

TRANSITION IN A MATURE REGIONAL ECONOMY;
A CASE STUDY OF THE MACHINE TRADES ACTION PROJECT
AND THE METALWORKING INDUSTRIES
OF FRANKLIN COUNTY, MASSACHUSETTS

by

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ABSTRACT:

This research explores two concurrent transition processes in the regional economy of Franklin County and the neighboring town of Athol. This semi-rural area, two hours northwest of Boston, was once a world center for precision metalworking, renowned for its skilled workforce. In recent years, employment levels in metalworking have been declining; from 1980 to 1983, it is estimated that 1400, or approximately one quarter, of the jobs in metalworking have disappeared, many due to plant closings.

The first transition process I examine is the how the industry's restructuring process has affected those metalworking firms that remain in the area. I find that industries are experimenting with a variety of strategies to retain their viability; these strategies include new product development and marketing channels, new technology in production processes, and/or new types of shop floor relations with their workforce. While the outcome of this experimentation is not predictable, it does appear that many firms are drifting toward some aspects of a flexible specialization strategy.

The second transition process I examine is the evolution of a labor-initiated economic development planning project, the Machine Trades Action Project. This project aimed to generate skilled replacement jobs for dislocated workers from metalworking trades. It also aimed to create a public forum where managers, workers, and public sector representatives could engage in long term planning for the region. In two years, its focus has shifted from working to recruit new firms into the area, toward working to strengthen local firms through a flexible specialization strategy.

While many metalworking firms and the MTAP project are experimenting with the same strategies, their activities are not well coordinated. Additionally, the labor force that initiated the MTAP project is, on the whole, not well integrated into current project activities. This thesis both examines the reasons for this lack of cohesiveness and presents recommendations to address these issues.

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"There's nothing constant in the universe,
All ebb and flow, and every shape that's born,
Bears in its womb the seeds of change."
-Ovid

I. INTRODUCTION

The MTAP Project

The summer of 1983 was a time of great uncertainty for the metalworking industries of the rural Franklin County/Athol region of Massachusetts. Although this area had once been a worldwide center of metalworking, employment levels were declining in most of the region's cutting tool plants, and a major plant in Athol was about to close in the wake of a protracted strike. When the largest cutting tool plant in Greenfield became paralyzed by its own strike, the local union (United Electrical Workers), representing many of the affected workers, sponsored a meeting to discuss alternative responses to the dramatic signals of decline. The union hall that night swelled with mixed emotions of anger and fear, as individuals described their own work situation in plants across the industry. As one worker recalls, "I was mad and angry. . . I got to hollerin' about what was happening at Bendix [another local plant that had been put up for sale by its corporate owners] and wonderin' what the 'powers that be' in town would do." The accumulation of stories generated a realization that a comprehensive approach to economic development with a new direction was needed, and this meeting ignited a spark that created an innovative planning project in the region. This project, the Machine Trades Action Project (MTAP), and the regional economy in which it operates, is the subject of this thesis.

From its beginning as an idea articulated by the local

union and a group of community leaders, through its development as a program with the early involvement and key support of several state agencies, to its emergence as a pilot project for state use of federal job training funds, MTAP represents an important public sector experiment to rebuild a mature industrial base. The organization will be described in more detail at a later point. As with most experiments, the focus has not only sharpened, but also shifted as the project developed. The shifting of goals within MTAP represents in a microcosm two polar approaches to economic development. These two approaches, recruiting growth from outside the region vs. generating growth from within the existing regional economy, are currently at the center of debate in regional development theory (see Gore, 1984).

The original goal, for what was first called the "Employment Generating Project," was to attract new job opportunities for dislocated machine trades workers, either through relocation of companies from other places or new business start ups, by marketing the skills of the workforce. While this focus on skills, and the creation of quality (good paying and stable) jobs, was an innovative feature, the search for those jobs was largely directed at attracting outside investment. One worker described the strategy as "finding expanding companies that have quality jobs and getting them to expand up here." Two key activities were a skills survey of dislocated workers, and the subsequent production of a marketing brochure to be used by MTAP and other local

institutions like the Chamber of Commerce. The difference between this initial strategy and conventional "smokestack chasing" approaches to economic development is that "skills", rather than a "good business climate" (with its low wages, low taxes, etc) were marketed as the comparative advantage. According to notes from an early planning meeting, this strategy to attract outside investment was adopted because "for the majority of displaced workers, there will be few new job opportunities developed from within the existing industries."

Yet now, nearly two years after MTAP was first funded, the major program activities focus precisely on strengthening existing industries, to build economic development from within the region. The current MTAP strategy has three elements. First, marketing the skills of the workforce continues, but with a new focus; the goal is now to attract subcontracts for existing firms rather than to induce the physical relocation of a new plant. Second, MTAP is continuing to support entrepreneurship; currently, staff is seeking funding to develop a small business incubator facility. Third, MTAP is working with existing metalworking firms to help them develop new products. All of these strategies are also intended to create high skilled, quality jobs, by helping the firms in which many of these jobs currently exist to expand incrementally.

Along with this transformation in strategy, the structure of the MTAP organization has changed. From a labor-dominated committee based planning forum to generate skilled employment

opportunities, MTAP has evolved, in many respects, into a provider of one-on-one consulting by staff to local businesses seeking new market opportunities. The decision-making structure and the strategies have changed, even as the underlying goal of the project--the creation of high skilled jobs which utilize the existing skills of dislocated machine trade workers--has remained the same.

In part, my thesis will explore why these shifts occurred, in strategy and structure, and what have been the concrete outcomes that resulted from MTAP's experimentation. Thus, I am conducting a project evaluation to assist in the planning of other similar projects. Additionally, however, my thesis will explore the implications of the new program direction for this particular region, this particular set of industries, this particular labor force, and the MTAP project at its current stage in development. From this analysis, I make recommendations for the future of MTAP, based on trends observed within the regional economy. How are firms within the metalworking industries addressing their need to remain competitive, innovate, and make money? How are workers, and the union, addressing their need for quality jobs and control over the stability of those jobs? How is the local public sector reacting to decline in the traditional manufacturing base? Can and should a project like MTAP have a role in strengthening, coordinating or initiating particular activities?

My methodology for this investigation consisted of

interviews with over forty people who have been involved to some extent with the MTAP project. I spoke with MTAP staff people and Board members, staff of supporting State agencies, local labor representatives, plant managers, company presidents, and local public/non-profit sector people in the Franklin County/Athol region. Although I utilized a very loose format in the interviews, I rooted my questioning in a model of economic development, based on the expansion of existing firms, for which a skilled workforce is a key element. This model, advanced by Piore and Sabel (1985) as economic development based on "flexible specialization" is useful because it draws on case studies of regions that have some similarities with Franklin County, and because it is being formalized by the MTAP project director as the model towards which MTAP is building. It has not been my intent to prove or disprove the validity of this model, but rather to use the model to identify aspects of the regional economy where one might find evidence of a transition process.

The Flexible Specialization Model

Drawing on the experiences of thriving regional economies dominated by mature industry firms, the flexible specialization model describes a process of local economic restructuring in response to economic decline. In this model, as individual firms experiment with new strategies for survival and revitalization, they seek flexibility in their production processes, specialization in their product markets, and increase their interaction with other local firms.

Generally, like Franklin County, the regional economies

are locations of historic concentrations in a particular industry, and are dominated by small firms, which rely on a skilled workforce. Case studies of textiles in northern Italy (Contarino, 1984), machine tools in southern Germany (Piore and Sabel), and machine tools in rural Japan (Friedman, 1986), depict a process of evolution from experimentation to conscious strategic planning in a fundamentally new direction. The emerging orientation toward flexible specialization moves firms away from competition based on product price, and toward competition based on product quality and innovation.

These changes occur because the market is characterized as moving increasingly away from standardized demand for standard output, and toward a more diverse and specialized set of goods. There are several reasons for this change: a) rising aggregate income creates a more diverse demand for a wider variety of, and better quality product, and b) increased pace of technological change in production processes (a speeded up product life cycle), also creates a more diverse demand (Sabel, 1979).

In order to meet diverse and shifting demands, a successful firm continuously develops new products, and produces that diverse range of products with a limited range of equipment. The shifting from one product to another requires flexibility in both the deployment of labor and the application of capital equipment. Workers must be skilled to operate a number of machines, to make judgements about the appropriateness of particular production processes for a new

product, and to work quickly so that the custom product can be quickly delivered to the buyer. The search for flexibility and product specialization can mean new forms of shop floor relations, new types of production technology, and the exploration of new agglomeration economies among firms in the region.

Although flexible specialization is a descriptive model of a regional economic transition process, MTAP is exploring its application as a prescriptive model; that is, a blueprint for development that has the potential to generate high skill jobs. For projects of MTAP's scale, focusing on a small region, it is an attractive model because it offers local handles for fundamentally affecting economic development; the nature of inter-firm relations within a limited geographic area, and nature of industrial relations within firms, and the role of local third-party intervention to mediate and coordinate development.

The Interaction

On the one hand, there seems to be a fit between MTAP's strategy and the behavior of local metalworking firms. It does appear that most firms are already incorporating at least some elements of flexible specialization into their planning for the future. MTAP can build on existing patterns of business behavior. On the other hand, many workers who were involved in setting up MTAP do not have confidence in the flexible specialization approach as an adequate job generation strategy, and they are wary about how increasing flexibility will affect them in the long run. For example, they now must

work with and rely on, primarily non-union firms as the source of new jobs, a strategy with which they are uncomfortable. Some workers expressed their frustration in MTAP's "losing its focus." The MTAP staff recognize the irony of a labor-initiated project which has little active labor involvement in the implementation process, and the danger that a flexible specialization strategy shaped by business interests alone may be less likely to generate high-skill jobs.

