A Report on the CAP Region Manufacturer Roundtables

A Series of Focus Groups on the Workforce Development Needs of Manufacturing Firms in the Franklin Hampshire and Hampden Regions of Massachusetts and Greater Hartford Connecticut

Prepared by:

Joan Stoia
and
Paul Harrington
Center for Labor Market Studies
Northeastern University

Prepared for:
Regional Employment Board of Hampden County, Inc.

June 2003

Table of Contents

Executive Summary

This report synthesizes discussions that took place during three employer roundtables organized in the spring of 2003 by the workforce boards in the CAP Region and facilitated by the Center for Labor Market Studies. Human resource, facilities and quality assurance managers from twenty manufacturing firms in Franklin, Hampshire and Hampden counties in Western Massachusetts and the Greater Hartford metropolitan area in Connecticut participated in these discussions. They helped identify some of the key workforce development and training issues impacting the ability of firms to identify, recruit and retain qualified employees in manufacturing categories.

In commissioning the series, the Regional Employment Board of Hampden County, Inc., asked researchers to explore four general areas of inquiry:

- How technology has impacted the content, education and skill requirements of manufacturing jobs in the region;
- Which sources employers find most useful for identifying new workers
- Whether there are recruitment and retention issues that are specific to employers in the local manufacturing sector, and
- Whether there are unmet training needs that workforce boards in the CAP Region can and should address.

Highlights from the sessions suggest the following trends in manufacturing employment:

1. Globalization and automation have raised the entrance requirements of production jobs in all categories to include a greater emphasis on math and technical ability and affective qualities such as flexibility and teamwork.

2. Manufacturers in the CAP Region have made significant investments in advanced technology but have difficulty finding enough candidates with the skills and abilities demanded by more sophisticated manufacturing environments.

3. Today's machine operators must be able to monitor data being generated by their workstations, understand and synthesize it with information from other sources, and prioritize multiple responsibilities. Since work is organized in teams, cooperation and interpersonal communication are essential skills for all employees, especially those seeking advancement.

4. Facing fierce competition from overseas, Connecticut Valley manufacturers must be entrepreneurial in the pursuit of market opportunities, responding quickly with new products. This requires workers to adapt to new roles and requirements, which can cause friction and dissatisfaction, especially among traditional, highly skilled metal workers. The degree to which employers actually utilize the skills of the experienced craftsmen varies by sub-region.

5. While native-born youth express little or no interest in manufacturing jobs, recent immigrants are making inroads in these industries via the strong family networks of current employees with similar backgrounds. Grateful for applicants who possess the technical skills and personal attributes they need, employers welcome the newcomers. Some may even place less emphasis on English language ability with these workers, particularly at the entry-level.

6. Employers in the CAP Region are generally adept at recruiting engineering and technical staff at two and four year institutions and derive significant benefits from the presence of select community colleges and two large research universities. However, the vocational technical schools received mixed reviews and, in general, employers believe that more should be done at the secondary school level to teach better math and computer skills, dispel outmoded stereotypes about factory work and expose students to modern manufacturing careers.

7. Aside from improvements in basic education and computer skills, employers mentioned few specific training needs, preferring to contract for targeted, in-house technical training offered by industry experts through trade and professional associations.

8. The sophistication of the technologies employed and, therefore, the skill and knowledge demands on manufacturing workers increases farther down the region due to the symbiotic relationship between the large defense firms located there and their many sub-contractors. Smaller firms that have historically depended on these primes are experiencing the full impact of globalization, which places extraordinary technical and other demands on both these companies and their workers.

Manufacturers Roundtable I, Franklin Hampshire Region, March 18, 2003

Characteristics of Participating Firms

Seven companies sent representatives to the Franklin Hampshire session on March 18—Hardigg Industries in South Deerfield, Lightlife Foods in Turners Falls, Millitech in Northampton, New England Extrusion in Turners Falls, Packaging Corporation of America and Temp-Pro in Northampton and Tubed Products in Easthampton.

