economic development. These include:

- Whether programs should be operated through public education agencies or private training institutions;
- Whether performance-based contracts provide the appropriate administrative vehicle for customized training;
- What criteria should be used for measuring performance;

- How funds may be equitably distributed between different industries, employers, and workers;

- How the state may ensure accountability in the use of funds—to achieve quality services, support broad versus narrow skill development, and prevent the substitution of public for private training funds; and,

- To what extent employment training programs should be coordinated with other state and federal education, training, and economic development programs.

The California and Illinois programs are also instructive because they have been highly controversial. Controversy has stimulated debate, and these debates bring out the central issues and dilemmas that policymakers face in trying to construct effective employment training systems. Thus, while these states are among the most advanced in supporting and experimenting with employment training, they have been roundly criticized for such practices as favoring large firms over small firms and throwing large contracts at major corporations without providing for adequate accountability standards or procedures. Both states have failed to develop adequate accountability standards or a coherent training strategy linked to economic growth and restructuring. The result is that public dollars have frequently subsidized training in large corporations without adequate procedures to prevent substitution and without assurances that programs have any impact on productivity or economic competitiveness. This experience has led to major debates in both states over the future direction of employment training policy. The debate in California has reached crisis proportions; the program's future is currently uncertain. The California legislature is considering if, and under what conditions, the state should continue to support the Employment Training Panel (ETP). The case studies below highlight both the strengths and weaknesses in the California and Illinois approaches to training.

California

This case study begins with a brief description of how ETP works as well as a summary of statistics regarding funding levels and training participants. In the second and third sections we review the current program administration and highlight several examples of model projects implemented under ETP. In the fourth section we discuss the history of controversies and debates surrounding California's ETP, the state's attempts to deal with some of these is-

sues, and the current crisis over the program's future. In the last section we draw lessons and conclusions relevant to developing a national framework for employment training.

In operation since 1983, California's Employment Training Panel represents the most substantial financial commitment to employment training of any state. Although economic development goals were implicit in the law, the overriding purpose of ETP was not to attract business from outside the state but to assist the current population of employers and workers in responding to the 1982 recession. Funded by an unemployment insurance surtax of 0.1 percent of taxable wages, the fund was capped at $55 million per year until 1990 when the cap was removed. The 1991 budget totalled over $150 million.

In the course of nine years, ETP has approved 1,200 training contracts with an enrollment of 198,000 trainees. In the same period, the Panel has spent a total of $298 million on completed contracts. Of the 160,000 trainees enrolled in completed contracts, 82.5 percent have been placed and retained on jobs 90 days after the completion of training—the standard set by law for payment under ETP performance-based contracts. Over the program's history, training costs have averaged $2,000 to $2,500 to retrain current workers and $3,000 to $3,500 to train and place unemployed workers in new jobs (ETP 1990).

Over time, ETP training programs have been of two types: those training unemployed workers for new jobs (new-hires) and those retraining or upgrading employed workers to prevent job loss (retrainees). In contracts for retraining, employers must certify that perspective trainees are likely to be displaced and must provide a plan showing how the training contributes to the long-term job security of the trainee. The bulk of funding went to new-hire training in the first three years of the program, but thereafter shifted to retraining. Overall, 90 percent of funds have supported retraining programs.

The unique characteristics of California's employment training program are its employer-driven quality, its substantial use of private providers, and its performance-based contract system. Employers identify the training needs of workers, develop training proposals usually in conjunction with private providers, and submit applications to a state-level panel charged with approval and oversight of contracts. Training providers receive full payment for their services only if trainees obtain and remain in jobs which meet minimum wage standards (set by the state and varying by industry and occupation) for 90 days following the training.[1] In other words, the state reimburses trainers only for those individuals who are still on the job 90 days after completing training.

The performance standards have had important consequences for the overall financing of ETP. It has meant that contractors frequently do not receive the full reimbursement anticipated in their original contract. Thus, if 70 percent of initial enrollees obtain and continue employment 90 days after training, providers receive 70 percent of the expected contract costs. Because completion rates have averaged 56 percent for new-hire contracts and 78 percent for retrainee contracts (ETP 1991), the Panel has retained a surplus of funds at the end of each fiscal year which are rolled over into the following year. Thus, while the initial law capped the fund at $55 million annually, the accumulation of unspent monies coupled with the interest gained on unused funds has led the ETP fund to grow larger each year. By fiscal year 1991, the fund had reached $142 million.

Program Administration

A staff of 83 located at the central state office and three regional offices have administered the ETP program. Staff provide technical assistance to contractors and conduct on-site monitoring of active training projects throughout the state. Applicants submit proposals to the ETP Panel of seven members who meet monthly to review and approve contracts.[2] While legislators intended that the system of contract administration would limit bureaucratic overhead, over time, state efforts to improve accountability have increased the complexities of contract approval and administration, thereby resulting in serious delays in project approval and implementation. Changing bureaucratic rules and delays became increasingly problematic in the last five years.

Contract proposals must include a detailed account of the training to be undertaken, a justification for the training, and a list of workers who will participate. ETP staff rely on the unemployment insurance wage and claim records (housed in the Employment Development Department), to ensure that all trainees are ETP-eligible. Contracts may take up to one year to develop and be approved and are usually implemented over 18 months to two years. Training consists of a minimum of 100 hours, which includes a combination of classroom training followed by "structured on-site training" (on-the-job training).

The size of contracts vary substantially, from $26,000 contracts to retrain 16 workers to $6 million contracts for 4,000 retrainees. Unit costs per trainee also vary, from under $1,000 to over $12,000 (ETP 1990). Given the greater difficulties involved in new-hire training and placement, costs tend to be considerably higher for new-hires than for retrainees.

Beginning in 1990, the state established a fixed-fee-per-hour cost schedule to reimburse trainers for different types of services. Rates vary according to the type of training (e.g., machining versus office automation), the kind of provider (employer versus training agency), and the category of trainee (retrainee versus new-hire). Reimbursement rates are higher for more skilled occupations. Training agencies and new-hire training also receive slightly higher rates than employers providing retraining. Training providers receive payment in installments: 25 percent at enrollment, 50 percent at the end of the training period, and the remaining 25 percent after the trainees have remained on the job for 90 days. But the installments function more as a system of advances. Since completion rates are typically less than 100 percent, training providers frequently must return funds to the state for those trainees who do not complete training or who do not remain employed for 90 days.

In order to receive appropriate compensation, ETP contractors must carefully document trainee participation and submit to ETP a list of names of trainees who meet the 90-day criteria. ETP staff verify job placement and post-training wage rates through the Unemployment Insurance labor market information system before making final payment.

Project Implementation

Initially focused on manufacturing jobs, the scope of ETP training has expanded over time to include construction, service, and financial sectors as well. Contracts currently funded by ETP include the following types of training: artificial intelligence, computer assisted drafting and design, computer numerical control, customer service, data processing, English as a second language, just-in-time inventory, licensed vocational nurse, management control systems, management information systems, management resource planning, office automation, quality control, quality improvement process, total quality control, statistical process control, total quality management, and value-added management and manufacturing systems (ETP 1990).

Until recently, the state had not attempted to measure the impact of this training on company performance; rather reimbursement rates had only been linked to 90-day job placements. A set of recent case studies of ETP projects, however, has found a number of instances in which productivity improvements were linked to ETP training (Creticos and Sheets 1991). These examples include customer service improvements at banking institutions, productivity improvements in a graphics firm and timber company, reduction of losses due

to waste at a wood mill and a tire manufacturing company, and improvements in delinquency rates at an engineering firm.

The studies also identified consequences of the training, both negative and positive. On the one hand, ETP financed one training program for workers to learn to use an automated accounting system. In this case however, the resulting productivity increases had a perverse effect, the company reduced staff from 30 to 5. On the other hand, in several instances ETP training improved employee morale and also led the company to initiate its own training program. In the latter case, we might conceive of the state-funded training as a pilot test that, once successful, convinced firms that investments in training are both necessary and highly profitable. While ETP performance standards and contract requirements set significant constraints on providers, a number of training organizations have worked with ETP for several years and have developed strategies for both meeting legal criteria and providing quality services. Four examples illustrate this point: the Los Angeles Chapter of the National Tooling and Machining Association (NTMA), the Merit Training Corporation in San Mateo, the Special Programs Division of Glendale Community College, and the UAW Labor and Employment Training Corporation (LETC).

The Los Angeles Chapter of NTMA

The Los Angeles Chapter of NTMA is a regional association of employers working in the machining industry in the Los Angeles area. Drawing on an estimated 3,500 job shops in the region, the organization consists of 250 members and serves close to 500 employers through pre-employment training of new-hires and retraining of skilled machinists. Founded in 1951 as the Southern California Tool and Die Association (SCTDA), the organization began training machinists in 1968 in order to respond to a skill shortage among small machine shops supplying a rapidly growing defense industry. The Los Angeles Chapter of NTMA was formed when the prior SCTDA split into two organizations in 1974.

Between 1968 and 1982, the chapter trained 20-30 machinists per year with the help of state and federal manpower programs such as the Comprehensive Employment and Training Act (CETA) and California's worksite education program, California Worksite Education and Training Act (CWETA). With contributions from member employers in 1982, the organization built a substantial training center that administers a variety of programs. Since 1983, with the support of ETP, the center has expanded new-hire training to 250 people per

year and added a retraining program in computer numerically controlled (CNC) machining for 125 machinists annually. It currently plans to double its CNC retraining program to 250 people per year. In addition to ETP, the center currently operates JTPA programs for entry-level machinists which cover five percent of the center's trainees, and administers a state-approved apprenticeship program serving 125 participants annually. Approximately three-quarters of the center's new-hire participants are minorities of Hispanic, black, or Asian descent. Two percent are women.

The center boasts a 98 percent placement rate for ETP-funded new-hire trainees who have completed 560 hours of training in a four-month program. The pre-employment program, which costs ETP $4,000 per trainee, covers the basics of precision machining from milling to blueprint reading: it readies graduates to work and continue their training at companies with in-house or state-approved apprenticeship programs. The latter require four years of classes one night per week plus on-the-job training in order to reach the grade of journeyman machinist. ETP thus serves as a bridge for unemployed workers to gain the basic skills for entry-level positions in precision machining and the opportunity for further training towards highly skilled tool and die making.

In the case of the retraining program, the Los Angeles/NTMA center holds classes for skilled and semi-skilled machinists to learn the principles of CNC machinery. In some cases, highly skilled and experienced machinists come to take classes in CNC machining. In other cases, semi-skilled machine operators who have been working with CNC machinery come to the center to learn the basics.

In both the new-hire and retraining programs, then, the value of ETP-supported services is in providing the kind of general training that machinists need, whether at the entry-level or more advanced level, in order to function most productively on the job. According to the center's assistant director, for example, many semi-skilled machine operators learn to operate CNC equipment at work, but on-the-job training does not include basic principles. The ETP training allows them to learn what the machine is doing, to trouble-shoot, and therefore, to operate the machinery more efficiently.

The success of the center's ETP program depends on its reputation among local employers for quality. Given continuing skill shortages in the area, employers frequently call the center when they are recruiting. In addition, the center staff emphasize follow-up in job placement and careful documentation of trainees. If trainees obtain jobs with an employer who is not on

the approved ETP list, the center makes sure that the employer is added to the list so that the center may receive its full funding. Being a successful ETP contractor, then, requires not only providing quality training but ensuring job placement and carefully documenting services in order to gain full reimbursement.

The Los Angeles/NTMA case of ETP training is suggestive in two respects. First, it shows how publicly-supported general skills training can make an economic difference by increasing the employability of workers and by meeting the demand for skills in short supply. Second, it provides a model for using employer consortia to gain economies of scale in contract administration and service provision among small employers who otherwise would be unlikely to participate in state programs such as ETP.

Merit Training Corporation

Merit Training Corporation (MTC) is a small consulting firm located in San Mateo which provides training to clients to improve productivity and profitability. ETP training contracts have primarily involved work with financial institutions which face steeper competition in the deregulated market of the last decade. Merit Training Corporation specializes in total quality management—helping institutions undergo reorganization, change employee roles and responsibilities, and change standards for measuring productivity. MTC's expertise is in bringing about a complete change in organizational culture.

Under ETP contracts, Merit Training conducts an assessment of a firm's training needs, develops a customized curriculum, and uses a "leader/trainer" approach to provide the training. This approach involves working with managerial staff throughout the organization. Merit trains managers or leaders in the organization who in turn train lower-level staff, or "roll out" the training. Much of the training involves communicating to employees the new strategic direction for the corporation, building consensus and commitment to this strategy, and developing employee competencies in marketing, sales, and service. The training course usually involves 24 hours of in-class training followed by structure-on-site (on-the-job) training. For a large financial institution, the training may involve 2,500 people at 250 bank branches.

ETP funding of this kind of training makes it possible for financial institutions to undergo a level of organizational change that would not be possible if firms were to undertake the training on their own, according to Merit Training staff. To make this kind of cultural and behavioral change possible, the train-

ing must be undertaken on a massive scale—for all employees in a short period of time. MTC staff say that without ETP, corporations could not bear the up-front costs of the process: and without independent training providers, employers would not participate in the state program because of the complexities of contract administration and the changing nature of ETP rules and guidelines.

Glendale Community College

In general, ETP does not work with community colleges. Glendale Community College (GCC) is a rare exception and is perceived as a model of success throughout the state. Since June 1985, the Special Programs office of GCC has offered new-hire and retraining classes in computers under ETP-funded contracts. The program focuses largely on assisting small businesses interested in transforming their office automation systems. Program staff work with the small business owner to choose the appropriate computer system for the business in question and to train the clerical and managerial staff in the use of the system. In its first six years in operation, the Glendale ETP program earned $13 million in contracts and served 4,000 small businesses. Each business often sends only one or two employees who need to operate the new computer system. Glendale has successfully trained and placed 7,000 retrainees and 800 new-hire trainees since 1985.

Retraining lasts eighteen weeks and consists of three hours of lecture and four hours of lab per week. To maximize accessibility, Glendale has set up classes at four training centers in the San Fernando Valley which are open from 3 p.m. to 10 p.m. daily. Currently, Glendale runs eight classes per night—one at each center and four on-site at firms with twenty or more employees enrolled. The average cost of retraining programs is $1,300 per individual. The new-hire program consists of 30 hours per week for eleven weeks and costs ETP $4,000 per trainee.