Flexible specialization implies an increased interdependence of interests between business and labor within a particular region; but a long history of adversarial relations in Franklin County makes it difficult for either group to make cooperation work, even around a limited set of issues. Whatever inroads of cooperation that can be established must coexist with collective bargaining. The development of working alliances between constituencies that have some conflicting and some converging interests poses a critical challenge for public policy.

Right now, MTAP and the regional economy are at a critical juncture point. MTAP has achieved both concrete and less tangible successes in its two year existence, which will be explored in this paper. Parallel to this public sector effort, the private business sector is also experimenting with a range of strategies that seem to be drifting toward MTAPs goals. Finally, despite organized labor's misgivings about the flexible specialization strategy, some individuals are trying to creatively carve out a role for workers in this unfamiliar

"development from within" model. There is potential for convergence in the goals, or at least some goals, of MTAP, business, and labor, but such convergence is not inevitable.

Although MTAP's budget is to be phased out by the state in August 1986, many strategic choices are pending for local businesses and labor. There are very specific ways in which sustaining a program like MTAP could help shape the outcomes of these choices, by reintegrating labor into the planning process, and by helping firms adopt a kind of flexible specialization that can, in the long run, bring high-skilled jobs to Franklin County.

This paper is organized into three remaining sections. In Part II, I examine the conditions in the local metalworking industries, and comparisons and contrasts with industry wide trends. What are firms trying to do, and why: where are they being successful, and where are they encountering bottlenecks? In Part III, I examine the development of the MTAP project, the transition in strategy toward flexible specialization, and what shaped the participation of labor, business, and public officials. As well, I review the outcomes of the MTAP project. Finally, Part IV contains recommendations, both about changes that might help future projects similar to MTAP, and about the future of the MTAP project from where it currently stands.

II. THE METALWORKING INDUSTRIES: PLANNING FOR THE FUTURE

Overview

Because MTAP is now focusing on generating skilled jobs by strengthening existing Franklin County businesses, an understanding of how local firms are planning for the future is critical. The successful implementation of MTAP strategies to promote, for example, product diversification and increase subcontracting business within these firms, requires knowledge about if, how, and why firms are currently engaging in these activities, where they are being successful, and where they face bottlenecks.

This section will explore the variety of strategies that local firms are employing. I interviewed company presidents and plant managers across a range of small, medium and large firms (thirteen firms in all)-- the largest employed approximately four hundred people and the smallest a one person shop-- manufacturing for both growing and declining markets. Five of the thirteen plants had unions: four U.E. shops and one I.A.M. (International Association of Machinists) shop. The variation I encountered in terms of approach to new product development, agglomeration, and flexibility, seems not so much to be a function of whether the company heads are progressive vs. backward. Rather, the variation seems to be a function of the different market positions, existing plant capacity, and existing labor arrangements of each firm. While it is not clear in some cases whether firms are adopting these new strategies as short run responses to decline, or whether

they are moving toward the adoption of flexible specialization as a permanent change, it is clear that firms are experimenting.

These findings are organized around the three major elements of flexible specialization; (1) new product development and product mix; (2) agglomeration economies associated with the Franklin County location; and (3) flexibility in production process, both in terms of labor and equipment. But first, it is useful to get a sense of the whole variety of activities that fall into the category of metalworking industries.

The Industry

The metalworking industries of Franklin County/Athol utilize a wide range of capital equipment and production processes, and manufacture a wide range of products for diverse markets. There are few direct competitors in the region. Not only are the types of capital equipment diverse, e.g. lathes, presses, drop forges, screw machines, etc, but also the age of the equipment currently in use spans nearly a century. While one company is phasing out some equipment with an 1898 patent for 1960's machines, another company operates 1920's patent machinery, as others introduce state-of-the-art CNC (computer numerically controlled) technology. Within one company, there is always a variety of machine types, and often a significant range of equipment age. Across firms, many of the same machine types are in use and hence, the particular skills of many workers are transferable from one plant to

another, despite all the diversity.

The products range from carbide inserts, triangular cutting tools barely a quarter inch long, to nine foot square cast iron sluice gates that control the flow of water over dams; from consumer goods like barbecue tools and chef's knives, to industrial machinery that grinds wood into pulp for papermaking. Markets, while generally industrial rather than consumer oriented, range from chain hardware stores to machine tool companies, aerospace manufacturers to municipalities.

Within industrial markets, there are a range of end-users. For example, firms can manufacture a piece for use in metalworking, a cutting tool, such as a drill; or they can manufacture a machine tool, the fixed piece of equipment that uses cutting tools to cut metal, for example, a screw machine. Firms also produce equipment that will be used in non-metal manufacture, for example, the paper mill machinery, or a piece that is one component of a larger piece of equipment, either for manufacturing or for some other industrial use, such as a spray nozzle for pollution control equipment.

Within each category, the products can range from being "standards," a commonly used piece like a standard screw, "specials," a custom-made piece that requires some modification of the standard (e.g. an extra long drill), or a one-of-a-kind piece (i.e. a cast metal housing for a prototype machine).

Cutting tools, both standards and specials, have traditionally formed the core of metalworking industries in

Franklin County. Since 1980, however, it is estimated that 1400 machine trade jobs have disappeared (Gaines, 1985), representing one quarter of the workforce in this industry. Most of these jobs have been lost to plant closings in the cutting tool industry. There are still, however, a number of cutting tool manufacturers in Franklin County, and to some extent, they have been able to tap some growing markets.

There is a declining national market for cutting tools for a number of reasons. First, because cutting tools increasingly last longer, due to special coatings, superhard metals, or ceramics in place of metals, the demand for periodic replacements is reduced. Second, the metal cutting function is not a key part of many new manufacturing operations, because plastic has replaced metal in the end products, and the new production process uses primarily molds to form the products. Third, new tools for cutting metal, such as lasers, are receiving increased use. And fourth, import penetration for both inexpensive and top-of-the-line tools, especially standards, is reducing the demand for domestic cutting tools.

Yet, as markets for standards are shrinking, more specials are needed. The rapid pace of technological change has created a demand for new products. In recent years, according to the Cutting Tool Manufacturers Association, specials have expanded to represent close to half of the cutting tool market. Some Franklin County cutting tool firms have always concentrated on specials to some extent, and many others are now moving toward increasing their production of

specials. In such markets, they have a comparative advantage because they have a skilled workforce. For example, one firm that makes broaches, cutting tools which cut irregularly shaped holes, has been working with its customers to design and produce customized variations. Another firm is broadening its product lines of hand tools to include more unusual sizes. As well, firms are experimenting with other revitalization strategies; new production technologies and shop floor innovations. Thus, within an industry which in aggregate is declining, local firms are rebuilding, and even within firms that appear to be declining, often sales of certain product lines are growing.

Certainly, a number of investors feel that the Franklin County cutting tool industry is viable. In the early 1960's, many of the independent locally owned firms in the area were bought up by large corporations seeking to diversify their holdings. Several of these corporations-- Litton Industries, Allied Bendix, and Ingersoll Rand-- proceeded to divest themselves of cutting tool divisions in the early 1980's. In some cases, corporate ownership has meant a shrinkage of product lines, and a lack of reinvestment in capital equipment, leaving area firms less competitive after the corporate divestiture (Mature Industries report, 1984). Despite all of these problems, new investment has followed in the wake of corporate disinvestment, although the number of jobs remains far below even the lowest level of employment before the change in ownership. Two companies, Bendix/Besley

Products Co, and Ingersoll-Rand/Rule, were bought by smaller corporations who run the plants at reduced capacity. The third case is a new company, Athol Cutter and Carbide, started by a manager (and former machine operator) who had worked at the Union Butterfield Plant. This company took on U.B.'s product lines, but located in a different building. A fourth corporation, TRW, which owns Greenfield Tap and Die, has just put its cutting tool division up for sale.

Firms can locate business opportunities both within growing markets and with specialized niches in stable or declining markets. And, in fact, Franklin County firms are doing both.

Product Specialization and Product Diversification

Many diverse businesses strategies can be characterized by product specialization: this simply refers to the fact that the firms manufacture a narrow range of products, even if these products are bought by diverse end users. Product specialization within a flexible specialization strategy generally focuses on the category of "specials," characterized by short production runs. A company maintains its ability to survive on short production runs by continuously developing new products, and diversifying its product line. Marketing strategies very much influence a company's ability, and willingness to experiment with new product lines.

A main source of growth is making a "new and improved" version of a current product, and less frequently, an accessory part for their existing product; for example, one

local company has grown by developing a number of nozzles with various applications, with each new model generally a slight variation on the old. The source of ideas is as much from the customer as it is developed internally. When marketing is closely coupled with direct customer-supplier interaction, ventures into product diversification, or product improvement, are a much less risky proposition for the supplying manufacturer, because the customer has already been identified.

Some companies in expanding specialized markets, however, had difficulty obtaining enough money and technical assistance to develop the product. For example, managers at the paper pulp machinery company have identified a market for a new computerized and energy efficient version of their product, through contact with their existing customers, but do not have the internal resources to bring the new product into production. The market is known, but the cost of product development is high.

Where does a trend toward specialization in growing markets leave firms that currently manufacture for declining, or at best stable markets? Their inability to identify a market for new products constrains new product development. In part, this results from the institutional arrangement of marketing, the industrial distribution network. There are signs of change in the workings of these networks.