Their products range from temperature sensing devices and sophisticated communications equipment, to custom cardboard packaging, polyethylene film, plastic squeeze tubes for consumer products, reusable shipping cases, soy-based meat alternatives and kayaks. Despite the diversity of their products and the specific kinds of technology used, the companies share a number of interesting characteristics:

Origins—All of the firms have roots in the area. Most are located at or near their original sites and in several instances the values of the founders continue to shape company culture. This is especially true with regard to personnel policies;

Complexity—Several of the companies integrate multiple technologies into their production processes—for example, printing and fabrication. New product development and design are typically handled in-house.

Positioning—Most of these firms have chosen to compete on the basis of the quality of their products versus price. With two exceptions, they dominate their niche and have few, if any, competitors on the East Coast. Several operate in international markets, although for some selling overseas is relatively new. It is noteworthy, given the subsequent roundtable discussions, that none of the companies mentioned overseas competition.

Geographical Assets—All of the firms are located on or near I-91and all benefit significantly from the high concentration of educational institutions in the area.

Versatility—Most have learned to adapt quickly to the diverse needs of industrial, military and commercial customers; for example, the plastic case company also makes kayaks.

Workforce Organization—With the exception of the two high tech instrumentation companies in the group, most of the firms have similar staffing patterns. The typical workforce consists of production workers (including warehousing and materials handlers), a small number of engineers, quality control, sales and management and administrative personnel. Several participants indicated that productivity improvements on the production side have enabled them to grow their businesses by shifting personnel resources into other areas, such as sales, marketing and purchasing.

Stability—Overall, these firms experience little turnover. When it does occur, they draw from the same regional labor pool to fill all but the most specialized vacancies.

The Impact of Technology on Job Content, Education and Skills

Clearly, technology has had a significant impact on the content and availability of production jobs, the staffing patterns of individual firms and the skills and attributes required of individual workers. The Franklin Hampshire group provided numerous examples of how today's production workers have become 'knowledge workers':

> Setups are more labor intensive now that machine operators are responsible for the quality of their own output.
>
> Production facilities have evolved from being organized sequentially to more complex arrangements. Workers are challenged to juggle several responsibilities at the same time, to prioritize their activities and, as one representative put it, "to think." They must also be adaptable. At the plastic tube company, for example, when a machine goes down for scheduled maintenance, the worker moves on to different tasks on another machine.
>
> In order to do their jobs effectively, machine operators must be able to monitor data being generated by their workstations, understand it and synthesize it with information from other sources. Participants used the phrase "multi-tasking" frequently during the conversation to describe the way individual workers should function.
>
> Because work is organized in teams, teamwork, cooperation and interpersonal communication are essential skills for all employees, especially those seeking advancement.
>
> Finally, the firms reported that they do less outsourcing today than in years past. Functions are being brought back in house, providing more opportunity for cross training and internal promotion.

The rapid pace of technological change and the introduction of new materials require these environments to continually evolve. Not only are workers encouraged to think, they are expected to think "outside the box," and anticipate problems before they occur. Because firms often use multiple technologies, the work is more detail-oriented now than it was thirty years ago.

The plant superintendent in the group spoke of the increasing specialization of production jobs: "There are no more general laborers," he said. Gone also are the days when operators repaired their own machines. Equipment is now so complex that maintenance can only be done by master electricians, vendors or other specially trained personnel, he said.

Employers made a distinction between technical ability and firm-specific skills, and agreed that candidates with technical aptitude receive necessary training on the job. Literacy was by far the most important qualification for employment at these companies. The literacy skills demanded by these highly technical environments include: the ability to speak, read and write in English and the ability to do routine tasks involving math, such as using a ruler, reading a blueprint or counting boxes in a warehouse. Controlling individual workstations from a keyboard, understanding readouts, making judgments based on a variety of inputs, following instructions, working in teams with others and adhering to strict safety rules all require English language proficiency.

Because the workers are expected to bring more of themselves to the job than a pair of hands, personal qualities were cited as very important to these companies. One of the qualities that make a difference in the long run is an interest in continual learning. While an applicant may be hired without it, a demonstrated willingness to learn new things on the job will determine whether he or she moves ahead, the representatives said. Computer skills are also necessary for promotion. A customer orientation, conflict resolution and supervisory skills were also cited as desirable traits. However, physical abilities are still important. One participant used the term "physical willingness" to describe the combination of physical strength and enthusiasm he looks for in candidates.