The Glendale program regularly achieves 100 percent completion rates and 100 percent reimbursement from ETP. Asked how the Glendale program maintains this outstanding record, the director argues that it depends on gaining the active involvement of employers. The more the employer gives—in terms of his time—and understands the importance of training to the successful operation of the computerized office system, the more the training achieves the goals of ETP. Glendale requires employers to go through a two-hour training session to learn about the program before signing up, and further insists that

employers make additional contributions in the form of work time off to ETP participants or pay for the time they attend the training. Glendale then funds an instructor's salary for one week to work with the employer in setting up a computer system, developing an adequate training program for employees, and producing an ETP proposal. Glendale, in effect, acts as a broker between the state and small employers to handle both the contract administration and actual training. The high completion rates that Glendale achieves depend upon the development of this close working relationship and accountability between the college and the network of small employers that the program staff have developed.

Similarly, the program staff actively monitor trainees' participation in programs and offer tutoring and make-up sessions so that participants are less likely to drop out. The tracking system extends beyond the 90-day placement period required by law. In one follow-up study of 580 new-hire trainees, for example, Glendale staff found that one year after completing training, 86 percent had either maintained their position or been promoted to higher paying jobs.

This example of the Glendale program serves as a model of how community colleges can become ETP providers—something that in fact few of California's community colleges have done. While many observers of ETP cite the risks involved in ETP performance contracts as limiting community college involvement, the Glendale example suggests that these risks may be minimized by the kind of implementation strategy that program staff adopt. At the same time, the Glendale example suggests a public sector strategy that makes it possible to reach small businesses in different sectors of the economy—a segment of the employer community which finds it difficult to gain access to state programs such as ETP due to lack of resources and economies of scale.

Evolution and Crisis in ETP

The history of ETP has been punctuated by controversy and heated debate. It has involved tug-of-wars between public and private training providers, between advocates for disadvantaged versus skilled workers, between social reformers and economic development specialists, between those trying to save smokestacks and those trying to build new growth industries. The debate concerns the ambiguities surrounding the real purpose behind ETP. In compromises to make ETP into something for everyone, the program lost a coherent

vision, purpose, or strategy. This section describes some of the forces that have shaped ETP over the last decade.

Public Versus Private Training Providers

The emphasis of ETP on private versus public training providers grew out of the experience of an earlier California job training program, the California Worksite Education and Training Act (CWETA), in operation between 1979 and 1982. CWETA, which received legislative support because of a recognized skill shortage in the state, was California's first experiment in state-supported customized training. With annual funding of $10 million, CWETA provided training projects through performance-based contracts at participating community colleges. Performance criteria, however, only required a verbal commitment of an employer's intention to hire the trainee.

Based on the experience of CWETA, framers of ETP modified the administrative framework for job training, by establishing more rigorous performance standards for contracts, by tying programs more closely to the needs and interests of employers, and by separating job training from the community college system. Stricter performance measures were intended to ensure greater accountability in the use of public funds.

Establishing an administrative mechanism for job training separate from the public education system recognized the distinct goals of each. Training advocates saw the purpose of ETP as responding quickly and specifically to changes in the state's economy, technology, and employers' competitive strategies: by contrast, community colleges saw their goal as meeting the broader long-term academic needs of the regions in which they were located, and in particular, of serving as transfer institutions to four-year universities. Training advocates worried that ETP would become a low-priority program if housed in the large community college institution. As a result, they established a separate administrative framework for ETP but provided that a range of organizations—including employers, employer groups, public education agencies, and private training institutions—were eligible to write ETP contracts.

The original ETP legislation, then, created a highly flexible employment training system with a minimal bureaucracy designed to be responsive to the changing economic environment of California business. The program's legislators and administrators minimized regulations governing the details of training contracts as long as eligibility and performance criteria were met. Contract approval by the Panel depended upon a qualitative assessment that the proposed training would reasonably respond to the needs of at-risk workers and

employers. The novelty of employer-based training coupled with the strict performance criteria, however, led to a slow start for the program. ETP, for example, trained and placed only 3,913 individuals in the first three years of operation (Moore, Wilms and Bolus 1988). On the one hand, employers were either unaware of ETP, unwilling to get involved in state-funded programs, or unaccustomed to developing training proposals of the sort intended under ETP. On the other hand, non-profit organizations and public education agencies that were in a position to conduct new-hire training were reluctant to undertake ETP training for which they were not assured complete reimbursement. Whereas small, non-profit organizations did not have the resources to absorb the costs of failure, public agencies argued that they should not put public monies at risk under the strict performance criteria. As a result, by 1985, ETP returned $20 million in unused funds to the state unemployment insurance fund.

The strict performance standards established in the law, then, created a shortage in the supply of training providers—a vacuum soon filled, however, by the development of a cottage industry of private training providers and consultants. This development has given California's system one of its unique features. A network of small, private training organizations began to provide employers with an alternative system for meeting their training needs. A model of contract administration and training evolved in which many employers subcontracted with private consultants to develop ETP training proposals and to serve as brokers between the state and the employer with respect to contract administration and documentation. Often a second subcontractor, a private training agency, or less frequently a community college, would provide the actual training. While program advocates welcomed this development as providing a flexible alternative to public education agencies which were unresponsive to employer needs, others have criticized it as unnecessary, duplicative, and costly. Critics, for example, have portrayed private training consultants as unnecessary middlemen living off of hefty government contracts.

Distributional Issues

Another area of controversy has concerned who are the intended beneficiaries of ETP. Conflicts exist at a number of levels: a) as above, between public or private training providers over who wins government contracts; b) between unemployed (new-hires) and employed workers (retrainees); c) between large firms and small firms; and d) between declining, at-risk industries versus new growth industries.

New-hires Versus Retrainees. As initially conceived, the purpose of ETP was to reduce unemployment through job creation and retention. The intent was to reduce unemployment, which at the time was approximately 11 percent. In light of this focus, the California Assembly tied ETP to the renewal of the state Unemployment Insurance (UI) system so that both the program's initial funding mechanism and eligibility standards were closely linked to UI criteria. Labor unions and large unionized manufacturing employers were among ETP's key supporters.

In the first year of the program, the law reduced the UI tax for employers by the amount targeted for ETP: thereafter ETP became a separate training tax. Eligibility criteria, however, remained tied to the UI system. ETP funds must be used to train UI-eligible workers for full-time jobs (at least 35 hours per week). Eligible trainees include: a) those unemployed who are currently receiving UI benefits; b) those unemployed who have exhausted their benefits; and c) those employees who face displacement in companies that anticipate workforce reductions or plant closures.[3]

In the first three years of ETP, 60 percent of participants were new-hires, and the remainder were in retraining programs. But as California's economy rebounded in the mid-1980s, unemployment levels dropped, and laid-off workers went back to work. Unions and the large employers who paid the training tax wanted to use ETP to retrain workers and improve firm competitiveness. Employers preferred retraining existing workers with a solid work record than participating in the training of new-hires whom they did not know. Unions favored programs for members, the bulk of whom were being recalled to work.

ETP's performance-based system also favored retraining over new-hire training; because reimbursement rates were tied to the 90-day job placement, training providers had built-in incentives to prefer retraining contracts. An evaluation of ETP during its first three years, for example, found that the average contract completion rate was 51 percent for new-hire programs and 64 percent for retraining (Moore, Wilms and Bolus 1988).

The shift from new-hire to retraining, however, had other distributional implications. It was not only a difference between employed and unemployed workers, but between more and less advantaged workers. The 1988 evaluation of ETP in its first three years, for example, found that the socioeconomic characteristics of new-hire trainees and retrainees varied considerably. New-hires tended to have lower educational levels than retrainees, were more likely to be on Aid to Families with Dependent Children (AFDC), and were more likely to be

young, female, and from an ethnic minority. Retrainees tended to be white males between 25 and 45 years old (Moore, Wilms and Bolus 1988).

Meanwhile, as the economy grew in the mid and late 1980s, those who were left unemployed were more difficult to train and place, more "hard core." ETP's UI-linked eligibility criteria meant that a substantial proportion of the unemployed were not eligible for ETP training because they were not covered by UI benefits. ETP was not a social, but an economic program.

These and other factors led to a shift in the focus of ETP—from a program intended to primarily serve the unemployed to one focused on retraining and upgrading workers on the job. By the late 1980s, over 90 percent of ETP funds targeted retraining as opposed to new-hire training. Of the 187 contracts totalling $63 million which ended in fiscal year 1990, for example, ETP trained 1,383 new-hires and 33,436 retrainees. This trend, however, was evident by 1986, when the California Legislative Analyst issued a highly critical report of ETP, citing its failure to implement the legislation as intended (Warren 1986).

Moreover, as the economy improved, the link between retraining and the displacement of workers became more tenuous. The law required employers receiving ETP funds to stipulate that ETP participants would be displaced if they did not receive the training in question. In fact, these affirmations became increasingly suspect: critics of ETP maintained that most retraining contracts did not involve workers at risk of losing their jobs.

Large Firms versus Small Firms. Most ETP funds have gone to large corporations, with unionized work places receiving a disproportionate share. Small and medium-sized employers have been under represented in ETP contracts. ETP's grant recipients have included the state's largest firms, including million dollar plus contracts to auto, aerospace, banking, and retail giants such as General Motors and Toyota (NUMMI plant), Rockwell International, Bank of America, American Savings and Loan, and Carter Hawley Hale (retail) (ETP 1989, 1990).

While this distributional question did not seem to be a major issue in the early years of the program when a surplus of ETP funds existed, by 1989 the ETP Panel had more requests than available money. Critics charged that small businesses which are often the source of job creation were not being served. Small employers who contributed to the fund complained that they were not receiving their fair share. Others argued that by subsidizing the training of some firms and not others, the state was providing the ETP-participating firms with an unfair market advantage over their competitors.

The bias in favor of large firms occurred for several reasons. First, in the early years of ETP, large firms were more involved in supporting the legislation and more aware of the availability of ETP funds. Even so, employers were slow to participate. Second, ETP had a small administrative staff, and an abundance of funds which it was under pressure to spend or lose. Large contracts to prominent employers was one solution. Third, as ETP gained more credibility, smaller employers became more interested; but at the same time, the contract-based system became more complex and bureaucratic, particularly in the last five years. As a result, large firms able to hire highly specialized consultants were the ones most likely to succeed in wading through the complex system.

Accountability

The ETP *Annual Report* (1990) describes many of its programs as providing training for new technologies and work reorganization. This training will help workers adapt to new technologies or undertake new forms of teamwork and quality control as well as help entire organizations restructure work roles and management systems. But investigations into programs have found that they lack content or quality and provide public funds for training that should be considered a normal part of doing business (Warren 1986; Inman 1990). Other investigations have alleged fraud (Frammolino 1991), and have shown that ETP approved contracts of questionable value, as in the funding of "cross-training" for seasonal migrant workers to learn to pick other crops.

In short, ETP has faced serious accountability issues—issues that are more complex in the case of retraining versus new-hire programs.

Policy Debates and the 1989 Legislative Amendments

The critique issued by the California Legislative Analyst in 1986 highlighted several related issues concerning ETP that became the focus of debate in the late 1980s and culminated in amendments to the law in 1989. Building on the discussion above, these issues fall into four categories. First, what was the purpose of ETP? Was it intended to be a program for economic development or social equity? The original legislation contained elements of both, but the structure of the program and the rigorous performance-based contracting tended to favor the former. If ETP was to improve economic performance, what should its overall design and strategy be? What criteria should be used to approve or disapprove programs? Lack of a coherent vision made ETP a reactive organ, a passive funding mechanism for whoever happened to apply for funds.

Second, who was included in ETP's constituency? Large employers and organized labor had lobbied hard for the passage of ETP and together they had agreed to the training surtax on the 1982 renewal of the unemployment insurance legislation. But all employers contributed to the ETP fund. This distributional question had three aspects: which economic sectors to support, which employers to serve, and which workers to train.

A third issue concerned accountability. The performance criteria established in the initial legislation was clear and measurable: job placement for 90 days. Although that criteria was more than what is demanded by other programs, it was more appropriate for new-hire training than for retraining incumbent workers. Retraining designed to increase worker productivity and improve a firm's ability to compete require a different measure of performance. First, how could the Employment Training Panel determine whether the retraining made a difference in a firm's performance? Second, even if it did make a difference, how could the Panel judge whether ETP was funding the training that firms would have done anyway? That is, the public interest in ETP as well as the program's economic development goals implied that funds should be spent to supplement existing private sector efforts—ETP training should be over and above that normally provided. The initial ETP legislation did not anticipate how to handle this issue. Critics argued that ETP provided a direct subsidy to large firms, thus supplanting private sector training efforts.

Finally, the issue of coordination of ETP with other state and federal education and training programs, as well as other state economic development efforts, was problematic. Established as a separate administrative entity, ETP was not integrated into existing federal and state job-training programs. With the exception of the use of the UI labor market information system, ETP did not coordinate efforts with the state's unemployment service centers. It did not interact with other programs in California's Employment Development Department, including basic skills training, JTPA training for disadvantaged youth, displaced worker programs under Title III of JTPA, and work/welfare programs such as California's Greater Avenues for Independence (GAIN). It had little interaction with the state Department of Education which administers the Carl Perkins vocational education programs, with federal and state apprenticeship programs operated by the Department of Labor, or with the economic development programs of the Department of Commerce. The issue concerned not only ETP, but rather the proliferation of education and training programs funded at the federal and state levels and implemented at the local level. While some argue that each program serves a different clientele and should remain separate, others argue that duplication of services leads to waste and inefficiency.

The 1989 Legislative Amendments. The 1989 amendments to ETP, effective January 1990, attempted to deal with these issues in a number of ways. First, the legislature asked the Panel to begin submitting annual plans to the governor and the legislature designed to target ETP training towards key growth industries, occupational skill areas, and regional labor markets. The intent of these plans, based on the labor market information system housed in the state's Employment Development Department, is to give the Panel a strategy for targeting ETP dollars towards economic growth areas rather than approving contracts on a first-come, first-serve basis.

Second, the legislature placed greater emphasis on funding ETP training for small businesses, loosened the reimbursement criteria for new-hire training in recognition of the additional risks involved, and mandated that ETP work more closely with disadvantaged workers including: migrants, seasonal farmworkers, and recipients under California's state work/welfare program (GAIN).

Third, to address the issue of accountability, the legislature mandated that employers provide the Panel with a detailed business strategy, required in-kind contributions from employers, and established a new performance standard for retraining. Under the business plan, employers must show how and why the training is necessary for the company's long-term business strategy and the job security of trainees. The new performance criteria requires employers to measure the productivity increases associated with the ETP training.