Most of such firms have, in the past, relied on a network of industrial distributors, wholesale suppliers of a range of

goods to other industries, to market their products. This eliminated the need for a firm to pay for the overhead of a large sales staff combing the market for opportunities, and was convenient for the purchasing firms to buy a diversity of products from one source. The industrial distributor, rather than the supplying manufacturer, establishes and maintains contact with the customer.

In contrast, firms in expanding specialized markets, while still in many cases relying on industrial distributors to an extent, are more likely to be increasingly reliant on direct sales (by the president and/or a small sales staff) and manufacturers representatives, commissioned sales people who market a number of non-competing product lines by targeting particular industries and making sales calls. Those firms that have adopted these marketing methods, whether serving a diverse or narrow range of end users, make specialized customized equipment where direct exchange of information between customer and manufacturer is critical.

For firms in stable or declining markets, trying to develop new products, both industrial distributors and manufacturers are making adjustments, some toward increased specialization in standardized goods with widespread application in growing industries, others in becoming more flexible, from both the manufacturer's and the distributor's ends, to facilitate the transition to new market opportunities, whether in growing or declining sectors. The first approach is external market oriented, while the second approach also takes into account the internal structure of the

marketing operation.

The first approach, since it is directed at a standard good being produced with many competitors, implies a market strategy that concentrates on lowering cost; as one industrial distributor operating in this way told me, "No matter what you hear about being able to sell price, quality, and service, the reality of the market is that it's price, price, and price." This distributor is looking to fill the standardized product needs of growing sectors, for example, by selling pliers to high technology industries as well as traditional metalworking customers. As he told me, "the volume is there. An order for 12 sets of pliers for a 'smokestack' company would be a big order. For hi-tech, 12 dozen sets is a common order." While there may also be a concern for quality--for example, a company president told me "we advertise that all of our pieces are individually inspected by a human being," the low profit margins in a competitive standardized market dictate, at least in this particular case, low wages, with a starting wage of \$3.75/hr, \$5.00 for skilled workers.

Additionally this strategy implies a path for new product development that is quite risky for the firm. One local company that makes completely standardized products recently developed a totally new product, a "ground thread screw extractor," with innovative features for which the owner has a patent pending. He views this particular tool as having widespread applications across industries, as well as working better than existing models on the market, and began marketing

it last fall with letters to his industrial distribution network. When the letter failed to elicit response, he began personally visiting distributors with the tool, and has received, he feels, a very positive response. While he is confident that there is a growing untapped market for this particular device, the road between his model and that market is certainly a winding one, the link between customer and supplier uncertain during the product development stage. The product is developed, and then aggressively marketed.

The second approach to marketing in declining industries is to facilitate a location of the market opportunity first (through distributor contacts), and adjust manufacturing and distribution networks to deliver the good. This is done by increasing the level of communication between customer and supplier, with the distributor as intermediary.

For example, one company recently spent \$25,000 on a marketing brochure which they are giving to their distribution network, illustrating and giving specifications of everything they make. Several companies are increasing the use of in-house sales representatives, who visit distributors to explain the technical complexities of a given product, and are on-call to visit customers with the distributor. The distributor works with the manufacturer's sales staff, who are technical specialists in their particular product lines, rather than trying to train his own staff to know the intricacies of every product. One distributor I spoke with is actively trying to link up customers with supplying manufacturers, whether the need is for a standard bulk order or a custom made piece-- in

other words, becoming more of a service and less of a volume operator. The communication flows both ways; "we go to suppliers and bring opportunities back from the customer" as well as bringing supplier ideas to potential customers because "the manufacturer may often be ahead of the distributor" in identifying new product ideas.

Product diversification within this marketing strategy results from the flow of ideas back and forth between customer and supplier. If the distributor is aggressive about finding new market opportunities, new product development is much less risky for the supplying company. While a distribution network could potentially hamper the ability of firms to adjust to shifting markets, by interfering with customer/supplier interaction, and may in fact be a contributing factor to why some local firms have found themselves seemingly locked into declining markets, the creative distributor can also be a solution to the problem. A network of distributors across a wide geographic area with contacts in a wide range of industry sectors, backed up with technical expertise from the supplier, could connect Franklin County firms with new customers whose product needs, whether very related to old product lines or entirely different, require the skilled workers and capital equipment in a firm now facing market decline. While still not an easy strategy, this approach does emphasize the ferreting out of new markets as the critical step in new product development. This approach also generally seems to lend itself to the generation of market opportunities for

specials, because the product, at least initially, is designed around an individual customer's needs.

For companies in stable or declining markets, it seems that the need is more for help with locating the new market-- while technical assistance and money may also be a problem, these firms do not often get beyond the step of finding that market. As one manager told me, "it's not just what I can do, but what I can sell that's important", and another: "We've got plenty of ideas; it's finding the market for them that's difficult."

Agglomeration

Agglomeration economies are the benefits that accrue to a business by virtue of its geographic location near other businesses. The benefits of being located near other businesses can fall into several categories; access to a shared labor force, access to suppliers and production inputs, infrastructure, and access to markets. The ability of firms to move toward flexible specialization, according to the model, depends on the existence of certain agglomeration economies, most notably, the presence of a highly skilled and versatile labor force. The ability of a region to sustain development based on flexible specialization seems to depend on an increasingly dense web of interdependence among a region's firms--that is, the development of further agglomeration economies.

Most prominent among agglomeration economies in Franklin County is the existing labor force. The fact that metalworking

firms across the range of industries utilize some of the same machinery types means that the skilled labor is also versatile, with training that, in many cases, is not plant specific. In one case, two metalworking firms and two other local firms which perform some metalworking, put together a joint training program with funding from the Bay State Skills Corporation.

I found two other sorts of agglomeration economies. The first has to do with the fact that metalworking is still relatively concentrated in New England. Distributorships are set up so that each distributor buys from a much larger region than their selling area. A typical selling area can be a 50 mile radius around a metropolitan area, while a buying area can be the whole country plus some foreign countries. One Western Massachusetts distributor I spoke with said that he buys ten percent of his products within the selling area, and this, while typical for New England based distributors, was an uncommonly high figure for distributors nationally. This is because in New England, many suppliers of cutting tools are located in the selling area, near the buyers.

This situation may explain why, even though the market for cutting tools was declining nationally, firms in this area have had a delayed response to the market decline. In New England, there has been a relative abundance of customers, and even now, companies are still able to make the kind of informal contacts that allow them to find local market opportunities. For example, a plant manager of a company that

makes almost exclusively standardized drills told me he is very close to closing a 3/4 million dollar deal with a nearby firm (outside of Franklin County) for a custom made wood boring bit. While he generally relies on industrial distributors, he made this contact by calling on the plant manager cold.

This may be a mixed blessing. The ability to make local deals brings short-term business, but may in the long term inhibit firms in these declining industries from developing more systematic marketing efforts. According to one distributor, and contrary to other research (Mature Industries Report, 1984), while geographic proximity between buyer and seller is convenient and saves a little money in transportation and communications costs, that proximity is not the key factor in determining a firm's competitive advantage for making specials, where the growth in the market seems to be. "Delivery time", along with quality are the key components for success in a specials market, and delivery time has two parts- the in-house turnaround time during manufacture, and the shipping time from supplier to buyer. While turnaround time can vary six weeks or more, shipping time generally varies no more than a few days. If this is true, the manufacture of specials may be becoming, like standards, increasingly independent of the location of end users.

This seems to be borne out by the experiences of several local firms. For example, a company which makes sluice gates that control the flow of water and sewage, has a worldwide

market, even though each order is virtually custom made, one of a kind, and, as large cast iron pieces, expensive to ship. The company that makes spray nozzles for air pollution equipment and other uses, to many different specifications, likewise has a worldwide market. A new cutting tool company, started by former managers from Union Butterfield, manufactures specials almost exclusively, and sells them nationally. This trend, if widespread for a number of specialty products, is again a mixed blessing to Franklin County firms. On the one hand, metalworking firms now may have greater access to a worldwide market for its potential products. On the other hand, unless they can compete on in-house turnaround time, local firms lose the comparative advantage of being located near many end-users, and the ability to strike substantive deals with other area firms. Most specifically, this means that the work from the growing markets of Eastern Massachusetts, while local, is not necessarily especially accessible to western Mass. companies, unless other factors are equal. This point deserves further research.

The second agglomeration economy relates to the informal networking, cooperation and small scale buying and selling taking place between area firms, despite the diversity of activities in the areas of product type, marketing strategies and production technologies. For example, there seems to be an active local secondary market for machine tools, in which firms that upgrade to newer technology sell their old

equipment to other local firms. There does not seem to be an active market for NC or CNC technology, at least yet. While used machinery is also bought through industry wide trade journal advertisements or regional auctions, a local transaction comes with intimate knowledge of the particular machine, with the old owner nearby to troubleshoot if necessary. As well, several firms were able to buy equipment as the bigger companies have been sold, moved, or shut down by their conglomerate parents.

Several firms mentioned that they shared information about various types and applications of technology; for example, characteristics of Brand x grinder vs. brand y. Firms exchange information about machines, particular production techniques, and plant issues (e.g. a dust collection system). A common vehicle for the exchange of such information is that plant managers tour each other's plants every once in a while. Neither the local Chamber of Commerce, nor the industry trade associations really facilitated this contact; firms perceived of the Chamber as retail oriented, while the trade associations both encompasses larger regions than Franklin County, and were very specialized e.g. a foundry association.