Sources of Labor Supply

The Franklin Hampshire employers ranged from confident to cautiously optimistic about their ability to continue hiring at their current rate. With the exception of one company that has strong competition "within an hour's drive," most seemed to think that they would hold their own during the current downturn. Several had already experienced a shakeout in production jobs and were confident that they had reached the optimum size and composition they need to remain competitive. Wages, good benefit packages and profit sharing help the firms attract entry-level applicants and retain seasoned workers.

One of the hallmarks of these firms seems to be their egalitarian approach to hiring. Whether it is because of the natural limits on labor supply in the upper Pioneer Valley, or because they are generally more aware than employers elsewhere, these companies seem to have learned to expand their definition of what makes a successful employee. All of the participants said they hire workers of all ages. In fact, several said they had recently hired people over 50 to fill engineering and other vacancies. Still others said they offer a different type of diversity, having developed successful relationships with organizations such as Riverside Industries that offer supported employment for persons with developmental disabilities. The tofu company has hired both Tibetan and Russian interpreters to help with recruitment and retention of immigrants from those countries. Many of the firms said they provide educational assistance and all said they prefer to promote from within.

The vocational schools were described as "wonderful" sources of talent even though candidates must wait until they are 18 to qualify for permanent jobs. Springfield

Technical Community College was mentioned repeatedly as a good source of technicians and proximity to the University of Massachusetts provides companies with faculty consultants in important engineering specialties. Applicants with prior naval experience are "snapped up" by the communications firm.

Several of the participants said they find temp-to-hire services invaluable for filling assembler and operator positions. Online job posting services such as Monster.com and MassLive.com were seen as good sources for engineers and other professionals. However, several firms that depend on high-end engineering skills have difficulty filling key positions. Employee referrals seem to be the most effective means of filling vacancies for these companies. Representatives said that current employees have a stake in seeing that the most reliable people get hired. Therefore, they tend to make the most prudent referrals.

Hiring and Retention Challenges

Participants in the Franklin Hampshire roundtable cited six challenges they face when it comes to identifying suitable candidates for production jobs: poor communication skills, a lack of motivation and diligence with respect to the application process, inappropriate dress, dishonesty on applications, a weak work ethic and failure to pass the initial drug screening.

'Poor communications skills' covers a variety of deficits, from candidates' inability to "sell themselves" in interviews to difficulty completing job applications. Employers said that they have a hard time finding applicants whom they feel confident can follow directions and understand basic safety regulations on the job. Honesty in describing prior experiences and accomplishments on resumes and applications has become so problematic that several employers said they use security firms to handle background checks.

Several of the employers complained that entry-level people lack the "mindset" necessary for functioning effectively in a technical environment. "They can't be thinking they will get a secure job that allows them to do the same thing over and over," said one member of the focus group. The schools, they said, should do a better job at preparing students for the 'new' workplace.

With regard to incumbent workers, employers reported two related challenges: finding people who are willing to work second and third shift (even with shift differentials) and a lack of quality daycare offered when and where manufacturing workers need it. Surprisingly, the participants indicated that transportation is <u>not</u> an issue, even in rural areas.

Lack of motivation was cited as the primary reason that applicants either fail to compete successfully in interviews, drop out of the process half way through or refrain from applying at all. The firms appeared to be describing the wider problem of idleness among out-of-school youth. At least one employer said she tightened her screening

process to detect gang involvement after a fight between rival gangs broke out in the company parking lot.

Training Opportunities

Despite the presence of the vocational high schools and programs at Springfield Technical Community College, most of the technical training required by these firms is being done in-house. The businesses say they rely on area schools to produce technically adept individuals with good basic skills. When they need specialty training, for example, in the "soft skills" (diversity training, supervisory leadership training, conflict resolution, etc.), they purchase the necessary services from recognized private sector vendors.