Finally, to deal with issues of coordination, the state legislature developed language to move ETP in the direction of greater communication and integration with existing training programs.

Conclusions

California's Employment Training Panel has taken the lead in experimenting with state-funded job training to respond to rapidly changing competitive conditions. In the process, it has confronted many of the key issues facing customized training programs of this kind. How does the state ensure that funds are equitably distributed among eligible employers and workers, that public monies supplement private training and serve as a catalyst for improved productivity, that training serves the public interest in furthering economic development, that training supports the broader skill development of workers rather than the narrow skill requirements of particular jobs? How does the state ensure quality and accountability without creating burdensome rules that limit program flexibility and responsiveness?

Recent changes in ETP suggest answers to some of these questions. In keeping with the 1990 amendments, for example, ETP has attempted to target projects for small businesses, new-hire training, and welfare recipients. Given the successful model of the Los Angeles Machine Tool Association, one approach is to seek out more employer groups, trade associations, and Private Industry Councils (PICs). For large and/or repeat contracts, the Panel is moving in three directions. First, it has begun approving "standards of accountability" or methods of measuring productivity increases, depending upon the industry, firm, and occupations involved. Each employer submitting a proposal to ETP develops measures appropriate to his or her particular business operations. In a recent ETP contract for training in office automation for an insurance company, for example, the standard is a reduction in the error billing rate from 25 percent to 5 percent and an increase in payments to the provider of 20 percent.

Second, the Panel has begun acting more as a "catalyst" for large employers undertaking retraining contracts—for example, by financing the retraining of a core of workers whom the firm itself may use to retrain other employees. Finally, by requiring ETP applicants to submit business strategies which link training to economic stability and job security, the Panel is encouraging businesses to focus on the importance of human resource strategies for long-term competitiveness and economic development.

The future of ETP, however, is uncertain. Those involved in the system—from employers to training providers and advocates to policymakers—are undergoing a period of intense discussion and introspection. The debate concerns how to create an employment training system that has a clear agenda and strategy for improving the state economy in the coming decades.

Illinois

The State of Illinois has two employment training programs that provide customized training to firms—the Industrial Training Program (ITP) and Prairie State 2000. The programs have distinct purposes, eligibility rules, and reimbursement criteria, and serve largely different groups of employers and workers.

ITP began in 1979 as an experimental effort to encourage new firms to locate in the state and existing firms to expand their operations. Given a growing loss of manufacturing jobs in the 1970s, the program's focus was job cre-

ation. Legislators linked state assistance for training to firm investments in new equipment and facilities. ITP financed the training needed for new employees to operate new technology. From a budget of $30,000 and one contract covering ten employees in 1979, the program grew steadily until it reached 94 employers and 6,000 workers in 1986. Participation quadrupled in 1987 to 25,000 workers and has continued to climb since then. The 1990 budget of $33 million represented an all-time high. Between 1979 and 1990, ITP trained approximately 130,000 workers in 700 firms for a total of $106 million dollars.

In contrast to ITP, the Prairie State 2000 Authority originated in 1983 for the purpose of providing individual training accounts for unemployed insurance claimants and potentially displaced workers. The thrust of the program was to decrease unemployment and retrain skilled workers in new occupations. Amended in 1985, the new law created two separate programs: the individual training assistance program (ITAP), which largely continued the prior work of the authority, and the employer training assistance program (ETAP), targeted to the needs of employers. Though ETAP is significantly smaller than California's ETP, the two programs resemble each other in their focus on retraining current employees in new technologies and work organization in order to increase the competitiveness of existing businesses in their respective states.

Funding for the Prairie State Authority totalled approximately $10 million between 1986 and 1991, with approximately 60 percent of funds going to ETAP, and the remainder to ITAP. ITAP has financed training for approximately 1,200 employed and unemployed workers annually. Training grants meet 50 percent of tuition costs of programs for employed workers up to a total of $1,000, and 100 percent of costs for the unemployed up to $2,000. ETAP supported $4.8 million in training grants and loans for 332 firms training 33,000 workers between 1986 and 1991.

Although all employers are potentially eligible for ITP and ETAP, these employer-driven programs have historically served different groups of employers and workers. ITP's emphasis on job creation linked to capital investments has meant that large corporations with substantial resources have typically participated. More recently, modifications in eligibility requirements have increased the participation of small and medium-sized firms. By contrast, ETAP's small funding-base coupled with strict requirements to assist financially-needy companies has meant that the program serves primarily small and medium-sized employers. ETAP grants in 1990-1991, for example, averaged $17,000 per firm—the average size of participating firms was 158 employees.

Additionally, ETAP assistance is only available to "at-risk" firms, defined as those that either reinvest all profits back into the company or operate at a loss but with a business plan for recovery that includes training.

Over time, however, ITP has shifted some of its funds to retraining programs similar to those operated under ETAP.[4] This shift, in response to the changing economic conditions of the mid-1980s, has allowed ITP to assist firms in retraining workers for increased productivity and improved product quality. Thus, there has been a shift in emphasis from attraction and new-hire training to retention and retraining in recent years.

Changes in budget allocations for fiscal year 1992 are consistent with this shift in emphasis. The state legislature reduced funding for ITP from $28 million to $13 million. However it increased the budget for Prairie State 2000 from $2.3 million to $6.9 million. Funding for the ETAP program within the Prairie State Authority went from $970,000 to $3.1 million. The legislature made another $1.1 million available to Prairie State for the development of basic skills and literacy programs.

Program Administration and Project Implementation

Illinois' economic development agency, the Department of Commerce and Community Affairs, administers ITP along with other job training programs such as JTPA and dislocated worker programs. ETAP is administered separately under the Prairie State Authority. Though eligibility and performance standards vary substantially for ITP and ETAP, administrative rules governing both have remained relatively simple over time.

The Industrial Training Program

A staff of three review and approve proposals for ITP grants. Applications may be submitted at any time, and are approved on a first-come, first-serve basis. Employers hire those workers to be trained, customize the training curriculum to production needs, and determine the extent of classroom versus on-the-job training to be undertaken. The state directly reimburses employers for up to two-thirds of training costs. These include: a) the wages and fringe benefits of eligible workers for a set training period; b) instructors' salaries and fringe benefits and travel expenses; c) instructional materials; and d) administrative expenses. With current demand for ITP exceeding the supply of funds, however, the state has requested that firms apply for no more than 50 percent of total training costs.

The state measures program success by the number of new jobs created and the cost per trainee. Employers must also meet basic fiscal accountability standards. More recently, the state has required applicants to develop quantifiable measures of the expected outcomes or benefits of the training.

Funding in fiscal year 1990 totalled $24.7 million for the three ITP programs listed in Table 1.

Table 1
Industrial Training Program: FY 1990

Type of Training	Total Cost (millions)	Number of Trainees	Cost per Trainee
Basic Program	$9.8	6,044	$1,621
Mature Industries	10.0	24,485	409
Target Components	4.9	3,347	1,453
Total	$24.7	33,876	$ 729*

*This is an unweighted average.
Source: Industrial Training Program (ITP) 1990 Annual Report.

The different programs administered under ITP target distinct groups of employers and workers. The basic program is the original one, which trains new employees to operate new equipment linked to corporate expansion, relocation, modernization of facilities, or introduction of new products. The mature industries program finances the retraining of existing workers for new product lines or new technologies. Beginning in 1990, the state legislature added four new target-programs for: a) training linked to improved productivity or product quality; b) self-employment training to assist low-income or unemployed workers with small business start-ups; c) training to help companies begin or increase export sales; and d) training for companies located in state enterprise zones.

Recent examples of ITP projects, as outlined below, include training grants to Diamond-Star Motors for plant location and expansion, Caterpillar, Inc. for a retraining program linked to factory modernization, and Northwestern Steel and Wire for both new-hire and retraining in a multi-craft program.

Diamond Star Motors

Diamond Star Motors, a joint venture between Chrysler Corporation and Mitsubishi Motors, produced its first automobiles in the fall of 1988. ITP provided grants over a four-year period totalling $39 million to train new employ-

ees in the new technologies, manufacturing processes, and work organization in the Bloomington plant.

Caterpillar, Inc.

Caterpillar, Inc., Illinois' largest private employer and the world's largest manufacturer of earth moving and construction equipment, undertook a plant modernization program in the 1980s that will total $1.5 billion. Approximately half of the investment in the "Plant with a Future" program is targeted for facilities in Illinois. The state awarded Caterpillar a series of ITP grants totalling $10.8 million over four years to train 40,000 employees in new technologies and work processes.

Northwestern Steel and Wire

Between 1986 and 1990, Northwestern Steel and Wire, the eleventh largest steel producer in the country, received a series of grants from Prairie State 2000 and ITP to develop and implement a multi-craft training program to reduce the unit labor costs of maintenance workers.[5] The training was designed to improve problem-solving skills and flexibility in work assignments as well as reduce staff. The program was one in a series of efforts (including investments in new technologies and union wage concessions) by the firm and the Steelworkers' union to reduce costs and make the company more competitive. A $40,000 grant from Prairie State 2000 paid 50 percent of the costs of a pilot project in 1986 and 1987. ITP followed up with a $76,000 grant to cover 50 percent of the wages of the first group of 50 participants in cross-training classes. During its first two years, approximately 340 maintenance workers enrolled in the program, which involved training in highly portable skills. During the same period, the company achieved a 10.3 percent cost savings in its Steel Division and a 3.6 percent reduction in the Wire Division. The company views the multi-craft program as one in a series of measures that led to these cost reductions (Creticos and Sheets 1991).

Northwestern Steel and Wire received three additional ITP grants in 1990 in conjunction with the expansion and reorganization of production at its Illinois plants. To increase its production from 1.8 to 2.4 million tons annually, the firm hired and trained 95 new production workers with an $83,000 ITP grant. To upgrade its existing workforce, Northwestern established a multi-craft training program to upgrade 140 existing workers at a cost to ITP of $96,000. Additionally, the company received a $128,000 award under ITP's

new export training program to upgrade 52 managers for a five-year export development program (ITP 1990, p. 22).

Prairie State 2000: Employer Training Assistance Program (ETAP)

Administered by a staff of three, the ETAP program assists firms through a combination of direct grants and loans that have totalled less than $1 million annually. ETAP field staff work with companies to develop training proposals which are submitted and approved on a first-come, first-serve basis. Employers determine the content and format of the training according to the firm's particular production needs. They may choose among a variety of providers: private sector trainers, community colleges, in-house company trainers, employer associations, community-based organizations, or unions. In fact, private sector providers and in-house staff make up the bulk of ETAP trainers. In unionized facilities, employers must gain the agreement of the union for the proposed training.

A seven-member board oversees the Prairie State Authority and approves all ETAP grants. It includes four governor-appointees, with a maximum of two from the same political party. The remaining members are *ex officio*: the State Treasurer, the Director of the Department of Commerce and Community Affairs, and the Director of the Department of Employment Security. The board elects the chair from the governor's appointees and appoints the chief executive Officer.

In the first six years of the program, funding commitments remained relatively stable, totalled $5.8 million, and trained 33,000 workers in 332 firms (see Table 2).

Table 2
Employment Training Assistance Program: 1986-1991

Year	ETAP funds (dollars)**	No. Firms	No. Trainees	ETAP$/ Firm	ETAP$/ Trainee	ETAP$/ Firm$*
1986	$1,039,473	47	3,713	22,116	280	n/a
1987	1,021,044	63	8,600	16,207	118	n/a
1988	968,535	55	8,045	17,609	120	1/11
1989	893,259	59	4,608	16,581	212	1/5
1990	1,000,000	60	3,900	16,666	256	1/6
1991	863,266	48	3,831	17,984	225	1/11
Total	$5,785,577	332	32,697	17,426	177	n/a

* Indicates ratio of state funds to company training dollars.
** Primarily grants: includes a total of $220,000 in loans.
Source: Data provided by Prairie State Authority.

Reimbursement rules have remained unchanged over the course of ETAP's six-year history. The Authority provides grants covering 50 percent of direct training costs and makes loans available to firms to cover the remaining 50 percent. Direct training costs include the costs of curriculum development, materials, and trainer fees, but not trainee wages (in contrast to ITP which covers wages). ETAP thus serves as an incentive to firms to invest in training. In practice, ETAP boasts a record of generating eight dollars in company investment for every one dollar of state investment.

The types of costs paid under ETAP have also remained unchanged: the program pays instructional materials and salaries; but unlike ITP, it does not pay trainee wages. Given high demand, the program typically runs out of funds by the third quarter of each fiscal year.

The Authority disburses training grants based on performance criteria similar to those used in California's ETP. Employers receive half of the grant at the beginning of training and the remainder after retrainees have remained on the job for 90 days. The last half of the grant is prorated according to the number of trainees who remain on the job at the end of 90 days. ETAP staff conduct on-site monitoring visits in the course of the training contract and, as in California, use the unemployment insurance information system to track post-training job-retention rates and determine reimbursement rates. They also require employers to submit follow-up reports describing what productivity increases have resulted from the training. Completion and reimbursement rates average 90 percent.

Grants under ETAP have commonly supported retraining in new manufacturing technologies and work processes for productivity and quality improvements. These include computer software training, computer-assisted design and manufacturing, CNC machine training, just-in-time inventory control, material resource planning, and statistical process control. The majority of employers who participate in ETAP have been parts suppliers whose customers are demanding improvements in quality and productivity as a condition for future contracts.

One example of an ongoing ETAP program is that run by the Midwest Industrial Management Association (MIMA), now known as the Management Association of Illinois. A fifty-year-old employer association with 2,000 members in a range of manufacturing and service industries, the group has developed an ETAP program to assist members with retraining for quality and productivity improvements. Many members are suppliers who have undertaken

courses in total quality management (TQM) to meet the demands of customers. Examples of grants to individual companies include the following:[6]

Ingersoll Milling Machine Company. Ingersoll received a Prairie State 2000 grant of $39,000 in 1986 to cover 50 percent of the costs of training workers in geometric tolerancing and dimensioning, a language used to communicate design specifications and necessary to meet tighter tolerances required by customers. A hundred-year-old, family-owned company employing 1,800 workers, the firm lost millions of dollars beginning with the recession of 1982 through the mid-1980s. The company undertook the training program in 1986 as part of a larger effort to increase worker participation, improve product quality and customer service, and reduce waste. Ingersoll qualified for assistance under Prairie State 2000 based on its profit losses in three of the four years prior to the training program.