Besides information, firms occasionally share actual equipment. Several plant managers spoke of loaning out a particular cutting tool or tool holder on a one time basis-- for example, a small firm borrowed a large drill that would have cost them \$300 to buy from the nearby manufacturer, for a single operation. Further, companies sometimes borrow or lend

a piece of larger equipment or a machine tool, when either the exchanging companies use exactly the same piece of equipment (a flask for casting), or when companies have the same type machine with different capacities (ie. size of piece), or when one company has a specialized piece of equipment. Sometimes, these exchanges mean that one firm sends its employee to the other firm's site to work on the equipment there. One firm sent its employee to do inspection of its pieces on a high resolution magnifying glass owned by another company--the first firm's own magnifying glass was smaller, and though it suited most of its needs, was not precise enough for one particular job. In another case, an employee of one company travelled to a nearby company with the same equipment to turn out production there, due to lack of capacity at the first plant.

Sometimes, all of these informal exchanges are free, or a nominal fee is paid; in other cases, the arrangement takes the form of a formal subcontract. It seems to depend on the nature of the relationship between the firms' managers, and on how frequently the operation is performed. Generally subcontracting within the region, like the informal arrangements, is sporadic. Most typically, a subcontract is for a particular process, such as heat treating or grinding, rather than for a wholly made part. There are instances of companies making a spare part, or a specialized piece of equipment for local use, but in each case, a subcontract is not the first option pursued. In the case of a spare part,

firms are more likely to go back to the seller and get a replacement, or borrow a part from another company with the same machine. In the case of a specialized piece of equipment, since many firms have their own machine shops, they can make the piece in-house. However, sometimes, a firm that makes large castings, for example, will subcontract out its small castings needs, because either the precision needed for the small piece is not achievable with their large casting equipment, or because it is cheaper to have it done externally. Finally, two local firms, I was told in confidence, are in the planning stages for a joint venture, with manufacturing divided between the two plants.

In reality, there's actually a lot more interfirm purchasing than would be indicated by the subcontracting activity. The fact that most firms both buy and sell cutting tools through industrial distributors makes it hard to determine the degree of formal interindustry linkage. While some firms knew whether or not particular items they bought were made locally (even if not purchased directly from the local firm), many others just had no idea of the origins. Of those which know, metalcutting firms tended to use more locally made products than metal forging or metal casting firms, because much of the equipment for the latter was not manufactured in Franklin Country.

With respect to subcontracting in particular, but interfirm "jobbing" in general, one company president stated that when his company has excess capacity, it was more likely to engage in various short term projects with other local

firms. As the company moves toward operation at full capacity, it was actually less flexible, and less likely to be able to accomodate the needs of others. In fact, many (but not all) of the stories I heard about inter-firm cooperation were a couple of years old, when plant closings and layoffs were epidemic. This is somewhat contrary to the experience of the machine tool industry of Sakaki Township (Friedman) in rural Japan, where an intricate web of cooperative networks, including use of another firm's machinery at that firm's site, enables each firm to run at capacity. This may have to do with the fact that metalworking production processes generally require some machines which run quite regularly, and some which are used infrequently for special operations, so that even as a firm runs at full capacity, not all machines are in use at any given moment. For those cooperative actions which require, at some some phase, use of the busiest machines, then it makes sense that as firms move toward full capacity, less cooperation is possible. In Franklin County, most firms are not at the point of having to worry about operating near full capacity. At least two firms are looking to lease out space in their buildings because of great excess capacity.

Although for any one firm, the amount of inter-firm networking (formal and informal) is limited and sporadic, the fact that virtually all the firms I spoke with had some experience indicates that, as several firms mentioned, there is commitment to being a "good neighbor" and an awareness of a regional connection. These pinch-hitting kind of deals do tend

to give the involved firms more flexibility in meeting contract deadlines. But the main source of experimentation with increased flexibility is the shop floor, using new production processes, new physical layouts, and new relationships with the labor force.

Flexibility

Across the board, managers in Franklin County metalworking firms are experimenting with increasing flexibility in their production processes. Increased flexibility can be achieved by changing the technology in use, the physical organization of the plant, the tasks that workers do, or the incentive structure for workers to provide input.

Increasing flexibility is controversial among workers, because it has several purposes. On the one hand, flexibility can increase the viability of the firm, and thus the stability of jobs, by allowing it to implement the shorter production runs that characterize specials, develop new products and/or use more efficient production processes. On the other hand, flexibility can be a tool for increasing profits that are not reinvested in the plant, thereby not contributing to the viability of the firm, and stability of jobs. For example, shifting shop floor arrangements from a situation where each worker runs one machine to a situation where each worker runs a number of machines simultaneously or sequentially, can be both a measure to improve turn-around time by increasing worker discretion in scheduling his/her work, and a measure to purely "speed-up" production. In this section, I will explore

flexibility from the point of view of managers; when I describe the MTAP project and labor's feelings about the flexible specialization focus, I will describe labor's perspective.

For some, but not all firms, the introduction of new technology is a critical ingredient for increasing flexibility. Technologies in use range from hand fed "conventional" machines which make one piece at a time and can make a wide range of pieces, to "automatic" machines which make a set of identical pieces from bar stock that is loaded into the machine periodically by the operator and make a limited range of pieces, to "computerized" (NC or CNC) machines which combine the flexibility of conventional machines to make several types of pieces with the speed of automatic machines. Computerized machines are programmed for their operations. Managers make deliberate choices as to whether to upgrade capital equipment, what level of technology to adopt, and the specific application.

Six of the thirteen companies that I talked to either had or were about to purchase NC (numerically controlled) or CNC machine tools. The ability of a company to pay for technology updating, has been of course, a limiting factor to the adoption of these modern tools, as new CNC machines commonly cost over \$200,000; this consideration, however, was never the first one that plant managers and company presidents cited. The most common reason cited for adopting NC or CNC technology was "cost effectiveness"; when a particular piece could be

made more quickly, and hence more cheaply, with an NC or CNC machine. While several companies stated that the technology would reduce labor costs, they did not anticipate, and had not in the past needed, layoffs as a result of the new technology. Increased sales resulted in more work to go around.

Related to cost effectiveness was "better quality", a concept which has two different dimensions. The first concept of quality refers to reducing the number of rejected pieces on a production run of many standard parts. The second concept of quality refers to more preciseness or ease in the making of complex parts which on a conventional machine might require a long series of precise operations with a very small margin for error.

The following illustrate the two concepts of quality. In one company, the most technologically advanced machines were used to perform the most standardized operations, with the intent of freeing up skilled morkers to improve turn-around time on the production of customized specials, for which they used conventional machines. In another company, on the verge of purchasing CNC equipment, it was anticipated that the new equipment would be especially useful in performing intricate operations for prototype manufacture requiring a high degree of precision. In yet another company, the CNC machines were used for both speedy production of standard parts and technically complex operations, running continuously through two eight hour shifts.

It is difficult, at least with this sample of firms, to systematize the relationship of CNC use with the mix of

specials vs. standards in the output, except to say that it depends on the one hand, on the degree of precision required, and on the other hand, on the degree of standardization possible. In use for the production of a standard piece there may be a threshold which determines whether a CNC or NC machine is economical. A couple of managers mentioned that they were not able to achieve the economies of scale necessary to operate a NC or CNC machine. I suspect that the threshold effect lies in operating costs vs. cost of overhead (the purchase price); one plant manager who inherited a non-working CNC machine from the old owners (hence, it had no overhead cost because the machine was effectively paid for) stated that "even if we could get the thing working [it presently has a design problem], it still wouldn't be cost-effective to operate." A final reason for experimenting with NC or CNC technology was "to eliminate an irritant job," one with particularly unpleasant working conditions. The company that cited this reason had not, so far, been successful at doing this.

I did not find any companies that explicitly introduced new technology to "de-skill" employees and increase the scope of management prerogative. In fact, those companies that introduced modern technology have done so mostly to take advantage of worker skills. While other researchers have found that new technology is often used to transform a craftsperson into an operator by transferring program design to engineers, leaving narrowed program execution to the shop

floor (Noble, 1979), most Franklin County firms train operators to at least edit the machine's programs (i.e. troubleshoot), and frequently, to design the actual program. The most common system for determining which workers are trained is to choose, at the minimum, that worker whose current function is changed or eliminated by the new technology. When the displacement effect is not clear, some companies have an open-bidding process for training. Some unionized companies also introduce seniority as an allocative mechanism, and offer training first to the most senior employee. One reason that technology seems not to be greatly associated with increasing management control is because many firms in Franklin county are too small to have large engineering staffs to get so intimately involved in day to day operations on the shop floor. However, the impact of technology on worker skills varies across firms.

One plant president perceived the new technology as requiring a different mix of skills. Another told me that "if anything, the new machines are easier to operate". An engineer at one of the area's largest plants, however, expressed reservations that the new technology did, in fact, bring about a loss of skills and a loss of shop floor control over production.

Strategic decisions by firms do not necessarily include the purchase of state of the art capital equipment. There is a distinct difference between equipment modernization and adopting technologically advanced, automating equipment. While it is true that most of the companies with growing markets for their output have introduced new technology, it is

not clear that the wholesale introduction of new technology to the production process of firms currently in declining markets is so critical. Certainly, these firms are not, for the most part, seeking out advanced technology on their own--either they say they don't need it for the operations they perform or that they are "waiting until a new technology proves itself" in other similar settings.

These firms are concentrating on increasing flexibility by changing the organization of work in a number of other ways. While increasing flexibility can, hypothetically, mean increasing flexibility to lay people off, reduce wages, etc., those companies that were experimenting the most with flexibility were doing so, at least in part, to avoid laying people off.

For example, in both union and non-union firms, plant managers are rearranging the physical layout of their plants to facilitate both movement of materials and informal cross-training of people within the same department i.e. forging, machine shop. This complements their ability to be flexible by giving workers a broader range of skills so that needed short term transfers from one job to another are feasible. Two plants had explicit policies for crosstraining; both were especially likely to do crosstraining when their plants had excess capacity, as a means of keeping people busy, instead of laying them off. Another company has eliminated their quality control department, instead having each operator along the production process, starting at the receiving dock, check the

piece before it moves on, and flagging any suspicious pieces for further investigation by an engineer.