The largest training gaps continue to be in the areas of communication, math, basic computing and job readiness, such as:

Business English
Business math
Interpersonal communication
Keyboarding
Microsoft Office Suite
Job search protocols, especially resume writing and interviewing

Because of the increasing pressure on these firms to develop new markets, several of the participants said they would like to see technical sales training offered with an emphasis on closing and contact management techniques.

Manufacturers Roundtable II, Hampden Region, May 29, 2003

Characteristics of Participating Firms

Seven companies attended the Hampden session representing a diverse set of products, from industrial lasers, scientific testing and computer equipment and biopharmaceuticals, to metal and plastic parts for commercial products and consumer goods such as toys, games and hand tools. They ranged in size from 60 to 1700 employees. While most of the firms have historical ties to Western Massachusetts, others have either moved to or expanded near Springfield because of what they see as its traditional and emerging assets—good highway access, proximity to a major airport, the availability of low cost industrial space, lower wages and the potential for strategic partnerships with research and teaching organizations like Springfield Technical Community College, Bay State Health Systems and the University of Massachusetts. Their manufacturing workforces consist of typical job categories from skilled and semi-skilled craft workers through machine operators. Most maintain small engineering design teams.

Several of the firms said they were drawn by the opportunity presented by the STCC business park and other new industrial developments in the region. The laser manufacturer said what attracted his firm was the opportunity to be among the first tenants in a new industrial park and influence the selection of "good neighbors"—research or high technology manufacturing firms of the same caliber.

Three of the roundtable participants are still locally owned and those that are not have received significant investments from their parent organizations in recent years, that include foreign owners in Italy and Japan. Like the Franklin Hampshire firms we spoke to, several of the Springfield employers said they enjoy good market share and are poised for continued growth, both in terms of revenue and employment. The biological testing company, for example, expects to add 60 new employees over the next three years.

The Impact of Technology on Job Content, Education and Skills

All of the firms in the Hampden group utilize advanced manufacturing technologies for the full range of tasks, including cutting, forming, stamping and assembly. Among the workforce criteria mentioned most often in connection with technological improvements, especially by the traditional manufacturing companies, were basic math skills and a flexible attitude.

The toy and game manufacturer makes extensive use of robotics, which requires a higher level of skills of all employees. According to the representative, a gap has developed between "those who have math skills and those who don't." While the forming area of the plastics company is completely computer-controlled, jobs still require technical ability, precision and a commitment to quality. According to the laser manufacturer, it may take as long as six months to learn some of the jobs because workers must understand and be able to program the equipment. In addition to innovations in the tools used, work organization has undergone a fundamental change in

these environments, as it has elsewhere in the CAP Region. At the hand tool company, for example, work is done in cells, and Japanese-style *kaizens*, or problem solving teams, are charged with designing workflow and production process improvements. As in the Franklin Hampshire group, Springfield area firms said that all employees share responsibility for quality from start to finish.

Hiring and Retention Issues

The number of available jobs some of these firms has inevitably been impacted by the introduction of new technology. The proportion of jobs devoted to traditional manufacturing has declined, as technology improvements have companies to shift resources away from production into other areas or to expand into new businesses, such as warehousing.

The trend among the Springfield manufacturers we spoke to seems to be toward automating so many processes that operators have become, in the words of one of the participants, "an extension of the machine." Among experienced metal workers, changes on the shop floor have created adjustment problems. Skilled crafts workers decry the lack of challenge that has resulted from so much automation. However, despite the fact that the jobs require fewer of the traditional skills of craft workers, employers say that they cling to "unrealistic" wage expectations and a preference for defining their jobs more narrowly than is appropriate in the new manufacturing environment. Employers frequently hear, "I'm not being paid to do that," especially from these higher skilled workers. It was no surprise, then, to hear from employers that unions resist some workplace innovations.

Company representatives say they need workers who are willing to perform a variety of tasks including, on occasion, those they consider menial. The higher the skills possessed by some applicants, the harder it is for them to accept the new terms of employment. The laser manufacturer said the primary characteristic she looks for in a prospective hire is flexibility. She said that, in general, native-born workers prefer to perform a prescribed set of tasks and "don't want to do grunt work." Several employers said they prefer to train new machine operators who are "green," as long as they have basic math skills. They find these employees will do the work even when it varies from the routine, and possess better interpersonal skills, such as the ability to get along with others. Companies will pay a premium for flexibility, which they will substitute for experience at the entry level.