One measure of performance used by Ingersoll was the percentage of the parts produced which are accepted the first time as meeting appropriate standards. After 22 months of training, Ingersoll found that the number of parts accepted increased by 20 percent. They attributed this improvement directly to the geometric dimensioning and tolerancing program.

Lawrence Box and Basket Co., Inc. A firm of 13 employees in operation since 1903, Lawrence Box and Basket received a grant from Prairie State 2000 in 1988 to train workers to run new equipment designed to produce customized baskets. The company qualified for assistance because it had been operating at a loss. The formal training for mechanics and machine operators resulted in a reduction in scrap from 1 percent of stock to less than 0.1 percent. Set-up time for the new machine was one-half hour, in comparison to the one-half day needed for the comparable prior machine. The new machine both increased the volume and the quality of baskets produced.

Unicadd, Inc. Prairie State 2000 granted Unicadd a $3,750 grant in 1988 to cover 50 percent of the costs of a 400-hour training course for five workers in computer-aided design and manufacturing (CAD/CAM). The small engineering firm needed workers trained in CAD/CAM to meet the design specifications of customers. While the training achieved its purpose, all five workers left the company for better jobs within six months of receiving the training. This case is suggestive of the difficulties that small firms face in attempts to train and upgrade their skilled workforce.

Lyphomed, Inc. A leading producer of critical care pharmaceuticals, Lyphomed received a $41,000 Praire State 2000 grant in 1988 to train workers in a system of quality assurance known as Good Manufacturing Practices (GMP). Lyphomed took this initiative after the Federal Drug Administration cited the company for 44 regulatory and manufacturing deficiencies in 1987. The state paid the costs of an outside training contractor and 25 percent of the costs of curriculum design. Although the FDA required Lyphomed to adopt the Good Manufacturing Practices system, Lyphomed claimed that it lacked the resources to develop and operate a comprehensive program to train its workers in GMP. The state, therefore, assisted with the financing. As a result of the training, the company reported that consumer complaints about products declined by one-half between 1988 and 1989. Microbial counts in sterile processing rooms (another measure of performance) had also decreased.

Conclusions: Implications for Policy

The Illinois employment training programs contain many of the characteristics of California's ETP and raise a number of similar policy issues. Some policy analysts, for example, have criticized ITP for substituting public funds for what should be considered the normal cost of doing business. ETAP, by contrast, has generally avoided this criticism because of its rigid eligibility criteria. There is little doubt in the public eye that ETAP recipients are small, at-risk firms that do not have the resources necessary to meet their training needs. Additionally, the program has clearly generated matching private contributions considerably above the state investment.

The state has also begun experimenting with a tracking system through the unemployment insurance data base. The system has some potential for improving accountability by tracking changes in employment status and wages of program participants. Another initiative involves the state's continuing work on developing more objective performance measures for program evaluation. As in the California case, the 90-day retention criteria is inappropriate for retraining projects whose objective is productivity enhancement. To address this issue, ETAP (along with ETP and four other state programs) is participating in a feasibility study designed to develop an appropriate evaluation system (Creticos and Sheets 1990, 1991). The study seeks to develop business selection guidelines and performance outcome measures to ensure that productivity and quality gains may be linked to training initiatives.

Case II

Community College-Based Systems: North Carolina Community College and South Carolina Technical Education Systems.

North and South Carolina are unique in their early recognition of the need to link industrial training to economic development. Beginning in the 1950s, state politicians and legislators established industrial education programs as part of a broader strategy to attract large corporations to locate manufacturing facilities in their respective states. Political leaders sought to overcome the reputation of Southern states as rural, industrial backwaters with low-wage, low-skilled workers. These case studies analyze the particular characteristics of the North and South Carolina training systems that grew out of this historical experience. While this paper discusses each system as a whole, it focuses more heavily on the employer-oriented and customized training programs and their impact on the broader system. Recent efforts by these states to deal with literacy problems, for example, are not included here.

These systems are instructive and unusual in several respects: a) they are administered and operated through the community college system; b) they are massive; c) their origins as industrial training programs give them strong and continuing links to business—the colleges have a job market rather than college transfer (academic) orientation; and d) the systems integrate degree and non-degree programs in a way designed to cover the technical training needs of diverse populations over the life cycle.

The differences between the training systems in the two states are relatively minimal. North Carolina has a more decentralized structure which gives more decision-making power and autonomy to local colleges. And in recent years, South Carolina has taken the lead relative to many states in developing technology and training resource centers at different community colleges, with each striving for state-of-the-art technology and training in particular occupational fields.

The dilemmas posed by the Carolina systems are also significant. The early and heavy focus on customized training for economic development has often meant that the state pays for training that the private sector would otherwise provide. Such training frequently provides firm-specific rather than por-

table skills for workers. Critics charge that integrating all training programs into one administrative agency creates a public sector monopoly resistant to change. Others argue that the systems have a strong anti-union bias. Staff within the systems point out that inadequate funding often prevents the community colleges from attracting quality teaching staff. Overall, then, these cases touch on many of the central policy issues raised in Volume I of this paper.

North Carolina

The North Carolina Community College system is the state's major vehicle for technical training. The system is massive, comprehensive, oriented towards working adults, and accessible to large portions of the population. Serving 662,255 students in the 1988-1989 academic year, the system employed a staff of 8,785—including 3,699 faculty located at fifty-eight colleges across the state. The 1988-1989 budget totalled $457 million, of which 77 percent came from the state, 11.5 percent from local sources, 7 percent from tuition, and 4 percent from the federal government (NCDCC 1990).

The system is comprehensive and integrated. Unlike most other states which administer employment training programs through a number of different state and federal agencies, North Carolina has consolidated training programs with distinct funding sources under one administrative umbrella. In addition to state-funded programs, for example, the system administers federally-funded programs such as JTPA, Title III displaced-worker programs under JTPA, and the Carl Perkins Vocational Education Act.

Consolidation creates the potential for meeting the training needs of a broad cross-section of the state's workforce and employers. Programs fall into five broad categories: a) curriculum programs for individual students, including technical, academic, and college transfer programs; b) occupational extension (continuing education) for individuals or for workers sponsored by employers; c) correctional education for the state's inmate population; d) special programs for individuals such as literacy and remedial programs for educationally disadvantaged entrants and the state's welfare-to-work program; and e) targeted programs for employers, including a new and expanding industries program, a focused industry training program for existing businesses in the state, and small business centers. Whereas the state funds the first three categories

through a formula based on full-time-equivalent student enrollment, the fourth category uses state and federal funds, and the last category draws on separate state appropriations.

While state program staff admit that this consolidated system may create problems of bureaucracy, they maintain that it greatly facilitates coordination. According to one administrator: "Essentially, we have a tool kit to choose from...a number of different programs, depending upon what the issue is. None of our programs is particularly unique, but together, they add up to a system that has a lot of flexibility and possibilities for responding to the state's economy."

As indicated in the accompanying table, enrollment figures show that the system is oriented towards technical, vocational, and occupationally-related training. The colleges enroll twice as many students in extension as in curriculum programs oriented towards associate degrees. Of those in curriculum programs, the overwhelming bulk are in technical and vocational fields rather than in college transfer programs. The majority of extension students take occupationally-oriented classes (see Table 3).

The system's orientation towards the working population is also evident: 60 percent of enrollees work full-time, 10 percent are employed part-time, and the remainder are unemployed. Almost 45 percent of students attend night courses. And in 1988-1989, the over 662,000 enrollees translated into 120,000 full-time equivalent students. The system, in other words, focuses on continuing education in occupationally-related courses for working adults.

State-published statistics also show a student body that reflects regional demographics: slightly more than 50 percent of enrollees are women, and 20 percent are black. The state facilitates access to community colleges by maintaining low tuition rates ($8.75 per credit hour, $100 per semester for full-time students, $25 per continuing education class), although barriers to entry due to lack of transportation and day care remain problematic.

Origins

For purposes of considering employment training policy, the origins of the North Carolina system are particularly important. In contrast to the majority of state community college systems which originated in junior colleges with an academic transfer orientation, North Carolina's system grew in conjunction with a statewide network of industrial education centers. The centers represented a political response by state leaders to the concern that an agricultural

Table 3
Enrollments and Full-time Equivalents
in North Carolina Community College Programs
(1988-1989)

Program	Enrollment	Full-Time Equivalents
Curriculum Transfer	35,540	11,736
General Education	14,802	3,897
Technical	134,628	45,211
Vocational	32,664	17,092
Sub-total	217,634	77,936
Extension		
Academic	127,328	1,106
Avocational	47,754	4,716
Occupational	272,077	18,161
Practical Skills	20,234	1,869
Self-supporting	2,044	587
Adult Basic Education	8,797	
Compensatory		3,959
Sub-total	469,437	38,608
Regular Budget Total	687,071	116,544
Special Programs		
New/Expand. industries	16,833	2,523
Focused industry	6,559	n/a
Human resource development	5,447	609
Self-supporting	n/a	587
Total	715,910	120,263

Source: NCDCC Fact Book 1990

workforce represented an economic liability. Industrial education became a centerpiece for attracting Northern manufacturers south. State legislation in 1957 established two separate systems—one for community colleges and the second, for industrial education centers. Legislators subsequently merged the two systems in 1963, when six colleges and 20 centers were in operation. At the same time, the General Assembly established a separate, "New Industries Program," designed to customize training for large corporations interested in locating in the state. North Carolina was perhaps the first state to use training as a strategy to attract outside industries and diversify the economy.

Between 1963 and 1989, the New Industries Program (renamed the New and Expanding Industries Program) trained over 210,000 workers for 2,424

corporations. In 1989, a budget of approximately $9 million covered training for 16,800 workers for jobs in corporations such as American Airlines, Lenox China, and American Express. In the late 1970s, however, complaints from in-state businesses that the state was unfairly subsidizing out-of-state firms, led to a comparable program for in-state firms beginning in 1981. Between 1981 and 1989, "Focused Industry Training Centers" (FIT), enrolled 38,000 workers from 4,219 North Carolina firms in a wide range of training programs. FIT, however, targeted training in highly specialized areas that could not be covered by the system's continuing education program because of the small numbers of trainees involved. The state's strategy was to locate "FIT centers" at community colleges serving an area with at least 10,000 manufacturing jobs. The program's 1989 budget provided $75,000 to each of 24 centers across the state and enrolled 6,500 workers in courses. In recent years, the state has complemented these programs by setting aside an additional $2.5 million for "Small Business Centers" at community colleges. These provide technical assistance to small, start-up companies.

These targeted programs for corporate recruitment and job creation had significant spillover effects for the community college system as a whole. First, the fact that large corporations relied on the community colleges for training greatly enhanced their credibility and reputation. Second, once corporations used the system, they were more inclined to use it for further training rather than approach private trainers. Third, relationships established between business leaders and community college trainers often turned into longer-term collaborations. The local colleges would draw on businessmen to make sure that courses offered in the regular curriculum program were up-to-date with industry practices. Corporate personnel from a wide range of departments and fields would serve on curriculum advisory boards or teach part-time.

As a result, and in contrast to many other states, the North Carolina system became much more oriented towards jobs than academic credentialing. Employers were an integral part of the system from its outset. In the best cases, these long-term relationships facilitated training in state-of-the-art technologies, as the examples from local cases below explain in more detail. Fourth, the significant business involvement also encouraged an anti-union bias. The construction industry in some cases, for example, has come to use the system to provide training in programs comparable to union-sponsored apprenticeship training in Northern states.

In the 1960s, the community college system mushroomed by drawing on state monies as well as federal funds from the Manpower Development and

Training Act. By 1969, the system included 43 institutions and 60,000 full-time-equivalent students. With increased funding in the 1970s as well, the community college system developed into a more comprehensive institution and established a broad range of associate degree programs. The system, then, moved beyond its narrow reputation of providing largely firm-specific skills. It nonetheless retained its focus on training for jobs, as is evident in the continuing outlook of college presidents who see their primary goal as educating for economic development.

The most recent change in the North Carolina system of employment training is the establishment in 1987 of a Workers' Training Trust Fund administered through the community college system and created from the interest earned on a reserve fund of the unemployment insurance system. The interest generated $2 million for the trust fund in its first year of operation and is expected to generate $15 million in 1991. Unlike the community college system which relies on general revenues from the state budget, the trust fund may be used to support a number of special training programs, including Focused Industry Training, workplace literacy programs, and a recent "Tech Prep" program designed to prepare high school students for community college programs.

Local Institutions

The two cases of local community colleges presented here—Durham Technical Institute and Central Piedmont Community College—reflect many of the dimensions of the North Carolina system discussed above. They are the system's "flagship" schools, leading in the integration of state-of-the-art technologies and in developing partnerships with corporate sponsors. Durham Tech serves the Research Triangle between Raleigh, Durham, and Chapel Hill, and has specialized in training for high-tech industry. Central Piedmont, located in Charlotte in the southwest corner of the state, has recently opened a multi-million dollar advanced-technologies center as the focal point for training in computer-integrated manufacturing.

Durham Technical Institute

Given its location in the research triangle, Durham Tech has developed as a center for microelectronics training. This focus on high-tech training often draws highly skilled applicants. An estimated 25 percent of Durham Tech students, for example, already have bachelors degrees. As in most colleges, the curriculum and continuing education divisions at Durham Tech are adminis-

tered separately, with the latter operating the Business and Industry Program that provides a wide range of training for employers. The discussion here focuses primarily on the Business and Industry Program which operates the New and Expanding Industries Program (NEIP), the Focused Industry Training Program (FIT), the small business center, and occupational extension courses.

Through NEIP, Durham Tech has played a central role in the state's strategy to diversify its economic base from textiles, wood products, and tobacco, into the high-tech industry and chemicals. Beginning in the 1970s under Governor Hunt, the school began working closely with the State Department of Commerce and local chambers to train workers for incoming firms in the research triangle. General Electric was one of the first firms to train workers through Durham Tech. The importance of this program for economic development is evident in the active role of the college president, who travels to countries such as Japan to recruit corporations and who is also the current president of the local chamber of commerce. The program took off in 1983 when Mitsubishi decided to use the college to train 300 production workers. Subsequently, other major corporations contracted with the college, including IBM; Northern Telecom; Spencer Electro; Data General; America, Inc.; and Sumitomo.