While the union is commonly perceived as being a real obstacle to flexibility on the shop floor, I found great variation in the experiences of union plants, and found evidence of movement toward more flexibility in all of the union firms I interviewed, from the point of view of managers. Two plants had very loose contracts without narrow job classifications, and neither had had labor problems in a long time. In a third plant, managers found the union accepting a high number of "temporary transfers" to jobs outside their contract obligations, that were not specifically prohibited by the contract. The plant managers thought that the union was not resisting these transfers because the workers knew that there really was not enough work to go around. As one said, "when we're running at undercapacity, the union is weak because the company is weak." He anticipated that when the company had more work, the union would begin protesting, or at least, want more control over the structure of the transfer policy, and was not sure what the outcome would be. Given the good labor-management relations, he did not anticipate a strike.

A fourth union plant gave more prerogative to the production worker as to the scheduling of that work. Although the out of state parent corporation had instituted a highly supervised "production control" system for prioritizing orders, the plant manager has rejected this system as inefficient. Instead of adhering to a schedule where each

piece is made in order of the date it is needed, the workers on the shop floor make the decision about how to order their work so that all pieces get out by the necessary date. This is important, because metalcutting involves two broad operations; setting up the machine with the proper tools, and then running the metal through the machine to form the piece. Set-up is time consuming and requires skill to properly specify the dimensions of the piece; a set up represents down time for the machine, and slows down production. By allowing a worker to organize his/her own work according to the needed set up, and to "batch" together like runs, fewer set ups are required, and considerable time is saved.

Some of the firms experimenting with flexibility are also seeking increased worker input to improve their operations. There is a wide range of opinion on the role of the workforce in suggesting process or product ideas. It is interesting that the two most extreme views on the spectrum of opinion about worker input come from non-union workplaces. One local company president, when asked if he solicited worker input on production process scheduling or product development, relayed the following story. "When we moved the shipping clerk's office to a new place, I sat down and asked her if she had any suggestions for reorganizing the office. . .she had none," and this summed up his attitude toward worker participation in general.

At the other end of the spectrum, another company actively solicits worker input even in the hiring of new

production workers, with a hiring procedure that included letting the people (not not just supervisors) who would work with the new person meet him/her and give feedback before the hiring decision is made. Workers additionally were invited to design, and paid to investigate, a safety program for the plant. This same company has an explicit no layoff policy which they believe encourages process innovation by production workers that would not otherwise emerge. For example, at this company, a worker made a cost-cutting suggestion that eliminated the bulk of his job, and in a setting without the no layoff policy, he might have been reluctant to come forward with the suggestion for fear of losing his job.

In between these polar cases are a variety of plant level responses to worker input. Most plant managers regularly meet with foreman or lead men, discussing not only day to day production requirements, but also seeking input from at least these people, if not a broader group, to determine realistic production goals. For example, one plant manager recently met with all of the people who, it was anticipated, would be involved in the production of a new product, to discuss the price and delivery time he would be quoting the customer, and to get a sense of whether his bid was realistic. This discussion broadened into a discussion of the limitations of existing capital equipment, and what kind of improvements and/or new purchases could increase the plant's efficiency and/or versatility, although no decisions were made at the meeting to actually make a new equipment purchase. Another company encourages worker innovation through all levels of the

company with a plant-wide monthly bonus plan, tied to the profitability of the whole operation. In February of this year, the bonus amounted to an extra \$300 on every employees monthly paycheck, although the average is in the \$80-\$100 range. All of the examples I heard that were implemented by the companies, had to do with process rather than product innovation. In some cases, its difficult for workers to become involved in product innovation, because, as one worker told me, he often does not know what exactly the end use is and in what industries the end use is situated.

Implications

While many local firms see flexibility, both in production processes and in products, as a key ingredient in their ability to be competitive, they are not confident that their ability to be flexible will last as they become busier and reduce their excess capacity. The current level of shop floor flexibility is perceived, at least in the union shops, as a situation borne of hard times. Likewise, the level of inter-firm cooperation is seen as a response to hard times. For example, one manager, interested in a joint buying service for raw materials, said that although the idea had been discussed at his trade association, nothing had been done because "times haven't got that hard; that's what'll take." The companies that feel they will be able to maintain flexibility as they grow are in the minority. The more successful companies are reducing their intra-regional

interaction in terms of taking local subcontract work in or putting local subcontracts out.

One small company president feels that Franklin County firms, with their skilled workforce and proximity to the high technology belt around Boston, could successfully operate as "job shops", taking in specialized subcontracting and repair work. His own company does such work. For many other companies, however, "job shop" has the negative connotation associated with peripheral and unstable economic activity. Those firms are pursuing long term subcontracts with a steady set of customers.

However, whether firms are now either experimenting with what they hope will be permanent innovations, or just riding out bad times through forms of cooperation (interfirm and labor-management) that are periodically revived during economic downturns, they seem to be open to discussions about what forms of additional cooperation make sense. Even one firm, for example, that is running very close to capacity, is interested in certain areas of cooperation: this particular firm mentioned that a joint delivery service from Franklin County to the airport would be very useful.

It's not clear to what extent any of these new strategies will directly contribute to a substantial expansion of metalworking jobs vs. stabilizing existing jobs, at least in the short run (next 5 years). Three firms that I interviewed have had a net increase in employees over the last couple of years, and for two of those, the increase has been less than 5 people. A third company, started last year by managers from

Union-Butterfield, which closed in 1983, has hired forty people so far, all of them former managers, engineers, and supervisors from U.B., now doing production work. This company the fastest growing one, has a five year plan to double its size.

However, the stabilization of existing firms , according to several company presidents, is a key pre-condition for attracting a large employer to the area, as the union continues to want. First, it is necessary to demonstrate an improved labor management climate; as one company official told me "We have to learn to get along with the union, because it hurts us and the region as a whole that we don't". Second, the pool of people in metalworking trades must be maintained, and skills continually upgraded, which will only happen if potential workers perceive the existence of at least some stable jobs. Finally, the existence of many small companies in the region may have other agglomeration effects for a large company moving in, e.g. good training programs, responsive marketing channels, opportunity for local subcontracting-out in a pinch, etc. This suggests that a flexible specialization strategy complements in some senses the industrial recruitment strategy originally at the heart of the MTAP project.

As discussed earlier, the agglomeration effects do not exist primarily around explicit interindustry linkages, but around the labor market. In this sense, a concentration on the labor market assets of Franklin County, as MTAP is promoting, does seem very appropriate. In fact, the nature of

changing external markets may give areas that have the foundation for good interfirm networks and innovative labor management relations a particular comparative advantage that, until now, has not existed. Thus, it is critical for public policy, through projects such as MTAP, to explore where cooperation might be possible, the nature of its effects on the region, and the possibilities for public intervention to facilitate its development. The next section of this paper, in analyzing the successes and bottlenecks for the MTAP project, in part explores the potential contradictions in pursuing a flexible specialization strategy.

LABOR AND THE EVOLUTION OF MTAP: STRUCTURE, STRATEGIES AND OUTCOMES

Overview

It is impossible to discuss the evolution of the MTAP project separately from labor's role in the Franklin County/Athol economy, because the MTAP project was initiated by workers in response to their experiences in the regional economy. The evolution in MTAP's structure reflects the evolution of worker participation in the project. The particular strategies to generate high skilled replacement jobs for dislocated workers were initially shaped by, and then proceeded to shape, the structure of worker participation in MTAP.

This chapter will take a different focus from the project evaluations that have already been done for MTAP. These evaluations include first, the MTAP Final Report, written by the first Project Coordinator, to chronicle the development of MTAP's implementation strategies through various planning, outreach, and research activities. This document highlights how MTAP successfully involved businesspeople, workers, and public sector representatives in defining realistic long run strategies to create skilled jobs in metalworking. The second evaluation, produced from meetings with workers who were involved with MTAP, reflects disappointment that the project did not meet their expectations around short term job generation, nor did it successfully balance the decision-making structure between business and labor. Workers seem to

have had a much narrower conception of economic development strategies, focusing on attracting outside investment and new business start-ups, than the Project Director, who explored a wide range of strategies including those centering on work with existing firms.

Building from these two evaluations, I will explore why a labor-initiated committee based project evolved into more of a one-on-one consulting service provided by staff to local metalworking companies. Discussion will focus on how the evolution in structure relates to the evolution in strategy.

I will first review the initial structure and goals of MTAP, and then the two evaluations mentioned above. I will relate each to the earlier discussions of a shift toward flexible specialization. Additionally, I will review the project outcomes. Second, I will describe the current decision-making structure and strategies/activities of MTAP. I will argue that, while the shift in strategies toward working with existing firms makes sense, given trends in the metalworking industries, that the structure for labor participation is problematic.

MTAP: Initial Structure

In order to discuss strategies and outcomes, it is necessary to understand how MTAP was structured and how its initial goals were defined. At the beginning, a key goal was, in fact, to create a more participatory decision-making structure that would include labor in economic development planning. As the experimentation with strategies shifted from

attracting outside investment to strengthening existing Franklin County firms, the role of workers within MTAP became, as one worker said, "secondary" and unclear.