Overall, candidates for jobs in these firms must have some degree of technical ability, especially for higher-end jobs, but "eager learners" can qualify for entry-level positions. Comments of the firms suggest that there may be less need for skilled machinists in Springfield than in other parts of the CAP Region. Employers said that the level of technology they utilize would only require experienced metal workers to "re-learn" machining for their kind of environment. As indicated above, workers with a significant investment in tool and die making careers and other technical specialties tend to find such conditions unsatisfactory, according to the companies we interviewed.

Sources of Labor Supply

Springfield area representatives said they find little interest among young people of working age in manufacturing jobs and little awareness of how well these jobs pay and how the manufacturing environment has changed over time. "We get people by default" said one.

Although the regional vocational and technical schools have traditionally been a source of labor supply for entry-level manufacturing jobs, the Hampden area employers we spoke to believe these schools have not kept up with the times. According to one participant, the vocational schools are "doing the same thing they've always done." Employers said they believed that the vocational technical curriculum does not adequately address the needs and realities of contemporary manufacturing firms.

Of the two community colleges in the area, Springfield Technical Community College is considered the most "business-friendly" and comments from the participants indicate that they are less familiar with Holyoke Community College —"We don't know who to call," they said. The supply of candidates at the four-year level appears to be satisfactory for now, although employers anticipate spot shortages when the economy recovers. Connecticut colleges and universities were mentioned most often as a source of engineering candidates and several employers said they use co-op programs as a recruiting tool. The toy maker, for example, utilizes co-op students studying toy and game design at the University of Cincinnati. While cited as one of the reasons to locate in the Pioneer Valley, the University of Massachusetts was mentioned more as a source of scientific expertise than as a recruiting partner.

The population mentioned most often for reliability and the right mix of skills and attitudes were recent immigrants, especially Eastern European, Russian and Polish newcomers to Western Massachusetts. According to one employer, "They are willing to work at a lower level to get a foothold." English language skills are not necessarily required for employment at these companies. While several said they have provided ESL programs in the past, they expressed no particular preference for workplace-oriented content over general language skills. Family referrals among employees were seen as a safeguard against poor work habits and a strong mitigating factor with regard to workplace communication. Company representatives said that families and relations create a strong social fabric that promotes good work values among new arrivals. While they would like to see more interest among native-born youth in manufacturing careers, these employers were largely satisfied with the ability of recent immigrants to fill entry-level production vacancies.

Like their counterparts in the Franklin Hampshire group, the Springfield employers said they also use 'temp-to-hire' agencies to transition candidates into permanent positions and find this a useful sourcing mechanism.

Training Opportunities

The companies who participated in the Springfield roundtable expressed the same desire for candidates with better math and computing skills and more compatible work habits as those in the Franklin Hampshire group. As mentioned above, they appeared satisfied with available ESL programs, which they offer on an occasional basis. The group expressed no additional training needs.

Manufacturers Roundtable III, Greater Hartford, June 10, 2003

Characteristics of Participating Firms

Representatives of four manufacturing companies and one trade association attended the Greater Hartford roundtable, which was organized by the Capital Region Workforce Development Board and the Connecticut Business and Industry Association. Due to the differences between these firms and those we spoke with in Massachusetts, we think it useful to profile the individual Connecticut companies in some detail.

Dynamic Gunver Technologies

Dynamic Gunver Technologies produces non-rotating and structural engine parts for aerospace and automotive companies, such as Rolls Royce, Pratt & Whitney, General Electric and Volvo. According to the manager who participated in the Connecticut discussion, the company has maintained a leading position in the aerospace sheet metal fabrication business by making significant investments in technology, specifically, the use of advanced lasers for precision cutting, shaping and welding. DGT's workforce consists of approximately 500 people who are located both in Connecticut and at a new facility in Poland. The workforce consists of a large engineering group of between 30 and 35 people, and production workers in a range of skilled and semi-skilled jobs.