The procedure is straightforward. When a company decides to locate in the triangle, college staff meet with firm representatives to identify the number of workers needed and to customize a training program. The college then runs an ad in local newspapers describing the training and job opportunities. Interested workers submit applications at the local employment security office which screens applicants through the administration of a GATB test. The company selects the trainees, and given North Carolina's tight labor market, usually pays a training stipend which the college transmits to the trainees. Since many applicants are already employed full- or part-time, training often takes place at night. The company supplies the equipment for the duration of the training. The state provides the facilities and pays the costs of equipment installation, staff time, and any related travel. At the end of the training, the firm selects whom they want to hire based on attendance, attitude, and passage of tests. Most who complete the program are selected.

Because the college administers JTPA and state welfare-to-work programs, it has the opportunity to mainstream more disadvantaged students in these training programs and has done so. Mothers on welfare, for example, have received training and placement in electronic assembly jobs through NEIP without being stigmatized or isolated for special treatment. The college also

runs remedial or developmental programs to assist students with basic skills, and about 25 percent of the student population requires this assistance.

College staff state that working with the Japanese has also had a significant effect on their approach to training. Prior work with American corporations involved "fast-track" training, this type of training usually involves three-week courses, with the company doing the remaining on-the-job training. By contrast, the Japanese focused on the background knowledge of workers. The state financed trips to Japan for college staff to better understand Japanese production systems and to work with the Japanese on developing appropriate curriculum. The result was a three-month course for workers covering the history of Japan, the fundamentals of algebra and scientific concepts, team work, and Japanese human resource management.

In another recent contract with General Electric, Durham will train 600 to 800 workers over a three-year period in specialized machining for the construction of manifold compressor blades for turbine jet engines. GE selected the trainees through the employment security commission which administers unemployment compensation; minimum selection requirements included a high school education plus five years of related work experience in machining. Applicants go through a 15-hour introductory course on their own before undertaking a 60-hour training course followed by further on-site training by GE.

In contrast to NEIP, the Focused Industry Training Program targets local employers, most of whom are small enterprises located in rural areas. Because the state reimburses colleges on the basis of a full-time equivalent formula, the college loses money if it runs courses for less than ten people. This is where FIT enters: it covers specialized training for small numbers who otherwise would not be served. The program is active, serving 400 enrollees from 40 companies in a recent five-month period. Nonetheless, the most difficult part of the program, according to staff, is selling it to employers—many of whom do not see the need for training or do not want to interrupt production to provide it. FIT provides $75,000 per year to fund programs and one full-time staff person, who spends considerable time doing outreach to firms to convince them to undertake the training. Those firms that do, however, often come back for more.

These training programs are usually conducted at the worksite, and often involve training related to new technology, quality control, and improved competitiveness. Participating firms will frequently shutdown between three and five, with the company donating an hour and the employees donating an

hour of time to participate in the training. In working to identify the training needs of small firms, FIT staff may end up trouble-shooting for firms, and draw on community college faculty to act as management consultants where needed. In sum, FIT plays a human resource function for small firms that lack the resources to have their own human resource (HR) departments. In addition to FIT, Durham Tech runs a Small Business Center to assist small, start-up companies.

The occupational extension program complements the work of NEIP and FIT. Companies send individual employees to continuing education programs or arrange for specialized programs for groups of workers. College staff in this program also see their success as depending on the active marketing of programs to employers. The program, for example, was relatively inactive until 1983, when program staff decided to survey local employers on the demand for computer courses. The overwhelming response led staff to continue the practice and expand curricula in response to periodic survey results.

Ongoing programs sponsored by occupational extension include: a) an apprenticeship program for the construction industry; b) code classes for the trades (such as plumbing and carpentry); c) certification and licensing classes (for auto inspectors and licensed electricians); d) secretarial training; and e) software technical writing.

The Business and Industry Program also works with firms undertaking plant closings. In the best of cases, firms give the school ample advance notice so that retraining can begin before workers experience layoff. When American Tobacco closed a unionized facility, for example, the company paid the costs of tuition for displaced workers. Durham Tech worked in conjunction with the employment security commission to retrain and place workers.

The spillover effects on the curriculum programs are also noteworthy. Staff tour plants and keep up with new technologies in the process of developing customized materials. Corporate staff volunteer on curriculum advisory boards. And ideas and courses developed in the business and industry program have ended up in the basic curriculum of degree programs. This has occurred through the impact of Mitsubishi and IBM on microelectronics courses, through GE's reshaping of machining curricula, and in the development of computer software courses.

Central Piedmont Community College

Created through the merger of one of the state's early industrial education centers in Charlotte and a black community college in Mecklenburg, North

Carolina, Central Piedmont has received national acclaim as a model community college by the National Association of Junior and Community Colleges. With a budget of $35 million and an annual enrollment of 30,000, the institution is a central actor in supplying skilled labor for the Charlotte-Mecklenburg region—a growing regional financial and manufacturing center. The area's largest employer with a workforce of 10,000 is Duke Power, followed by IBM, Verbatum (a subsidiary of Kodak), and others.

The school's student body is diverse, from the educationally disadvantaged assisted through special literacy programs and through the state's Human Resource Development program to the 25 percent of the enrollees who already have bachelors degrees. The school actively recruits minority students through special scholarship programs, and black participation rates of 27 percent approximate the regional population.

Central Piedmont's training strategy has focused on the development of its Advanced Technologies Center which opened on September 16, 1990 after eight years of planning and development. The facility houses $5.3 million in new technology—$2.5 million of which was donated by IBM. The corporation chose Central Piedmont as one of 48 sites nationally to participate in its "IBM Computer-integrated manufacturing Higher Education Alliance." The idea is that in exchange for providing the college with equipment and expertise, IBM uses the facility as a training center for its technicians and engineers. The center also provides upgrading and training programs for IBM vendors with IBM lending its expertise. Other corporations have contributed the remaining $3 million in equipment: Okuma for CNC equipment, Kodak/Verbatum for a laser optics laboratory, and Hatachi and Apple in computers.

In sum, the center is a simulated environment for students to learn computer-integrated manufacturing—from customer service to product design, production, assembly, and quality control. It includes CAD/CAM workstations, an automated manufacturing laboratory with CNC equipment, a flexible manufacturing system (with robotics and other automated systems), and a laser optics center. Also included as part of the overall concept are a Technology Transfer Center, a Problem-Solving Center, a Small Business Center, and an International Business Center, the latter funded through a federal Title VIII cooperative education grant. The Central Piedmont educators anticipate that most students, whether in degree or continuing education programs, will take some courses in the center in order to understand the new manufacturing environment in which they will be working. College staff estimate that 3,000 to 4,000 students will use the facility each quarter.

In contrast to those who argue for worksite based education, those at Central Piedmont say that most companies do not want trainees on-site. Students get in the way of production; companies risk damaging sophisticated machinery. The Advanced Technologies Center provides a solution to the historic problem of public vocational programs using obsolete technology. Companies that participate are assured that they will have a supply of skilled labor trained on company equipment. The college is confident that corporations will continue to upgrade technology at the center because it is in their own best interest to do so. The model also avoids the criticism that public funds subsidize private firms.

In addition to the Advanced Technologies Center, Central Piedmont operates a series of special programs such as NEIP, FIT, and dislocated-worker programs under Title III of JTPA. The college is one of three selected by the National Home Builders Association to develop training in new materials and innovations in the building trades. In fact, corporate demand for training by the college exceeds its annual budget of $300,000 for continuing education. Given legal restrictions prohibiting colleges from charging companies for training, local staff worked with state administrators to develop procedures for "contract training." Under these new rules, companies under contract pay the costs of instructional salaries and curriculum development for training over and above what the college can provide on its own. In 1990, the school received $200,000 in contract training fees.

In sum, North Carolina provides an example of a systemic approach to technical training which integrates programs for a diverse population with different training needs. Its origins in industrial training centers and its close ties to business and industry have given the system a job market orientation distinct from many other community college systems. Decentralized administration seems to help local colleges respond quickly to changing local business and labor market conditions. Critics of the system, however, argue that its monopoly on training and its close ties to the employer community create serious weaknesses. These issues will be considered in more detail in the discussion of policy implications at the end of this case.

South Carolina

The more centralized South Carolina community college system began in 1961 after a state legislative study committee appointed by then Governor

Ernest Hollings recommended a crash program in technical training for industry. With a budget of $250,000, the state set up a "Special Schools" program which became the functional equivalent of North Carolina's new industries program. Working closely with the State Development Board (the state's economic development agency) to diversify the economy, the Special Schools program focused on providing a quick and flexible response to the training needs of industry. Early users of the Special Schools program included Firestone Steel, Elgin National Watch, Smith-Corona, and Lockheed Aircraft. New industries included chemicals, plastics, electrical products, and metalworking (SBTCE 1990).

Shortly thereafter, the state established a regional network of technical education centers (TECs) designed to provide post-high school technical training. These centers were the forerunners of the state community college system, consolidated in 1972 under the State Board for Technical and Comprehensive Education (referred to hereinafter as the State Board). As in North Carolina, the South Carolina system operates curriculum and degree programs in addition to job training through continuing education.

The State Board consists of twelve members appointed by the governor, including one member from each of six congressional districts, the State Superintendent of Education, the Executive Director of the State Development Board, and four at-large members. It identifies its mission as supporting human resource development for state economic development. With an annual budget of $150 million, the State Board currently oversees sixteen colleges on twenty-one campuses. Total enrollments equaled 185,000 in 1990, with a full-time equivalent count of 33,000. These totals include 7,000 workers trained through the Special Schools program. In 1990, enrollments included 23 percent black and 58 percent female students.

Special Schools Program and Continuing Education

In its thirty-year history, the special schools program has trained 130,000 workers in over 1,000 firms. The overwhelming majority of workers have been in either textiles and apparel or metalworking and electronic machinery. In recent years, the program has trained about 9,000 workers annually with a budget of $7 million and a staff of fourteen (SBTCE 1989).

The program operates similarly to NEIP in North Carolina, with the exception that the state central office takes charge of all customized training. Representatives of the special schools program meet with all prospective com-

panies moving into the state. With centralized operations, they can help the firms decide where to locate based on labor market and other conditions. State staff customize a training program and visit the firm's existing production facilities if necessary; write manuals and print training materials; and train instructors where needed. The state also maintains a warehouse of equipment that it draws on to turn vacant buildings into training centers as needed in local communities throughout the state.

To select candidates, program staff run ads in local newspapers and work in conjunction with the employment security commission to identify eligible applicants based on passage of the GATB. The average trainee has at least a high school education, and often more. Trainees are graded on attitude, participation, and attendance. While trainees are not guaranteed jobs, most get hired.

Continuing education programs pick up where special schools end helping firms train for turnover and often using the same materials.

An example of a major special schools project in the last decade involved the training of 500 workers for Hughes Aircraft which opened two electronics assembly plants in Orangeburg, South Carolina in 1984 and 1986. The employment security commission did the pre-screening and testing for thousands of applications. Special schools developed a 180-hour training course lasting over fifteen weeks to train assemblers in soldering for radar units used in military aircraft. The classes ran continuously over a three-year period until the plants were fully staffed. The training cost the state about $300,000, or $600 per trainee.

Technology Resource Centers

Since 1979, the State Board for Technical and Comprehensive Education has undertaken a second major effort to promote economic development through training—this time to promote specialized technology resource centers at local colleges. The State Board began with $600,000 per year set aside to encourage innovative programs and leverage grants from outside sources. Currently eight centers are in operation specializing in robotics, applied microelectronics, electromechanical maintenance, computer applications, advanced machine tool technology, and plastics.

In addition, the State Board has joined a technology transfer venture developed by the University of South Carolina and Clemson University. The Southeast Manufacturing Technology Center (SMTC), established with funding

from the National Institute of Standards and Technology, stimulates technology transfer to small and medium-sized businesses, promotes intervendor compatibility, and works to improve manufacturing competitiveness.

Policy Implications of the Carolina Systems

The Carolina systems provide an interesting model for employment training systems because of their comprehensive quality. If used to their potential, for example, consolidated systems can use a variety of programs in a flexible way to respond quickly to changing labor market conditions. They can also more easily mainstream JTPA and disadvantaged workers, and help them avoid stigma as in the Durham Tech example. Comprehensive systems also avoid the kind of fragmentation and duplication of programs at the local level which other states, as in the California case, find limiting. Critics of the Carolina systems, however, note that with consolidation comes monopoly, bureaucracy, and a system that is less responsive to reform.

As in the California and Illinois cases, critics of the Carolina systems also argue that their customized training programs substitute public funds for private training dollars. They argue that the focus on training for large employers pushes programs in the direction of narrow, firm-specific skills. Colleges end up serving as adjunct human resource departments—screening potential job candidates, culling the best for out-of-state enterprises, and acting as the training arm for corporations that are strongly anti-union. Firms, in turn, use the training as a probationary period for new hires. The criticisms are less directed at training programs for small companies that lack sufficient resources to train on their own; but many argue that small firms continue to be underserved.

In response, supporters of the community college systems argue that if the state did not provide a trained workforce, the economy would suffer. While admitting that the state probably does subsidize firms, they argue that this is not problematic. If the training contributes to creating good jobs and increasing wages, then substitution is not a problem. In addition, the system gets a long-term return on its investment through corporate in-kind contributions of time and equipment. Overall, the approach is one of building public-private partnerships that enhance quality of training and the competitiveness of firms. As one administrator indicated, "Yes, we probably do subsidize our companies, but we're creating jobs and building the economy." The examples of the technology and training resource centers in the discussion above provide one example of where such partnerships appear to be effective.

This case, then, brings to light some of the potential strengths and weakness of the comprehensive public sector training model and raises issues relevant to broader national policy: the extent to which training programs should be integrated, the question of substitution, the balance between centralized and decentralized structures, the provision of firm-specific versus general skills training, and the distribution of training across large and small firms and diverse sectors of the population.

Case III

Joint Labor-Management Training Programs: AT&T, Communication Workers of America (CWA), and International Brotherhood of Electrical Workers (IBEW), Alliance For Employee Growth and Development.

This case, which outlines the scope and development of the AT&T, CWA, and IBEW "Alliance," provides an example of how a joint labor-management training program can serve as a vehicle for improving employment security and labor productivity. The unique features of the Alliance—its independent non-profit status, its heavy reliance on joint worksite committees, its "employee-driven" character, and its flexibility to meet a wide and changing array of training needs—provide a useful example for other unionized firms interested in increasing job security and productivity.

In addition, the Alliance illustrates how labor-management efforts of this kind offer lessons for nonunion workplaces and publicly-funded efforts. In particular, this case documents the importance of worksite committees for identifying and responding to the training needs of employers and workers, the effectiveness of "employee-driven" programs for increasing participation in training activities, and the utility of union and employee involvement for improving accountability. Local committee oversight increases the likelihood that training dollars will be spent for quality services and reduces the likelihood that external funds will supplant corporate training budgets.