The MTAP project idea was developed and promoted in 1983 by the two year old "Ad-Hoc Committee on Dislocated Machine Tool Workers in Franklin County", a group that had been formed to broadly address problems around plant closings. Coordinated by the Franklin County Community Development Corporation (CDC), the Committee included members of the U.E. local, the elected state representative, the director and some Board members of the CDC, and other public sector representatives from, for example, the Franklin/Hampshire Employment and Training Consortium(F/HETC)--the local office of the state Division of Employment Security. Several of these people attended the union hall meeting described in the introduction. That union meeting was triggered by the discovery that the Massachusetts state government did not consider Franklin County's economic problems as serious enough to warrant special attention.

In late summer of 1983, the state government was dispersing federal monies (through Title III of the Job Training Partnership Act) to selected regions to be used in assisting dislocated workers. The Franklin County/Hampshire (adjacent county to the South) area had been excluded from the list of targeted regions. After the meeting at the union hall, the Ad-Hoc Committee researched why the region, so obviously in distress, had been declared ineligible for

relief. They discovered that the data used by the state to make the allocation decision was outdated, from 1980, and did not reflect the rash of plant closings which occurred in Franklin County between 1980 and 1983.

While the local constituency to organize a project like MTAP was in place, the support of key people in State Government was critical in locating and channeling funds, and in developing a policy framework. Michael Schippiani, who attended the union meeting representing the state's Executive Office of Labor, suggested that the Ad-Hoc Committee pursue some discretionary money in the Title III budget, to use in assisting dislocated workers. Because Title III allowed for programs in job creation and retention, as a component of "job search assistance", MTAP, as a project to involve workers in planning for job creation, fit the funding criteria.

The Ad-Hoc Committee drew up the initial proposal for MTAP, calling it the "Employment Generating Project". The final proposal was developed cooperatively by the Executive Office of Labor, the Executive Office of Economic Affairs, which disbursed JTPA Title III funds, and the Franklin County CDC. In addition to the federal money, the state contributed its own funds as designated by 1984 Mature Industries legislation. State and Federal funds were channeled to MTAP through the Franklin County Private Industry Council (PIC), which was the existing local mechanism for channeling job training money into the county. The Franklin County CDC, having established a working relationship with both the union and many local businesses, was chosen by the Ad-Hoc Committee

to administer the MTAP experiment.

The development from idea to project generated a model for broad based cooperative planning at the local level, and the designation of MTAP as a pilot project by the state. Initially, at the local level, MTAP was conceived as a labor project, a committee made up largely of dislocated workers, to research the industry and develop revitalization strategies. In order to coordinate public sector activities, local representatives were included, just as they were on the Ad-Hoc committee. In order to take advantage of managers' expertise as a resource for this effort, participation was broadened to include business. Thus organizers envisioned a new cooperative working relationship within a new planning arena between business and labor and the public sector in pursuit of high quality jobs for the region.

A local Advisory Board of workers, managers, and public sector people was established to oversee the project. A separate worker's consulting committee was formed as an exclusively workers group to guide the project and provide a setting where workers felt comfortable giving input.

The model was formalized by the state as a Cooperative Regional Industrial Laboratory (CRIL), program, and the state now oversees several similarly structured projects at a much earlier stage of development, that focus on other regionally concentrated declining industries and their affected workforce. A statewide CRIL advisory council, consisting of public and private sector development experts, was established

to offer technical assistance to the CRILs.

The MTAP project was initially funded in June 1984 for a period of six months up until December 1984; a project coordinator was hired, and soon afterwards, an administrative assistant and a worker outreach worker were added. Only the worker outreach organizer was a local person; she had worked as a secretary for the U.E. In November 1984, the Executive Office of Labor hired a CRIL program manager to oversee the MTAP and future CRIL projects around the state.

The initial six month funding from the state was intended to support a two part planning process. First, MTAP would document the needs of workers and the potential for a revitalized regional metalworking industry. Second, MTAP would develop a set of implementation strategies to generate new jobs in the machine trades. After this exploratory process, it was anticipated that financial support for MTAP could be drawn from local sources; the businesses, union and local public sector who had cooperatively developed plans for the future. As the state's December 1984 monitoring report notes, "The initial MTAP proposal assumed that its products would be an action plan for future job creation. This plan would include a job creation strategy and recommend possible funding sources." Research was seen as an organizing tool that would forge a new working relationship at the local level, and build a constituency for local support of the project. The project was intended to expand labor's role in public decision-making around economic development, but not to directly address labor-management relations within the individual firms.

As it turned out, MTAP was refunded twice by the state, for six months from December 1984 through June 1985, and then, after a three month gap, has a current year contract that extends from Spetember 1985 through August 1986.

Initial Goals

What were the goals of MTAP, goals around an employment generating project? First, its organizers wanted to bring labor into the planning process around economic development, as a valuable source of ideas and information, and to legitimize labor as a participant in the public planning that so affected workers. As one worker recalled, "We wanted to be not just objects of policy making, but participants in shaping economic development policy".

Second, they wanted economic development planning to focus on options that would preserve existing, and create additional high skilled manufacturing jobs, with the high skilled workforce as the comparative advantage of the region.

Third, MTAP wanted to effect a coordination of economic development planning with training/retraining for dislocated workers, so that training would build upon the skills of the workforce, and economic development would provide new employment opportunities. This goal would link the MTAP planning process with worker assistance centers for dislocated workers, funded also by the state with Title III money. Worker assistance centers provided a range of direct services to workers, coordinating benefits, training, and re-employment. The MTAP organizers were not sure what types of jobs or

industries would be feasible, but they desired a coordination to ensure that training would build upon existing regional skills rather than having a system of training based on projected growth occupations of the future, regardless of how the skill content of the new jobs related to the old.

Evaluations

The MTAP Project Final Report describes a three phase process to develop implementation strategies, and a local constituency around those strategies. These are called: 1) An Inventory of Resources, 2) Laying the Strategic Foundation, and 3) Putting Strategies to Work. This section will offer a sample of the activities.

The first phase was dominated by a skills survey to determine the existing skill base and re-employment experiences of dislocated workers in the machine trades. The survey took much longer to complete than expected, so that other goals set out in an initial work plan had not been completed by the end of the first funding cycle.

The survey was useful in a number of different ways. First, it was used by the Workers Consulting Committee in phase III to produce an illustrated skills brochure to market the region. Workers felt the brochure was a very satisfying and concrete project. Both the Franklin County and the Athol Chambers of Commerce mentioned the usefulness of this data in our conversations, and both offices displayed the brochure along with other promotional material. The Athol Chamber director especially emphasized the importance of marketing "skill" as an regional comparative advantage: his office in

1984 commissioned a study of industry SIC codes whose skill requirements match the local workforce, as a guide for recruiting firms into the local industrial park. MTAP staff wrote a feature story which they sent to Industry Trade Journals based on the survey information.

Additionally, the skills information helped the worker assistance centers in Greenfield and Athol to be more effective, by providing them with detailed information about the population they served. The senior planner for the Franklin/Hampshire Employment and Training Consortium, which administered the worker assistance centers, noted two specific sources of information improved service delivery. First, because many people had never finished high school, they had "basic skills" deficiencies. This would seriously limit the reemployment options for these dislocated workers. Second, the survey revealed that the dislocated workforce contained many older workers, who would need special assistance in finding new work.

But the surveys were not a good organizing tool. Although twelve to fifteen workers were active on the worker consulting committee, and workers were paid to do the survey administering, only two workers and one worker's wife actually administered the survey. One reason that the administering did not involve more workers was, according to an outreach worker, that workers felt uncomfortable asking friends and co-workers questions that were quite personal, i.e. income.

Moreover, the time lag between summer of 1983, when the area was in the throes of plant closings and the idea for MTAP first came up, and the fall of 1984, was a problem. By then, many people had found new jobs, and even if they had inferior jobs to their old ones (e.g. long commute, lower pay, less skill), they often did not have the free time to get involved. The sense of urgency was no longer the same. One of the reasons the survey took so long to complete was that it was so difficult just locating the dislocated workforce, some of whom had been laid off for nearly a year, and were out of touch with the union.

Other activities during the first phase include the start of a metalworking firm survey. This survey, administered by MTAP staff, was designed to gather information about current plant capacity, and to publicize the MTAP project to businesses so that they might want to get involved. Many of the business people I interviewed, however, barely remembered having been surveyed, and when they could remember, the most common reaction re: the purpose of MTAP, was; "It was trying to find jobs for workers who were laid off during the plant closings. But since we weren't expanding, we couldn't really help, and couldn't see how the project could help us." Nevertheless, based on the survey responses, MTAP did invite a few local businesspeople to sit on the MTAP Local Advisory Board, and tried to engage them in discussions about their own business strategies with respect to the generation of high skill jobs. The meeting minutes reveal that while a number of company presidents or plant managers attended one or two

meetings, no business people attended on a regular basis. Thus, development of a working relationship between business and labor was not happening initially. This reflects that the role of business at the beginning was ill-defined: to assist in job generation, either in one's own firm, or in "the community".

MTAP also conducted other research. Workers and staff researched trends within the cutting tool industry and related metalworking activities, and investigated the feasibility of particular product markets. For example, more than one meeting included discussion of a potential market for specialized equipment for handicapped people. Literature from labor-led product development within individual firms, such as Lucas Aerospace and Hyatt-Clark Industries, focused the discussion.

Basically, the first phase focused on information gathering. In phase two, the information was used to explore strategies, and influence activity outside of the MTAP committee structure itself. From the skills survey, in addition to the skills brochure, the Advisory Board came up with the idea of having worker representatives integrated into the industrial recruitment activities of local economic development organizations. The Westmass Development Corporation, the development arm of the Franklin County Chamber of Commerce, and the Athol/Orange Industrial Development Corporation, development arm of the Athol Chamber of Commerce, agreed to invite worker representatives to meetings with prospective businesses that might need machining

skills.