Cuno

Cuno began manufacturing automotive parts in Meriden in 1912. It produced engine and hydraulic metal filters through the 1980's and broadened into a variety of fluid purification products in the 1980's. Today, it is a highly diversified manufacturer of filters and filtration systems for residential, commercial, food and beverage, pharmaceutical and medical applications at production facilities in Connecticut, Indiana and abroad. The fluid processing division still provides filters for the automotive industry. About half of its 1700 employees work in Connecticut. According to the representative who attended the roundtable, the company offers training "in everything from ESL to computer technology."

Acme-Monaco

With roots in New Britain's clock making industry, Acme-Monaco began in the 1940's as the Acme Spring Company, which made custom spring products. The current company, formed as result of a merger in the 1980's, operates facilities in New Britain, Connecticut and Presque Isle, Maine, where it produces orthodontic hardware and non-sterile assemblies (staples, guide wires, etc.) for the medical equipment industry, as well as commercial springs. Like Cuno, the original company had roots in the automotive industry—an early relationship with General Motors lead to the development of the firm's principle product line—miniature ball bearing retainer rings. Today, it continues to supply items such as door lock springs for GM. Acme-Monaco employs approximately 140 people at its two locations. Primarily a job shop, the company uses technology to design, build and ensure the quality of its products. Acme-Monaco's

workforce consists of unskilled and semi-skilled laborers, skilled toolmakers and craftsmen. The average age of employees is about 45.

Trumpf Inc.

The U.S. subsidiary of a large German company, Trumpf Inc. of Farmington manufacturers laser sheet metal fabrication equipment such as CNC punching machines; press breaks; quality measurement machines; cutting, welding and marking tools, and software for the aerospace, appliance and automotive industries. The European parent company chose Farmington for its U.S. operations because of the social stability Connecticut offered relative to the rest of the country in the late nineteen sixties. The American subsidiary currently employs approximately over 500 people in production jobs and a large engineering group that is responsible for laser development. About 30 of its employees are foreign nationals, mostly Swiss and Germans. The average age among its production workers is 46.

While all of the firms we spoke with rely heavily on technology, we observed sharp differences between the way technology has impacted the structure and composition of the manufacturing workforce in each area of the CAP Region. Connecticut, for example, appears to have a much higher skilled job market than the two communities to the north. This would appear to be true for several reasons:

The Connecticut firms we spoke to are both users and producers of high-end manufacturing technology;

They belong to industries that have inherently higher technical requirements, such as aerospace and medical devices;

In the aerospace firms particularly, technical requirements are developed outside the firm by large customers, and

Their international competitors emphasize scientific and technological superiority versus factors such as price, volume or delivery time.

In Connecticut, the companies appear to do more of their own design and adaptation work, using larger engineering departments than Springfield or Franklin Hampshire firms. They appear to utilize more of the technical expertise of their higher skilled craft workers, such as tool and die makers. In the assembly category, some of the fine, detailed work is still done by experienced craftsmen.

Like the Massachusetts firms, three out of the four of the companies that attended the roundtable have strong ties to Connecticut and all are part of a tradition of metal working that dates back one hundred years. Some in the group have diversified into

residential, medical and scientific markets and others are beginning to look in those directions.

Impact of Technology on Job Content, Education and Skills

During our interviews, the Hartford employers indicated that they expect more general ability from production workers in all categories, from unskilled and semi-skilled workers to tool and die makers. According to the human resource director of Trumpf Inc., the company places "huge demands" on all of its employees. Good math skills, including geometry, blueprint reading and 'shop math,' coupled with strong communication skills are essential to performing most of the jobs at these firms.

As we found in Springfield, the continual advance of technology, the competitive international environment and the increasing diversity of the workforce, make "soft skills," such as interpersonal communication and teamwork, very important at these firms. The Connecticut employers echoed the sentiments we heard in the other two discussions, saying they require employees who can define their responsibilities broadly, adapt to new forms of technology and understand the needs of the firm. Value-added services, such as complimentary design work, means that customers spend more time among plant employees. For this reason, the Trumpf representative indicated that, in addition to good basic skills, everyone at her company also has to have "an appreciation for sales."