The Alliance

The Alliance for Employee Growth and Development is an independent, non-profit training organization established in 1986 through contract negotiations between AT&T and the two unions representing AT&T workers, the Communication Workers of America (CWA) and the International Brotherhood of Electrical Workers (IBEW). The corporation and the unions agreed to establish the Alliance to enhance employment security through the provision of a broad range of training and retraining activities. As articulated in the national contract agreement, the parties anticipated mutual benefits: employees would improve their employment security while AT&T would gain increased employee commitment to corporate productivity and competitiveness.[7]

The Alliance supports training over and above that normally conducted by AT&T. The company, for example, routinely trains employees in the jobs for which they were hired and provides retraining in relation to technology change. The Alliance, by contrast, provides training to meet entry-level requirements for employees who wish to change jobs within AT&T or find new jobs outside of the firm. It also finances educational programs for personal growth and skill development.

The 1986 union contract set funding for the Alliance at $3.75 per employee per month, a formula which generated approximately $19 million in the first three years of the program's operation (1986-1989). The 1989 contract negotiations retained the same contract language, but increased funding levels to $7.50 per employee per month for 1989 and 1990 and $9.50 per employee per month for 1991. Additionally, the Alliance has benefited from a one-time infusion of $15 million in funds from AT&T and has generated $6 million in external financing, largely through U.S. Department of Labor displaced worker programs.

In sum, the Alliance has allocated $80 million in training funds from internal and external sources. In its first four and a half years of operation, the Alliance registered 122,000 enrollments for 59,451 union members in a wide variety of training programs. Approximately 60 percent of the trainees were part of the active AT&T workforce, while the remainder were displaced AT&T workers who used the Alliance programs to retrain for jobs outside the corporation.

Training programs have included the following: career assessment and planning, basic skills upgrade, job search, occupational skills training, personal financial planning, pre-paid tuition programs for career-related training outside of AT&T, pre-retirement programs, qualifying exam preparation, relocation planning, return-to-school programs, stress management, and other personal development programs in family counseling and communication skills.

In the evolution of the Alliance since 1986, three trends are apparent. First, from an initial focus on meeting the needs of displaced workers, the Alliance has shifted to working with the current AT&T workforce to provide ongoing education and skill development. Second, while basic skill development represented the bulk of early training programs, more and more workers are now turning to the Alliance for advanced technical training. Third, with the experience gained over the last several years, many Alliance local committees (ALCs) are broadening their role—from one of reacting to technical change to

one of strategizing for change. These trends are evident in the detailed case study of the Merrimack Valley Works manufacturing plant outlined below.

The Alliance has gained a strong reputation as an innovative and successful training program; it was one of sixteen recipients of the 1990 national LIFT (Labor Investing for Tomorrow) award, sponsored by the U.S. Department of Labor for innovative human resource development. Several unions and companies have looked to the Alliance as a model. And both the unions and management at AT&T continue their full support—as is evident in the increased funding of the Alliance under the 1989 agreement and in AT&T's $15 million dollar additional contribution to the fund in 1989. As detailed below, those involved in the Alliance attribute its success to both the substantive approach and administrative structure of the program.

Program Content and Structure

A six-member Board of Trustees presides over the Alliance. Composed of three representatives appointed by AT&T and three appointed by the union, the Board determines the overall direction and policy for the training program.

A staff of fifty employees administers the Alliance for a unionized workforce of 108,000 nationally.[8] With a national headquarters in Somerset, New Jersey, and three regional offices in Atlanta, Georgia; Somerset, and Austin, Texas, the Alliance professional staff serves approximately 315 union locals in 49 states. This professional staff, with a background in education and counseling, provides technical support to local committees to identify training needs through employee surveys, to solicit proposals and contracts with private or public vendors who develop curriculum and conduct training, and to monitor and evaluate program results. Training ranges from on-site customized courses in particular skill areas to tuition coverage for individuals attending degree and non-degree educational programs.

Training for Employment Security

Central to the Alliance is its conception as a benefit to employees for the purpose of providing long-term employment security. While AT&T has historically maintained a reputation for providing employment security, the combined process of divestiture and restructuring to be globally competitive ushered in radical changes in the 1980s. Between 1984 and 1990, the total AT&T workforce dropped from over 300,000 employees to 175,000; the unionized workforce declined from 185,000 to 108,000. In recognition of the ongoing nature of technology change and work reorganization, the 1986 national con-

tract agreement contained an employment security clause outlining a series of measures to improve job security. The parties agreed to a concept of shared responsibility between the company, the union, and employees:

> *In recognition of this shared responsibility, the Company and the Union have agreed that an overall employment security strategy, containing four distinct programs, will be implemented, whose combined goal is to afford employees the opportunity to make their employment experience with the Company as secure as possible.*

The four programs included: a) AT&T's regular publication of two reports outlining anticipated job opportunities throughout the corporation; b) the Alliance training program as the mechanism for workers to acquire the skills necessary to compete for available jobs; c) a comprehensive "Transfer Consideration Plan" so that interested workers may be considered for transfers within and among AT&T organizations; and d) an "Employment Opportunities Review System" (EORS), designed to give priority to laid-off AT&T employees to apply for positions which would normally have been filled by an off-the-street hire. The EORS system was replaced in 1989 by an expanded AT&T Transfer System. Under the new system employees with a 60-day lay-off notice receive priority for being tested and transferred into vacancies within AT&T.

The four-point employment security program complements the seniority recall system. Because recall rights apply for three years for the same job in the same geographic area, they usually do not provide security in instances of organizational downsizing. In these cases, the Alliance provides the training for pink-slipped and laid-off employees to meet entry-level requirements for new jobs at AT&T; the AT&T transfer system applies to workers with pink slips before they are actually laid-off. Laid-off workers benefit from union-negotiated hiring freezes which require AT&T to give priority consideration to laid-off workers over off-the-street hires. Alliance training provides the essential bridge between jobs. Workers rehired within six months after layoff retain their full seniority rights for purposes of determining benefit levels such as vacations and pension rights. Workers rehired within a year of being laid off regain full seniority rights after five years.

The Alliance, then, serves as a bridge between jobs—either inside or outside of AT&T—for displaced and "at-risk" employees. Given the intense and ongoing reorganization at AT&T, however, most employees cannot dismiss the possibility of job loss or of new skill demands to remain employed. For displaced workers, the Alliance provides tuition assistance for up to one year

following layoff plus additional time based on seniority. For displaced or at-risk workers who wish to stay at AT&T, the Alliance fills an important training gap: it funds courses in basic skills and preparation for qualifying exams that AT&T administers for all new hires. This is training that AT&T has not and would not undertake on its own. Because many older employees have never taken the exams or have not taken them within the five-year mandatory time period, the Alliance helps them prepare for exams and overcome test anxiety. In the first four years of the Alliance, approximately 3,000 employees (who otherwise would have been laid-off) passed the Alliance qualifying exam course and located new jobs at AT&T. The Alliance exam preparation course raised the pass rates from a 20-25 percent level to a 75-80 percent level.

The success of this test preparation program has had unanticipated benefits for the corporation as well. Because of the high seniority of the workforce, each lay-off costs the corporation an average of $24,000. The re-training and transfer service provided by the Alliance, therefore, represents a considerable savings to AT&T. As a result, AT&T's Department of Testing and Selection has begun working with the Alliance to develop standardized curricula for this training.

Training as an Employee Benefit

One of the strengths of the Alliance program is its broad conception of the scope of training in terms of the types of training that can be funded, the purposes of the training, and the individuals to be served. The original contract conceived of training as an employee benefit, flexible enough to serve the wide array of needs and interests of union members. Hence, the contract language read:

> *The mission of the Alliance will be to make available learning experiences to employees which will enhance their occupational and work group skills; provide opportunities for personal and career development; stimulate and sustain their contributions to the Company's success through improved communication skills, motivation, improved work habits, and enhanced interpersonal skills, familiarize them with state-of-the art technology, based on the present or anticipated needs of the business; and increase the probability that if they face displacement or dislocation, they will find alternative employment, either in AT&T or in the outside job market.*

The "employee-driven" nature of the program is significant in several respects. First, while employment security is at the core of the program, it is

not narrowly construed. The Alliance funds training for immediate job transfers as well as education and skill development that is not closely linked to a particular job. This flexibility means that the program can meet the needs of a diverse workforce. While this flexibility opens up the risk that the Alliance be used in large measure for "hobbies," it appears that the Alliance has avoided this by building in a strong career-counseling component which we discuss in greater detail below.

Second, while the parties anticipated productivity improvements as an indirect result of the program, the Alliance does not rise or fall on the basis of short-term productivity measures at AT&T. This orientation towards individual growth gives workers the opportunity to undertake long-term career changes—to go back to school for associate or four-year college degrees, to move from unskilled or semi-skilled jobs to technical fields, to plan for early retirement and prepare for second careers. That is, workers can make a serious investment in education and training with long-term payoffs.

Third, related to this long-term approach is the emphasis on individual responsibility on the part of workers. Unlike other negotiated benefits, the training fund requires significant worker initiative and energy for it to be effectively used. To ensure the efficient use of funds, the Alliance staff strongly encourage all workers to participate in long-term planning and career counseling; the Alliance requires attendance in the career planning course for any employee who applies for tuition assistance. As a result, in the first four years of the Alliance, one-third of the enrollments in training programs were in career assessment and planning—typically a 16- to 20-hour course given over six to eight weeks designed to help employees develop a long-term employment strategy. Workers emerge with a "Career Action Plan"—a strategy that may vary from one or two short-term courses, to a series of steps for career development, to a major career change involving a degree program.

Fourth, because union members set the training agenda, participation rates are higher than they would otherwise be. Alliance staff refer to this as the "bottom-up" approach. According to one staff member,

> *The problem with most management training is that it is top-down. Management wants workers to learn something that it needs. Workers are unenthusiastic. If there's one thing that I've learned, it's that people know what they need; if you give them the resources, they will get the training they need. Most corporations, however, don't want to give away that kind of power. What we are really*

all about is empowering people so that they can take responsibility for their own training and their own lives.

Alliance Local Committees

Consistent with this "bottom-up" approach to training, the Alliance gives primary responsibility for developing and administering the program to joint labor-management worksite committees. By contract, three representatives appointed by the union and three appointed by management make up the local training committee. As with most decentralized systems, this structure opens up the advantages associated with participation and local initiative and the risks of uneven development and access to programs by union members.

One way that the Alliance has decreased these risks is by hiring highly trained national staff to advise local committees. Alliance staff train the members of these committees to survey employees, develop proposals, and subcontract with training vendors to provide on-site services. The training for committee members includes an orientation in basic human resource management as well as direction on how to gather and assess local labor market information.

Training for Alliance Local Committee members also includes bringing them into contact with stakeholders in the Alliance—the CWA and IBEW leadership, upper-level AT&T management, and governmental and educational agencies. In a national "Visioning" conference and in its follow-up activities, for example, the Alliance has brought together all these parties to form a strategic planning partnership. The Alliance encourages communications among the unions, the company, and other interested agencies to plan together to serve their mutual constituencies and interests.

An indication of the success of Alliance local committees came during the 1989 contract negotiations between AT&T, CWA, and IBEW. In those negotiations, the Alliance committees served as a model for the company and the unions to set up local "employee resource centers" to advise employees on a range of human resource issues, including benefits, retirement, and career counseling and training. While still in the early stage of development, the concept of a joint labor-management employee resource committee is a useful one for thinking about the potential for ongoing employee involvement in human resource management and decision-making. It has the potential to serve as a vehicle for integrating training and other human resource strategies into longer-term business strategies regarding the introduction of technology and

work reorganization. It is certainly a useful arena for further experimentation. This, in fact, is the direction that the Alliance Local Committee at Merrimack Valley Works is exploring—a case we describe in more detail below.

Independent, Non-profit Status

The independent, non-profit status of the Alliance is one of its unique features—and one that allows the Alliance to initiate the kinds of conferences described above. Alliance staff argue that this independence is critical to the program's success. This independence has both financial and programmatic dimensions. First, the funding formula for the Alliance, as set by contract, means that the training budget is on sound financial footing. The Alliance is not under pressure to be cut during economic downturns—as corporate training budgets often are—at the time when training and retraining are most needed.

Second, the independence of the Alliance means that programs remain fairly insulated from conflicts or disagreements related to the collective bargaining process. This insulation is important for at least two reasons. The Alliance mandate is to develop a training program that is ongoing and long term in its conception. To develop curricula and programs of high quality and utility requires a stable environment. Moreover, for employees to be willing to invest in training for a job or career change, they must be reasonably certain that they may complete the training without delays or disruption.

In addition, to develop this kind of program requires the voluntary cooperation of union and management representatives in order to anticipate when and where job vacancies and redundancies will occur, determine eligible workers to fill vacancies, and identify the training needs of those who are eligible. Because job search, training, and placement is often a lengthy process, the success of the program depends on the extent to which it is stable and ongoing. Enhanced employment security, in effect, depends on the extent to which the committee institutionalizes a cooperative, long-term relationship. This is not to imply that conflicts do not arise within the labor-management committee structure. Rather, it implies that conflicts or grievances from other arenas do not "spill-over" into the activities of the training committee.

The case outlined below of the Merrimack Valley Works (MVW) manufacturing plant in North Andover, Massachusetts provides one example of how the Alliance has functioned at the local level over the past four years.

Project Implementation: The Case of Merrimack Valley Works

AT&T's largest manufacturing plant, Merrimack Valley Works (MVW), produces transmission equipment and components with a workforce of about 8,000 employees from the Merrimack valley region of Northern Massachusetts and Southern New Hampshire. Built immediately after World War II, the plant has operated with CWA union representation since its inception. Two CWA locals covering factory and clerical workers currently represent 5,000 bargaining unit workers.

Approximately 3,500 union members participated in Alliance training programs in its first four years of operation. Training programs have included courses in career planning, personal computers, financial planning, English as a second language, technical math, materials management, welding, basic skills, small-business start-up, conversational Spanish, and other programs funded with tuition assistance.