The regional economy had a potential liability in its "poor business climate" as a result of perceived labor militancy and business intransigence. To remedy this, a retired union worker and the director of Industrial relations at a large cutting tool plant, with the support of MTAP, sponsored a community meeting to take up practical issues of common concern to business and labor. Called the Industrial Base Council (IBC), this one meeting was followed up by a number of others around the issue of health care cost containment. The IBC attracted primarily managers and workers from the larger companies, both union and non-union, both metalworking and other types of manufacturing and service.

To follow up on the product development idea, and emulating the Hyatt-Clark experience, two "brainstorming" sessions were held, one with workers and one with management, to generate a list of new product ideas. Only managers who were unemployed, retired, or employed in non-metalworking were invited to the sessions. Because ownership of the ideas was unclear, however, and concrete markets were not identified, the initial sessions were not followed up.

Another strategy for new product development was to work with interested local businesses to help them evaluate potential market opportunities. This began in Phase III, and the adoption of this strategy was controversial. As the report diplomatically notes:

The most active discussion focused on whether internal (to the region) development was a priority over external development (from outside the region). While the intent

of the discussion was not to select one or the other direction, no resolution was reached on which strategy should be emphasized on the basis that it would be most beneficial for the community over the long run."

Phase III resulted in the three prong implementation recommendation strategy that was described in the introduction. First, it recommended targeting local businesses interested in product diversification with concentrated technical assistance. Selected businesses would have to meet MTAP criteria around issues such as expected employment generation effect, history of labor-management relations, etc.

Second, it recommended continued marketing of the region's skills in a number of ways. Along with straight marketing to firms that might be relocating physically, other strategies to attract outside investment capital, such as joint ventures and subcontracting for existing firms, were recommended. This particular recommendation emphasized the role of various state agencies, such as Commerce and Development and International Trade, in supporting the marketing efforts.

Third, it recommended increased assistance to small businesses as a potential source of new jobs. Together, these strategies are drifting toward not only working with existing businesses, but also toward working with them in a way that encourages flexible specialization. Still at the center of these strategies is the issue of skilled jobs, but now the focus is on increasing the competitiveness of existing firms rather than on importing skilled jobs from wherever possible.

In addition to these recommendations, MTAP sponsored a

conference, "What Do You Do When the Plant Shuts Down?", in June of 1985, to bring together the project's participants.

Around the time of this conference, members of the Workers Consulting Committee came together for their own evaluation of the MTAP Project. My interviews with workers yielded the same kind of results as the evaluation notes. To sum, there is much ambivalency on the part of workers toward the project. The most repeated phrase I heard was that "Well, it didn't really meet my expectations, but then, maybe our expectations were too high." While no one regreted having been involved, many felt that the project had not lived up to its potential.

The gradual withering of labor involvement in the MTAP project reflects, in part, worker discouragement that MTAP has fallen short of their expectations for job creation. This "Employment Generating" project was charged with creating four hundred jobs to fill the gap left by plant closings, and certainly MTAP has not been able to do this. The lack of labor satisfaction also, however, reflects the local union leadership's dissatisfaction with some of MTAP's strategies to work with existing local businesses around flexible specialization. Moreover, even if the local union agreed with MTAP's strategies, it is not clear what kind of role workers can play, given MTAP's structure for worker involvement.

When MTAP was set up initially, the structure of worker participation suited a strategy to recruit outside investment. There was no particular need to develop a working relationship with local businesses. A worker committee could conduct

research, chase down leads of firms that were considering expansion, and prepare promotional material. In fact, this is what the Worker Consulting Committee initially did, acting as a worker Chamber of Commerce to market the region. It is critical to keep in mind that labor, from the beginning, saw MTAP as focused on job recruitment and worker entrepreneurship almost exclusively. As one worker said, "the basic idea was to draw new industry to the area, and new jobs into the area." The brochure was a tool for job recruitment: the product diversification work was adopted as a means of identifying opportunities for worker entrepreneurs.

As the MTAP strategy moved away from attracting outside investment and toward working directly with local businesses, the role of MTAP as a forum for business labor cooperation, grew more complicated. How were union committee members and non-union firm managers supposed to work together? Where did the non-union workforce of many of these firms fit in? Even when a particular business had a union, how was it to work with a committee of union members from a wide range of firms? What exactly was the role of MTAP? Where should it be trying to influence the development of working relationships, and how?--in the public planning arena, within individual firms, in the MTAP decision making structure?

The shift toward working more closely with existing firms has been seen by some workers as a "loss in focus"; they felt that the outside marketing strategy was abandoned prematurely. As well, they have little history of contact, to say nothing

of a working relationship, with many of the existing firms, which do not have a union. Additionally, the shift toward working together, and establishing a new basis for relationships with businesses to generate new jobs, vs. attracting businesses and then setting up a familiar collective bargaining relationship, means that the union must enter unfamiliar and suspect territory. Not only are they skeptical that existing businesses will generate a significant number of jobs, but also they sense that a move toward flexible specialization can undermine the power of the union.

The union's negative position on flexibility in the workplace comes out of both local experience with firms, and the U.E.'s broad national philosophy. With respect to local experience, one often repeated story is the story of Millers Falls Tool (see also Goodman, p. 29). In 1962, the locally owned company was bought by a corporation, Ingersoll Rand. While, in the 1950's, employment at Millers Falls had been as high as 1300 workers, by 1976, employment levels had shrunk across the industry, and in this particular firm down to 650 workers. In 1976, the company announced that it was considering moving south to build a newer, modern plant.

The State and the town of Deerfield put together an attractive financial package for Ingersoll Rand to build in Franklin County. As well, the union, after several months of resistance, agreed to very small or no wage increases over the next four years, and changes in work rules that would make the shop floor more flexible. These changes included temporary

transfers on the shop floor and a modified seniority system. A new plant was built, and Ingersoll Rand moved from Greenfield one town south to Deerfield, keeping basically the same workers. Employment continued to decline in the new place, and, with very little notice, Ingersoll Rand sold the plant, and laid the workforce off. One of the workers learned in a late night telephone call from his family while he was on vacation, that that, as of the end of the week, he would be unemployed. The concessionary contract did not really keep those jobs secure. The new owners, Rule Industries, hired back about half of the fired workers, and in a matter of weeks after the plant reopened, the union was decertified.

According to the field organizer for the U.E., experiences like this have convinced workers that "the best contract is the most rigid contract" and that all attempts by management to increase flexibility on the shop floor represent concessions by workers. As one worker told me, "it's not usually an efficiency problem that drives managers to seek increased shop floor flexibility; it is that they simply don't want to go through the process of the rules, they don't want to be bothered".

As well, this particular union has a reputation for being a "hard-line union:" as one Greenfield worker told me, "we're the militant ones." The national union does not acknowledge any confluence of interests between labor and managers (capital); hence, labor-management cooperation of any form cannot benefit labor.

Outcomes

There is some disagreement within the local as to both the merits of MTAP and the larger question about the possibilities, or the necessity, for labor-management cooperation. As one worker sighed "We're stuck--they're the ones that have the bucks." Workers do point to some successes with MTAP, but these are in the public planning arena more than in relationships with managers.

For example, one worker in Athol has begun to be invited to Chamber of Commerce meetings as a worker representative. Another worker says that when he attends town meetings around economic development in Greenfield, he now feels like he is a legitimate participant in discussions rather than a tolerated nuisance.

MTAP seems to have had some ameliorating effects on the polarization between labor and management in the community, so that discussions of hardships facing the workforce and possible strategies for remedying the situation could take place for the first time. Since TRW, the parent corporation of Greenfield Tap and Die (Greenfield's largest employer), announced that it was selling its local plant, the union has received broad-based support from local retail businesses and town officials in a campaign to keep the plant open. Signs proclaiming "GTD Belongs in Greenfield" are plastered all over town, and the U.E. has been instrumental in organizing a GTD Task Force that involves both the public and private sectors.

This situation is in sharp contrast to the case of Bendix

(now Besly), which was similarly divested by the Allied Corporation in 1983. In that case, the town did not play such an active role, and while employees within the plant did approach the town for support, they did not find it, according to a Bendix worker, either within town government, the U.E. local as a whole, or the community at large. Although everyone I spoke to had a different prediction of the outcome of this newly united effort around GTD, and many people are still not sure how to affect the decision, or whether the situation is a crisis, it is promising to see the community begin to come together on this issue.

Finally, there is the Industrial Base Council. Although this new organization has no concrete accomplishments, and has faltered in the beginning, the fact that it exists at all is significant, because it has a unique participation structure. Each company that has become involved has agreed to send both a worker and a manager to the same meetings. This structure signifies an attempt to integrate business and labor discussions both at the level of the public planning arena, and at the level of the individual firm.

There are also successes related to business' role in the economy. For some businesses, the impression of the U.E. union may have improved; one company president told me, "In the MTAP setting, some of them were more reasonable, and we at least could talk with each other," while another manager related that "this local is pretty good because they don't always follow the national union position, which, in my

opinion, undercuts their own interests. They think for themselves." Most union members I spoke with, however, did not significantly change their opinion of management; as one said "they only get involved when they think there's something in it for them." Nonunion workers were not involved in MTAP, in part because of the difficulties in getting information about them, and to them. However, the IBC has potential to bring nonunion workers into these discussions.

MTAP has also been able to assist several firms as they experiment with new strategies of marketing, product development, or production processes, around flexible specialization. Three examples follow.