Sources of Labor Supply

Like their Massachusetts counterparts, Connecticut manufacturers have a difficult time finding enough workers with the right mix of skills and attributes to meet their needs, even at current levels of demand. To acquire sufficient engineering expertise at both the bachelor's and master's levels, the representatives we spoke with seem to be making good use of co-op education, internships and other kinds of higher education relationships. In production categories, however, there was shared concern about the future availability of skilled craft workers. Firms at the roundtable said they make some use of institutional sources of labor supply such as the vocational schools, but find that there are either not enough programs or not enough graduates to meet their needs.

Reviews of community college programs were mixed and there seemed to be some confusion about where training programs exist, what they consist of and how companies can access them. Employers reported that while they make use of the few remaining apprenticeship programs around, the yield from these sources has been disappointing. The same was the case with temp-to-hire firms. One of the representatives said he averages one or two successful hires out of every twelve people identified through these sources.

The overriding concern reflected in these numbers is the feeling that young people in Connecticut are unaware of the challenges, potential financial rewards and promotional opportunities associated with careers in high tech manufacturing. As one employer put

it, "We're not your father's machinist anymore." As in Springfield, the Connecticut group felt the schools should be doing more to familiarize students with the full range of occupational opportunities available to them, particularly in the field of manufacturing.

The most reliable source of new production workers, and the one for which the employers showed the most enthusiasm, are the informal networks of people who already work for them, particularly recent immigrants. One representative said she frequently enlists immigrant workers in her recruiting activities. English language skills, while important, were not uniformly seen as a barrier to employment as long as there are other people on staff from the same countries to interpret for and orient the newcomers. The companies said they know how to access ESL training for employees who need it and, in general, find these services satisfactory. They see little difference between ESL programs that emphasize workplace English versus those which teach general language.

Hiring and Retention Issues

The Hartford roundtable discussion provided a clear example of the tension that exists between preserving the traditional metal working expertise and workforce stability the region is noted for, and creating flexible, entrepreneurial manufacturing environments. The workforce stability that drew these companies to Connecticut originally has become something of a double-edged sword. The difficulty, they say, is finding experienced tool and die makers who have the expertise they need but who will change with the times and "do things the way the company wants them done."

As in the other two regions, the Hartford group expressed dismay over the lack of adequate math skills and positive behavioral traits among new job applicants, particularly the young and native-born. They point to same problems experienced elsewhere, such as poor work habits, unwillingness to perform the jobs as expected, lack of cooperation and a range of personal problems, such as substance abuse, that inhibit the success of both individual workers and the company as a whole. However, they seemed to have found an acceptable substitute for workers from tightly knit immigrant communities, who bring a strong work ethic, a degree of stability, a flexible attitude and an eagerness to do a good job. The companies we spoke with were enthusiastic about immigrant workers and, like the Springfield firms, were willing to trade some short-term English language deficits for other skills and attributes.

Training Opportunities

In the technical arena, Hartford-area employers seemed to prefer industry-based training to that provided by local schools and colleges, especially the aerospace companies, who use job-specific training programs offered by their industry association. They would applaud career information efforts designed to introduce middle and high school students to the benefits of manufacturing careers. It appeared from the discussion that at least some companies are unaware of the resources offered by the higher education system.

Significant Challenges in the CAP Region

The testimony of the Connecticut firms brings the many of the challenges facing CAP Region manufacturing firms and their workers into sharper focus.

The first is the powerful impact of globalization on local firms. Many of the companies we interviewed have historically lived off powerful aerospace, plastics and energy equipment giants such as Pratt & Whitney, Sikorsky Aircraft, General Electric and Kaman Aerospace. As the big companies have seen their own dominance in R&D and manufacturing wane as a result of domestic and international policy changes, the environment at the sub-contractor level has become extremely difficult. Globalization and the recent shakeout in the U.S. energy industry have required these firms to compete against foreign manufacturers for business that was traditionally "theirs." Further, they are compelled to make huge investments of their own resources in plant and equipment overseas in order to comply with the requirements of the primes and government regulators both here and abroad. According to the representative of the Aerospace Component Manufacturers (ACM) who attended the roundtable, Connecticut's small manufacturers have come face-to-face with training and skill levels that are much higher among their international competitors. To survive, they have had to address escalating technical standards with more automation and place a greater emphasis on workforce development activities such as on-the-job training and industry-specific classroom instruction.