The Alliance Local Committee at MVW began in 1987, immediately following a major layoff of 1,450 people; in 1989, MVW laid off another 300 workers. Downsizing in relation to major changes in technology and work organization had begun in the early 1980s when CWA represented over 8,000 union workers at the plant. Given the major restructuring and downsizing of AT&T in the last decade, the workforce displacement which the MVW Alliance committee faced was not unusual. Despite the fact that the Alliance was conceived to assist active as well as displaced workers, the first task of many Alliance committees has been to assist displaced workers. The MVW committee was no exception: approximately 80 percent of workers laid off from MVW went through the Alliance program. With the assistance of Alliance technical staff, the local committee subcontracted with a local community college to operate a career planning, retraining, and job search program. In addition to the Alliance budget, the committee relied on AT&T's tuition assistance program, a grant of $1,081,000 from the U.S. Department of Labor EDWAA (Education for Displaced Workers Assistance Act) program, a $500,000 grant from the Massachusetts Industrial Services Program, and funding from the New Hampshire Job Training Partnership.

Ultimately, dealing with the first layoff involved building a working relationship between management, the union, vocational education institutions, two community colleges, two state employment systems, and the U.S. Department of Labor. Committee members maintain that as a result of this experi-

ence, a partnership emerged between management, the union, educators, and government officials which continues to support ongoing Alliance activities.

By 1989, the Alliance established an "Alliance Learning Center" on-site at MVW with a staff of six full-time professionals. While the local committee continues to subcontract for specific training courses, it shifted from subcontracting program coordination from the community college to establishing its own in-house coordination. This shift allowed the committee to gain more control over the direction of the program as well as to more fully integrate training activities into the ongoing operation of MVW. The establishment of the center also highlighted a shift in focus of the local committee—from displaced workers to the active workforce. The Alliance Center currently serves the 5,000 union members at MVW as well as an additional 5,000 located at smaller worksites throughout the New England region.

These two interrelated shifts—from external to internal coordination and from displaced to active workers—have been extremely important for the development of the Alliance Learning Center. They have allowed the Alliance to develop in the direction originally intended by the collective bargaining agreement. Internal coordination means that the Alliance is driven more by employees than by training vendors. The on-site visibility and accessibility has also helped the Alliance to reach union members and to move beyond its reputation for serving only displaced workers.

As a result, participation by current workers has grown substantially. Two examples are indicative of these shifts. In conjunction with a first-year start-up grant from the Massachusetts Department of Education, the Alliance has offered courses in English as a second language (ESL). With this grant, the Alliance developed a curriculum that was specifically geared to the workplace. Given that approximately 10 percent of the MWV workforce are Asian, Hispanic and Portuguese, the need for ESL classes was substantial. In the first two years of the ESL program, 149 workers enrolled in classes, which run half on company and half on employee time. In 1991-1992, the third year of the program, AT&T offered to hold classes entirely on company time; enrollment jumped to 238 employees.

Another example is the development of a materials management certificate program, developed by the Alliance and community college staff in response to new requirements at AT&T that lower-graded employees be college certified to move to a higher grade. Rather than replace existing workers who were not qualified, MVW agreed to retain employees who attended the Alliance-sponsored program and to allow half of the classroom attendance on company

time. Two hundred employees have attended materials management courses under this program, with approximately 40 percent of the group pursuing an associate degree.

The work of the Alliance at MVW also shows the extent of flexibility which the program has achieved. The bargaining unit at MVW consists of an extremely diverse workforce—both in terms of its demographic composition, as noted above, and in terms of its skill levels. Technological change has created a demand for both unskilled and highly technically skilled workers. On the one hand, the majority of bargaining unit jobs consist of monitoring automated production—jobs that are extremely important to the production process but provide limited horizons for job enrichment or career advancement. On the other hand, advanced technologies have increased the demand for highly technically trained workers. The Alliance local committee has worked to provide training opportunities for both ends of the spectrum. Unskilled workers who might otherwise perceive their jobs as being a dead end use the Alliance to pursue outside interests or training that may eventually lead to second careers. For these workers, the training benefit does not directly improve job-related skills, but rather employee morale and commitment that the company and union believe ultimately pay off in higher productivity. For technical jobs, by contrast, the Alliance provides training to meet entry-level requirements or to continue with advanced training for higher-level positions.

Employee involvement in the Alliance at MVW is considerable. Employees initiated a quarterly newsletter and several new courses, including a study skills course for those returning to school and conversational Spanish for English-speaking workers to communicate better with Hispanic counterparts. In addition, to increase worker involvement, the Alliance has recruited 40 union members as volunteers to serve as Alliance representatives in their respective work areas. The purpose of this network is to make education and training opportunities an integral feature of the work environment. This shift in focus to the active workforce also means that the program has moved away from crisis management to a more strategic approach to planning for labor force adjustment and change.

A significant indication of the emphasis on strategic planning is a recent decision by the local committee to review the Merrimack Valley Works' five-year technology plan with the purpose of identifying skill sets matched to technology so that the Alliance committee can plan training programs to assist the transition to new technologies. In addition, AT&T has nominated the plant to apply for the Baldridge award for quality. The committee plans to utilize the Alliance

to develop programs to get all employees involved in quality control. In effect, the MVW committee is moving from a reactive position—of providing training for displaced and at-risk workers—to one in which the joint committee uses training to anticipate and facilitate improvements in technology and the production process.

Policy Implications

While no full-scale evaluation of the Alliance has been completed, the program appears to be successful in meeting both union and corporate goals, and continues to have the full support of both parties. This success appears to derive from both the content and structure of the program. Training is broadly conceived as an ongoing benefit designed to help employees build long-term employment satisfaction and security. The emphasis on employee initiative in setting the training agenda and pursuing self-interested goals creates a sense of employee ownership that leads to high participation rates.

Employees use the Alliance training benefit to improve basic skills, gain their GED certificate, prepare for exams and qualify for more technically demanding jobs within AT&T, upgrade technical skills and pursue degree programs, develop non-job related interests, or prepare for second careers following retirement. The decentralized structure coupled with professional technical support of the Alliance establish an administrative framework consistent with the bottom-up philosophy of the program. Finally, the independent status of the organization allows it to institutionalize training committees and position them to serve as a strategic resource for integrating training and human resource considerations into decisions regarding technological change.

The evolution of the Alliance from a reactive to a strategic organization is also significant. The development of the Alliance as an ongoing institution at work recognizes the fact that workplace reorganization is a continuing process. While some workers will undoubtedly continue to be displaced, a focus on training and retraining the current workforce may reduce the proportion of workers that suffer layoff or long spells of unemployment as a result of restructuring. While employees gain security, the corporation saves on the costs of workforce adjustment and benefits from improved employee morale and commitment to corporate productivity.

Alliance local committees finally serve an important oversight role. First, the competitive "request for quote" system used by the Alliance allows local committees to design customized training programs, to monitor quality, and to

drop vendors who do not provide satisfactory services. Second, local committees monitor corporate training practices and ensure that Alliance programs do not replace training normally provided by the firm.

This case also provides lessons for nonunion workplaces. A worksite training committee at a nonunion plant could play a role similar to that of Alliance committees, although such committees would lack the advantage which union backing provides. As this case indicates, the union plays a critical role as an independent force for representing workforce interests equally with management's so that the committees are less easily dominated by management and consequently have more secure funding, more credibility among the workforce, more workforce input into planning, and higher participation rates for the programs they sponsor.

Nonetheless, even in nonunion settings, such committees could survey employee training needs, encourage participation in skill development and upgrading, access public funds for training through grant proposals, and subcontract with public or private training vendors for services. These worksite training committees could similarly undertake oversight functions of monitoring quality and substitution of funds. The evidence from the experience of the Alliance is that worksite committees are essential for building an ongoing commitment to education and training on the part of employers and workers alike.

Case IV

Collaborative Regional Training Networks: The Massachusetts Machine Action Project

This study of the Machine Action Project (MAP) focuses on the lessons to be learned from locally-initiated economic development efforts in which training plays a central role. MAP is a targeted industry project designed to improve the regional economy in and around Springfield, Massachusetts, a traditional center of machine tool and metalworking manufacturing. MAP, however, differs from the examples of training by employer consortia in California and Illinois in at least three respects. First, MAP is modelled after European regional industrial districts which rely on collaborative relationships within and between private and public sector organizations to build a successful economic strategy. As such, the MAP consortia involves a broad set of public and private sector organizations—including local and state government, small and medium-sized machine shops, the Central Labor Council and several local unions, vocational education and community college institutions, and the Private Industry Council established under JTPA. This breadth of community involvement contributes to maintaining accountability and quality of services and to providing access to training programs by a broad constituency of employed and unemployed workers.

Second, in contrast to the California and Illinois examples in which long-standing employers' associations made use of newly available training funds, MAP has used public monies to create an inter-firm network and public-private relationships that previously did not exist. Third, MAP conceives of training as an integral part of a multi-dimensional strategy linking changes in product markets to changes in inter-firm cooperation, technology, work organization, and the skill levels of workers.

The MAP model is also useful for responding to an oft-cited problem of small-firm access to public sector programs. On the one hand, small firms often do not have the resources needed to gain access to public programs. They do not, for example, have corporate human resource departments or funds to hire consultants to develop training proposals. On the other hand, public administration of programs to small firms is costly, and pressures to

reduce bureaucratic overhead often mean that small firms do not receive the attention they need to participate. This problem, for example, emerged in the administration of the California Employment Training Panel.

The MAP model suggests a solution for serving small firms by creating economies of scale for program administration. This case, then, is suggestive of a more innovative role that public agencies can play in supporting economic development—a role that goes beyond the simple provision of training funds or technical assistance to that of creating new forms of organization and cooperation within the private sector and between public and private sector organizations.

Finally, the MAP example points out some of the dilemmas encountered by training programs designed to support economic change. First, the effectiveness of training programs depend upon their ability to anticipate the changing balance in the supply of and demand for different skills and occupations in the local economy. Without this information, training programs can oversupply particular skills and contribute to depressed wages or unemployment. The MAP strategy of regularly surveying labor market conditions provides a critical component to successful training. This kind of information gathering, however, is costly and often the first item to suffer from budget cuts.

Second, training programs provide a strategic advantage to local economies only if they develop into ongoing institutions. While MAP rather successfully moved from the crisis management of dislocated workers to the ongoing training and retraining of a skilled workforce, insecure funding hampers its ability to develop a long-term strategy. As a result, MAP has remained a series of training programs, rather than an institution capable of developing a comprehensive training strategy for labor market adjustment and local competitive advantage.

Third, this case suggests that training alone does not necessarily enhance productivity or the competitiveness of firms. For training to have strategic value, firms need to recognize the social and organizational dimensions of incorporating newly trained or retrained workers into the workplace. The social dimension concerns the relative wage rates that newly trained workers may expect compared to other workers and supervisors who have not undergone training. The organizational dimension concerns whether newly trained workers are able to fully use new skills when they return to old working conditions. If, for example, the purpose of training is to increase the technical skills and problem-solving capabilities of workers, then firms may need to restructure

work roles and organizational hierarchies so that workers can use these new aptitudes to their fullest potential. This suggests that in addition to upgrading basic and technical skills of workers, training programs must play a human resource function to assist employers and managers in the strategic allocation of labor.

The MAP Strategy

MAP is one of three projects funded by the state of Massachusetts as a response to the decline of its mature industrial regions. Rather than focus on attracting new business to the state through new tax abatements and other incentives, the state in the mid-1980s decided to support the reconstruction of various regional industrial economies. In 1985, it pioneered the idea of funding projects known as Cooperative Regional Industrial Laboratories (CRILs) and established the Industrial Services Program (ISP) to administer them. The idea was to provide state support for industry-specific efforts to help regions rebuild their economies.

Plant closings and layoffs in the metalworking industry in the Springfield area had caused the displacement of almost half of the industry's workforce—approximately 15,000 out of 30,000—between 1979 and 1985. Local organizations, therefore,—including the Hampden County Employment and Training Consortium, the Private Industry Council set up under the Job Training Partnership Act (JTPA), the Pioneer Valley Central Labor Council, the local chapter of the National Tooling and Machining Association (NTMA), and leaders of several unions—applied for funding to establish a CRIL for the region's metalworking industry.

Established in July 1986, MAP operates as an independent activity under the direction of the Hampden County Employment and Training Consortium, an agency set up to meet the region's employment and training needs. MAP began by organizing a broad base of support for its activities. It created an advisory board of twenty key local leaders representing diverse constituencies: four union representatives, four company representatives, four training providers, two bankers, the president of the local community college, a church representative, and a community representative. The board was responsible for overseeing MAP activities through monthly strategy meetings.

In addition, MAP staff worked with university researchers from Rensselaer Polytechnic Institute, Tufts University, and the Massachusetts Institute of Technology to develop a flexible manufacturing network called

TECnet (Technologies for Effective Cooperation Network). The idea was that successful economic adjustment depended upon the ongoing collaboration of firms, unions, government agencies, and service providers. A bi-monthly newsletter with a circulation of over 1,000 supplemented network organizing efforts.

MAP then conducted an assessment of the needs of the machining and metalworking industry. Recognizing that the wage structure in the region was too high to compete on the basis of cost in high-volume production markets, MAP concluded that small firms needed to become more competitive in higher value-added product markets. This strategy required production of small batches of high value, precision products produced with the assistance of computer numerically controlled (CNC) machinery. To compete successfully on the basis of quality in turn required firms to employ highly trained workers—both in terms of breadth and depth of knowledge and skill.

The MAP strategy, then, was to assist firms in the development of new product markets, the acquisition of new technologies, and the training of workers. MAP staff worked with university researchers on these three fronts: a) to undertake marketing research to help firms decrease their dependence on defense contracts, b) to establish a computerized information bank to provide technical assistance to firms concerning equipment and technology upgrading, and c) to survey the local labor market.

The labor market survey identified the supply of skilled labor (including the range of skills among local machinists) as well as the demand for skill (based on employer needs). As of July 1987, approximately 15,000 machine tool and metalworkers continued to work in 350 small and medium-sized shops in the Springfield area. The average size of shops was forty employees. Metalworkers comprised between 25 percent-35 percent of the private sector workforce in many communities in the region (Forrant and Roditi 1987a).

Layoffs, according to another MAP survey, had occurred primarily in large production-oriented plants owned by out-of-state firms. United Technologies Diesel Systems (formerly American Bosch), for example, closed and laid off 1,000 employees. Eighteen out of twenty plant closings and major layoffs surveyed in 1987 involved large, out-of-state corporations (Forrant and Rodditi 1987b). That evidence gave further support to a development strategy focused on local employers.