First, through cold research of subcontracting opportunities in growing Eastern Massachusetts companies, MTAP staff uncovered a lead and passed it on to a local company president who runs a small job shop and prototype manufacturing operation. The president followed up on this lead, and landed a contract that he expects will account for five percent of his sales, and will result in a long term business relationship. This is an example of finding a market for a firm with given production capabilities, and even though this is a fast growing company, its needs are analogous to the situation facing many firms in declining or stable markets. The resulting employment opportunities will probably be delayed, since this is a new small business.

Second, MTAP is currently working with a paper machinery manufacturer to find funds and sources of technical assistance for the firm in developing a new version of its main product,

a pulp grinder. In less than a month, the MTAP project director connected the company with a source of technical assistance, and continues to search for funding. This is an example of finding resources for product development for a known market, that will stabilize existing jobs that may now be in jeopardy.

Third, the president of a specialty cutting tool company employing thirty people, responded last spring with interest to an MTAP survey on product diversification. This company is relatively healthy, and a majority of its products are "specials". As an experiment, and because this company agreed to meet certain MTAP goals, the project brought together a group of industry experts from across the country to brainstorm on particular product diversification opportunities for hypothetical "Company X" with the characteristics of this real Franklin County firm.

The president, while saying that this study was helpful, found the proposals too general (i.e. didn't tell him how to do a,b,and c; rather told him what to do) nor were specific markets, with specific customers who had names and phone numbers to contact, identified. MTAP is continuing to work with him to refine the product diversification ideas.

Despite not gaining anything concrete from his participation in the product diversification scheme, this company worked again with MTAP to establish an international joint venture. The president had in mind a joint manufacturing venture, so that he could create more jobs in

this plant vs. a licensing agreement, where he would market a product manufactured abroad under his brand name. He had some experience with international markets alone, and MTAP connected him with the State Office of International Trade, who in turn, referred him to several foreign firms. The most enthusiastic response came from an Israeli firm which, it turned out, was interested only in a licensing agreement to gain access to U.S., not a joint manufacturing venture. The company president decided to turn down the opportunity.

There were two reasons: first, an expansion of skilled jobs seems to be part of his strategic planning, as he moves toward even more production of specials, and this particular deal would not contribute to that goal. Second, he felt a responsibility to the MTAP project, although he told me this with a strong caveat: "If my business wasn't going this well, I don't think I'd have given the guy the cold shoulder. And if my business declines, I may have to go that route just to stay afloat." This example shows that a business can stand the uncertainty of an experimental project, and still maintain their involvement.

IV. RECOMMENDATIONS

The state has been very concerned that there be concrete outcomes, especially in number of jobs created or stabilized. This, in fact, is the type of evaluation that was initially suggested to me. In part, the state must be concerned with tangible results because much of the money that funds MTAP, the federal Title III money, is earmarked for job training and placement policy. The evaluation systems use concrete measures such as number of job placements, not the kind of outcomes which MTAP exhibits e.g. "a cooperative decisionmaking structure". To the extent that MTAP enhances the ability of direct service agencies such as the Worker Assistance Centers, to respond more helpfully to worker needs, as a result of the skills survey knowledge, then MTAP may have some indirect effect on the placement rate. The strength of programs like MTAP, however, is probably not its job creation potential in the short run. Rather, it is in influencing the decision-making structure around public economic development planning and private strategic choices, influencing those decisions toward long term employment generation.

The particular focus of MTAP is in linking business strategies with overall regional job creation, and creation of quality, stable jobs. So MTAP does not want to be in the position of exclusively consulting with businesses on their own terms, but rather attempting to link business self interest with broader goals. I found that firms, both when doing well and when doing poorly, were interested in experimentation. I consider the openness of firms to cooperating, and of

the market demands facing metalworking firms in Franklin County, I would make the following recommendations for fruitful MTAP activity.

A. RECOMMIT MTAP TO WORKERS WITH A TRADE SHOW AROUND THE SKILLS AND PRODUCTIVE CAPACITY OF FRANKLIN COUNTY.

Organize a trade show of sorts, on the theme "If it's made of Metal, we can do it for you", and recruit New England Companies that respond to the new Marketing Coordinator's initial inquiries about subcontracting opportunities that have just begun. Each company could set up displays, explain production processes, and meet real people to contact back. One might consider holding the trade show in Eastern Mass. to increase the participation of possible customers. Such a meeting could be prefaced by a meeting of Franklin County businesses to discuss joint venture capabilities and shared service potential informally-- these potentials could be offered as an additional element of flexibility within the region's industry. Representatives of the union could set up a booth as well, or workers and managers from each firm could set up joint displays. It cannot hurt the project to focus on marketing to outside investors, whether subcontracting, joint ventures, or physical relocation. This marketing effort may bring the labor union back into the MTAP decisionmaking structure. Perhaps the experience of seeking out footloose plants may cause workers to eventually reassess the currently rejected "growth from within" strategy.

B. USE PUBLIC POLICY TO PUSH EXISTING PRIVATE MECHANISMS TO WORK BETTER THAN SETTING UP A PARALLEL PRIVATE STRUCTURE

without the expertise. Figure out how a particular behavior goes on already in the private sector: what makes it succeed? what makes it fail? For example, I have examined the role of industrial distributors and marketing strategies in facilitating or hindering new product development. Determine to what extent area firms rely on the same industrial distributors to market their products. Organize a meeting of non-competing industries (of which there are many) to discuss forming a Franklin County/Athol "block of influence" with the distributors. Then, firms as a group could meet with their shared distributors to work out ways of increasing customer-supplier interaction and penetration of new markets through the existing distribution network. Many firms have told me they do this individually with their distributors, but when that distributor carries many product lines, it is difficult to get the distributor to pay attention to any particular one. Rather, the commission paid on the sale gets the distributors attention. A block of firms, however, representing a large number of product lines that together bring in a substantial amount of business to the distributor, may elicit more responsiveness and effectiveness. The meeting of firms around this issue could evaluate how flexible the industrial distribution network is and has the potential to be, and whether it meets their needs as they focus on new market opportunities, which have perhaps certain new characteristics. Might other marketing strategies be needed to complement this method, and if so, could any aspects of new methods be done more effectively if done cooperatively?

C. LAY THE GROUNDWORK FOR INFORMAL DEBATE AT THE FIRM LEVEL
AND AT THE I.B.C.

Most every firm I spoke with had developed particular expertise in at least one element of flexible specialization. For example, some firms are recognized, both by other firms and by workers, as being especially good with labor-management relations, and have been able to gain flexibility in their production processes through more efficient use of the workforce. I can think of four firms, two union and two non-union, that would be especially appropriate. Likewise, other local firms have expertise in soliciting worker input that proves profitable; in marketing, be it through industrial distributors or through other channels; assessment of appropriate technologies for particular production needs and the integration of new technology piece by piece into a plant; product diversification, and the location of resources and for development and customers. There may be other areas as well.

It would be useful, I think, to organize either a conference at which all these ideas were discussed, or a set of one-shot meetings (dinners?) where these issues could be considered one at a time. The advantage of doing the series all at once is that a wrap-up could focus on to what extent and exactly how these issues relate to each other in determining a firm's success. The disadvantage is that perhaps no one issue would be treated in enough depth to be useful for the participants. Additionally, it would be useful for workers from what are regarded as successful plants dealing with the same sets of

issues to lead parallel discussions about these issues from the point of view of the workforce, and similarly have a wrap-up discussion where they assess how the various issues relate to the quality and stability of their jobs.

After each set of discussions happens, drawing on local expertise, workers and managers could come together at the firm level to discuss their reactions and ideas, and perhaps again across firms to compare the usefulness of various approaches. Perhaps at such a meeting, management and worker representatives from metalworking companies, both union and non-union, in other places, could be invited to describe their situations, how they became successful, where the difficult decisions lay, where there is still disagreement, and to give feedback on local initiatives.

D. BUILD THE INDUSTRIAL BASE COUNCIL, BUT CONTINUE TO HAVE AN ORGANIZATION LIKE MTAP TO CLARIFY THE DEBATE.

Continue exploring the Industrial Base Council as a structure for a public forum for workers and managers, and explore the kinds of discussions that make managers and workers want to communicate better at the firm level to draw that link. But also keep in mind that the I.B.C. is not particularly attractive to smaller businesses, who told me that the meetings, revealing the institutional rigidity of big companies and tightly organized unions, resemble a couple of dinosaurs in a boxing ring. These small firms are not likely to participate in this forum, at least initially.

V. FIND A SOURCE OF FUNDING TO CONTINUE SUPPORTING MTAP;

The kinds of goals that MTAP has are still employment

generating goals, but they are long term goals. A review of area labor management committees (Warner, Meek, and Whyte, 1985) reveals that most take three to five years before generating enough visibility to ensure a local funding base. The industry goals also are long term goals: to stabilize existing jobs first. While it makes sense that JTPA money is probably not appropriate for a program with this kind of a timeline, MTAP is a key element of economic development that starts "from the bottom up" and accurately can identify the places in a local economy where intervention is likely to have an impact. Some sort of bridge money must be located to fund MTAP between its initial JTPA grant, and its adoption by the region as an internally funded institution.

"From any fruition of success,
no matter what,
Shall come forth something
To make a greater struggle necessary."

-Walt Whitman

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Files from:

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- The Massachusetts Industrial Services Program
- The Franklin County Community Development Corporation
- The Machine Trades Action Project

INTERVIEWS

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Charles Houston, executive vice-president, Industrial Supplies
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Jim Peters, Comptroller, Greenfield Tap and Die,
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Interviews, cont.

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Doug Wright, plant manager, Besley Products Corp, Greenfield
Cody Sisson, president, Sisson Engineering, Northfield
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Jay Pierce, president, Montague Machine Co, Turners Falls
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