The Connecticut experience also demonstrates why 'flexibility' matters so much to manufacturers. With their old markets becoming increasingly proscribed, companies must continually scan the marketplace for either new customers for existing products or, more likely, new products they can produce with a minimum of re-tooling. Responding to the accelerating demands of their huge industrial customers leaves little time and fewer resources for small companies to pursue other market opportunities. However, their investments in advanced engineering, especially in Connecticut, may provide them with the capacity to innovate in new directions.

Springfield-area firms repeatedly cited competition from Chinese manufacturers as one of their chief concerns. While they pride themselves on inexpensive tooling and rapid turnaround, they continue losing customers to China, where firms compete successfully in a number of areas, such as price and delivery time. Domestic competitors who produce their goods offshore in Asia have the advantage over companies who would prefer to restrict their operations to the U.S.

Corporate tax policies and government regulation were frequently mentioned as impediments to the success of these firms.

All of the companies we spoke with know they are in a tight race. What concerns them is that neither the institutions they rely upon for labor supply, nor the individual workers themselves seem sufficiently aware of the challenges they face.

Despite the determining role geo-political, fiscal and regulatory policies will play in the future success of these firms, labor supply is still important. Given the current environment, manufacturers say they need employees who are as curious and entrepreneurial as they are. They need employees who know that companies and workers who stand still will not survive for long. All of the participants in the CAP Manufacturing roundtable series agreed on a desired worker profile that includes good or excellent basic skills, stable work habits, a commitment to continual learning and a natural curiosity about how things work—the modern equivalent of Yankee ingenuity. With regard to workforce development, an adequate supply of workers who fit this profile is the most important resource policy makers, planners and educators can provide to this industry.

Appendix:
Participating Employers, Manufacturers Roundtable Series, CAP Region, Spring 2003

Franklin Hampshire Roundtable

Cindy Adams, Human Resources Department
New England Extrusion, Inc.

Terry Chiba, Human Resources Manager
Hardigg Industries, Inc.

Tom Doherty, Human Resources Department
Packaging Corporation of America (PCA)

Nancy Harding, Co-Founder
Temp Pro

Scott Parsons,
Packaging Corporation of America

Cindy Peters, Human Resource Manager
Millitech LLC

Deborah Radway, Human Resources Director
Lightlife Foods

Ginny Smith, Human Resources Department
Tubed Products

Hampden REB Roundtable

Sharon Bonham, Human Resource Manager
PRIMA North America

Terry Cyran, Director of Human Resources
Springboard Technology Corp.

John Dobiecki, VP Laboratory and Manufacturing
Microtest Labs, Inc.

Amy Jones, Human Resource Manager
Microtest Labs, Inc.

Mark Miller, President
US Tsubaki

Joseph Peters, President
Universal Plastics

Michael Niziolek, Vice President of Human Resources
Hasbro, Inc.

Greater Hartford Roundtable

Dennis F. Gareau, Manager of Quality Assurance
Dynamic Gunver Technologies

Robert Vogel, Director of Operations
CUNO Consumer Products Division

Judith Spreda, Director of Human Resources
Acme-Monaco Corporation
New Britain

Karen Lang, Director of Human Resources
Trumpf Inc.
Farmington

Allen Samuel, Executive Director
Aerospace Components Manufacturers Association (ACM)

Acknowledgements

Special thanks to the following individuals who organized and provided technical assistance with each the manufacturers roundtables:

Christine Abramowitz of the Hampden County Regional Employment Board

Patricia Crosby and Barbara Carson of the Franklin Hampshire Regional Employment Board

Andy Esposito and Cara Pianka of the Capital Region Workforce Development Board

Judy Resnick of the Connecticut Business and Industry Association