In attempting to match supply and demand, however, MAP found that many small job shops could not readily employ the laid-off machine operators because they were too narrowly trained—they had normally learned to operate

only one machine in a large plant. Small shops emphasizing customized products needed workers who were more deeply and broadly trained. MAP's survey of 500 machinists and machine operators in the area, for example, found that workers in small shops were "at least three times more likely to set up and operate at least three different machine tools, inspect their own work, and work from highly detailed blue prints than their large shop counterparts" (Forrant and Rodditi 1987a). In sum, small firms needed workers who were: a) able to run more than one machine; b) able to set up one or more machines; c) able to read blueprints; and d) trained in quality control. In addition, the firms needed some workers to learn CNC programming and computer assisted design and manufacturing (CAD/CAM).

These findings reinforced MAP's strategy of making training an integral part of its regional economic development strategy. In addition to funds from the Massachusetts Industrial Services Program, MAP received two grants totalling $750,000 for training from the United States Department of Education Office of Vocational and Adult Education; matching grants from the private sector brought total funding to approximately $1 million for the five-year period of 1986-1991. This funding supported MAP's research activities, technology network, newsletter, and training programs. MAP first developed training programs in metalworking, and then expanded into high-tech automotive technologies and graphics and printing. Between 1986 and 1991, approximately 650 individuals from over 100 machine shops received training in a range of courses from basic machining to advanced CNC programming and computer-assisted design and graphics.

MAP-sponsored training courses for workers and managers have included the following: basic machine tool set up; basic math; blueprint reading; computer-assisted design; computer-assisted manufacturing; computer-integrated manufacturing; business software for metalworking firms; quality control for shop managers; computer numerical control machine tool operation and programming; and, high-technology automobile repair, graphics, and printing. Courses average 200 hours. Employed workers attend classes on their own time and receive tuition coverage (approximately $400 per course) by their employers (Forrant, Heitner and Neveu 1990).

To develop effective training programs, however, required MAP to undertake a major organizing effort to get people to work together who normally do not collaborate. Employers and community colleges disparaged the training provided by vocational high schools; educators complained that employers

lacked interest. Educators from vocational high schools and community colleges rarely interacted and few toured workplaces to comprehend the rapidly changing skill content of jobs. Innumerable working meetings over a two-year period, however, produced significant steps to improve the quality of training. First, MAP and fifteen public and private training institutions signed a coordinated training agreement specifying a series of accredited courses in machining and metalworking to be offered based on the demand for skills identified in MAP's labor market research. This linking of labor market needs with the content of training curricula is an important step towards enhancing the quality of training in the profession. Second, MAP staff have monitored the content of machining training programs to improve their quality. In one instance, as the result of MAP's intervention, the state decertified a machine shop program until it revamped its curriculum and reformed its advisory board. Third, MAP has worked to get shop owners to serve on machine shop advisory boards in vocational education schools, thereby providing an ongoing link between firms and training institutions. And fourth, educators and trainees have increasingly toured local machine shops to better integrate classroom learning with worksite requirements.

In sum, the MAP strategy provides an example of how a community-based public agency has built an effective training network calibrated to meet the needs of the local workforce and industry. The credibility and success of the network has depended upon the active support of local leaders in the private and public sectors. The network provides a public good to small firms that do not have the resources to undertake the training on their own. And MAP serves as a model of an activist public agency designed not only to meet immediate needs, but in the long run to change the way that public and private sector organizations work together for economic change.

Issues and Dilemmas

MAP has been recognized as an innovative government program in awards given by the Ford Foundation and the Kennedy School of Government at Harvard University as well as by the American Economic Development Council. The agency has tackled a number of important policy issues inherent in employment training programs, including accountability in the use of funds, the development of quality training, equitable access to programs, and the strategic use of training as part of a broader regional industrial policy. MAP, however, has also encountered dilemmas which are yet to be solved, particu-

larly with respect to institutionalizing its activities and serving as a catalyst for long-term organizational change. The following sections provide a discussion of these issues.

Accountability

Accountability issues that have surfaced in other state-run training systems, such as those in California and the Carolinas, do not appear to be problematic in the MAP case. This is true for several reasons. First, the fact that MAP's activities serve the public good is not in dispute—that is, MAP does not substitute public for private dollars but provides services that individual firms would otherwise be unable to obtain. The public views MAP's activities as a net benefit to employers, workers, and the local economy as a whole. Without MAP's organizing and training efforts, small machine-shops would find it difficult or impossible to meet the skill demands of rapidly changing technology. This is particularly true during economic downturns, such as those experienced by Massachusetts in recent years. Second, employers have matched public funds for MAP activities through both cash and in-kind contributions. In addition to paying the tuition costs of employees enrolled in training, many shop owners have volunteered on curriculum committees and advisory boards, taught at community colleges, and hosted shop tours for trainers and trainees. Third, the quality of training provided through MAP is not in question. MAP's efforts to develop collaborative relationships between employers and educators have been critical to enhancing the quality of training and ensuring that classrooms keep up with rapidly changing workplaces. Employers' participation on advisory boards and their involvement in cooperative placements for vocational education students have been central for this reason.

While accountability issues do not seem to be problematic in this case, a recent MAP-sponsored study has concluded that the training it provides is not sufficient to meet the demand for skill. And while firms acknowledge they need a highly skilled workforce, they devote few resources to training. In a recent survey of 74 metalworking firms in Western Massachusetts, for example, half of the firms said they spent one percent or less of their budget on training, and another 30 percent said they spent between one percent and five percent; these levels of effort reflect industry patterns nationally. The authors conclude that "Most metalworking firms in the region are too small to support an in-house training program alone....The rhetoric and the reality of training continue to remain far apart, seriously hampering efforts to revitalize U.S. manufacturing" (Cann, Forrant and McGraw 1991, page 16).

Access and Equity

The issue of broad and equitable access to training in machining occupations is more problematic, particularly in a region in which half the white male machinists were laid off by the mid-1980s. Because the original survey undertaken by MAP showed that employers needed multi-skilled and highly technically-skilled machinists, initial training courses focused on meeting these needs. The result, however, was that few women or minority workers applied or qualified for training. The courses were geared towards training individuals who already had a background in machining. Women and minorities who did apply often did not meet entry-level requirements in basic skills.

MAP responded to this problem in several ways. First, it began offering courses in basic skills and basic machining and helping interested individuals identify a series of courses that would position them for entry-level jobs. Using funds from the U.S. Department of Education, MAP covered tuition costs for unemployed and disadvantaged trainees at courses developed in conjunction with the Massachusetts Creative Development Institute, a non-profit training organization. Second, it undertook research to document minority and female participation in machining and to identify barriers to entry. As of 1988, less than seven percent of the region's metalworkers were female and 12 percent were from minority backgrounds. Moreover, female and minority metalworkers tended to be concentrated in low-skilled jobs as assemblers or machine operators (Warner 1989).

To increase minority participation in training, MAP actively recruited applicants. It began working with welfare case-workers to identify candidates. It also began publishing its literature in Spanish and working with organizations such as *Nueva Esperanza*, a community-based Hispanic agency. Central to MAP's strategy was the recognition that minority participation would increase only with concerted recruitment efforts and the development of support services beyond skills training. Support services included the following: counseling; job shadowing; numerous shop visits to acquaint trainees with potential employers; seminars on job rights, occupational safety, and health; and, assistance in job search and placement.

Recruitment of female applicants proved to be particularly difficult given the male-defined character of metal trades occupations. MAP responded to this problem in 1988 with the establishment of a "women in machining" project, designed to break down barriers to women's entry into the trades. The program recruits female trainees, provides training for entry-level positions, and

coordinates a series of additional services—including day care, a women's support network, job shadowing, employer visits, job placement, seminars in on-the-job harassment, and follow-up counseling once women have found jobs. The women in machining project achieved a completion and placement rate of 75 percent. Overall, approximately 15 percent of MAP's trainees have been women, including those who have participated in upgrading courses (Warner 1989).

In sum, MAP has taken a highly activist approach to recruiting minorities and women into its training programs. It has shown that incorporating women and minorities into non-traditional jobs requires training agencies to go beyond skill development and to deal with the social barriers to successful job placement and performance.

MAP views this strategy as a long-term necessity. Considerations of social justice are compounded by the reality of rapidly changing demographics. In 1987, for example, the average age of the region's skilled machinists was 57. Many of those who were laid off in the early and mid-1980s have never returned to the shop. But this long-term view is complicated by short-term swings in the economy. The recession in Massachusetts in the early 1990s has again left experienced machinists unemployed, making placement of new trainees extremely difficult.

Organizational Change

A similarly difficult issue faced by organizations such as MAP is how to foster workplace changes to make the most use of training programs. MAP's 1991 study of the status of the region's metalworking industry based on a survey of 74 firms identified a number of disturbing problems that limit the competitiveness of firms. The successful integration of training into broader business and production strategies was one such problem. The MAP survey, for example, found low-utilization rates for new technologies, and attributed much of this problem to the lack of planning and worker involvement in technology acquisition. MAP found that half of the firms surveyed did not involve machinists in decisions regarding equipment purchases. Eighty percent of respondents said that their managers needed training in worker involvement. Lack of worker involvement in decision-making has led firms to purchase equipment for which they later discover they have no in-house expertise. Rather than integrating training and technology decisions, firms buy machines and train later, resulting in gaps in utilization (Cann, Forrant and McGraw 1991, pp. 12-13).

Alternatively, in some cases, workers have received technical training that they subsequently do not use on the job. If they do not use technical skills such as computer-numerical control or programming, they may quickly lose what they have learned. Particularly in larger shops, retrained workers return to prior jobs and hierarchical arrangements that limit their full use of technical and problem-solving knowledge (see Sabel 1991 for a fuller discussion of this issue).

The 1991 MAP survey found some evidence to indicate that under-utilization of trained staff is a problem. Surveyed firms tended to rely on managerial and technical staff to perform basic computer operations and used outside consultants to maintain, repair, and program new equipment. Yet the purpose of the MAP-sponsored training has been to broaden and deepen the skills and knowledge of machinists so that they can integrate these functions into ongoing production activities. The MAP study concluded that area firms lacked any systematic approach to integrating training and technological change, or linking the successful completion of training courses to increased worker responsibilities or wage increases. Thus, while MAP has succeeded in creating an effective regional training network, area firms have not yet succeeded in integrating training and human resource policies into their business and organizational strategies. That integration is considered central to economic competitiveness (Cann, Forrant and McGraw 1991).

What these dilemmas imply is that cooperative networks such as MAP should provide training and technical assistance to owners and managers to develop long-range strategic business plans—plans that integrate decision-making regarding product markets, production organization, and human resources. Although this idea underlies the MAP strategy, the goal is yet to be realized. One of the constraints faced by MAP, to which we now turn, is that this strategy requires a level of institutionalization that is difficult to achieve—a level of institutional security that MAP does not enjoy.

Institutionalization

Despite MAP's achievements in developing a series of strategic training programs linked to economic development, it faces serious limits to establishing a permanent institutional framework of operation. Grant-based agencies such as MAP are politically vulnerable and often subject to uncertain and unpredictable funding. In the case of MAP, annual funding cycles have meant that it cannot develop multi-year programs or strategies. If, for example, MAP recruits a group of minority applicants to begin basic skills courses, uncertain

funding may prevent the agency from developing the necessary sequence of courses for those applicants to meet entry-level positions. Funding constraints also limit the extent to which MAP can undertake the labor market research needed to adjust training programs to shifting labor demand.

More recently, the agency's institutional survival is in question. MAP has existed on a series of grants from state and federal government. Given the state budget crisis in Massachusetts, the state has eliminated funding for MAP in 1991. Other sources of funds are uncertain. One option is for the local employers' association to assume responsibility for the programs initiated by MAP. The dilemma, however, is that lack of public sector funding mirrors the regional economy. On the one hand, small job shops that are barely surviving do not have the resources to invest in a training network; on the other, it is during such downturns that training to improve competitiveness and productivity are most needed.

Conclusions

The MAP case is instructive for employment training systems in several respects. Its broad base of community support and involvement enhance the quality of training programs and ensures its accountability to the needs of local employers and workers. Its networking approach provides a model for training delivery to small firms. Its collaborative approach between private and public sector institutions integrates training into overall economic development efforts. Its activist approach improves access to training and skilled jobs for non-traditional applicants. The case also highlights the fact that training in isolation is not sufficient to improve productivity and competitiveness. Firms must develop longer-term strategies which integrate decisions regarding product markets, technology, work organization, and human resources. What remains problematic for MAP is the agency's ability to build an institutional base from which it can develop longer time horizons and foster organizational change.

Endnotes

1. By contrast, for example, the Job Training Partnership Act (JTPA) requires a 30-day job placement for full payment.

2. The state governor appoints three of the members and the California Legislature, the remaining four. Current members include a former vice-president of AT&T (current chair); a representative of the Service Employees International Union (SEIU); the current president of First Arcadia Corporation, an independent investment firm; a representative of the Teamsters Union; a retired chief of data management from McClellan Air Force Base; the Executive Director of the California Conference of Machinists; and a representative of the United Auto Workers-Labor Employment and Training Corporation.

3. Unemployed individuals who are ineligible for UI benefits are *not* eligible for training under ETP.

4. Eligibility criteria were changed to allow ITP to provide funds to firms to a) permanently expand the workforce; b) upgrade or retrain incumbent workforces in new technologies; c) add new or additional product lines; or d) improve quality and/or reduce the cost of manufactured products. Since 1991, funds have also been made available for training projects through employer associations, community colleges, and administrative entities under JTPA.

5. This summary draws on the more detailed case study conducted by Creticos and Sheets for the National Governors' Association evaluation of state-financed workplace-based training programs (1991).

6. These examples draw on case studies conducted by Creticos and Sheets for the National Governors' Association evaluation study of state-financed workplace-based training (1991).

7. The original contract language reads, "The parties share a vision of the work environment in which all employees are encouraged to develop their skills, abilities, and talents to the fullest extent possible and are furnished every opportunity to take the initiative to do so. Such an environment will not only offer the maximum opportunity to employees to attain their employment goals, but will also lead to increased commitment by employees to devote their maximum energies to improving the Company's productivity and competitiveness. It is anticipated that this level of employee commitment will contribute significantly to marketplace success for the Company and to the increased employment security for employees associate with such success" (National Agreement between AT&T, CWA and IBEW 1986).

8. The Alliance covers only AT&T employees. For the employees in the Bell operating companies, CWA has succeeded in negotiating training programs in some cases, but none of these has established an independent non-profit training agency along the lines of the Alliance model.

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