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Center for an Urban Future

After the Gold Rush:

The Ongoing Opportunity in Information Technology

How important is high tech to our city's economy?

The question was answered on September 11. Just six hours after hijacked jets slammed into the World Trade Center, one securities firm displaced from the destroyed twin towers ordered 200 replacement computers. Even before companies knew where they would find new offices, they were already working to make sure their employees would have computer equipment once they got there. It's been estimated that financial services firms are spending over $7 billion to replace computer systems lost in the terrorist assault.

It illustrates a truth that's been obscured by the "dot bomb" that has detonated in the economy these last two years: Information technology has become an essential part of our economic well-being.

Certainly, the dot-com hangover hit hard in New York City: the Internet economy went bad long before the economy as a whole began its decline, and the IPO party host of 1999 re-emerged as 2001's pink-slip party guest.

But while stock prices soared and plunged and paper fortunes were made and lost, the functions collectively known as "information technology" quietly became an integral part of almost every workplace in New York. From investment brokerages to clothing stores, auto repair shops to foster care agencies, more businesses and organizations than ever before rely upon computer repair technicians, network administrators, and programmers. New York City could be described as an "electronic service economy": many of the city's major industries, like financial services, news, and entertainment run on information. And it is IT applications that bring that information across the city and across the world.

"We can't really separate people who do web design or programming from financial services or advertising or retail," says professor Susan Christopherson of Cornell University, who has studied the interaction of new technology and the economy. "We've passed the point where those kinds of technologies are optional."

For many people, the term "information technology" still conjures up images of high-profile, high-paying jobs such as those held by the whiz kids of Silicon Alley or the programmers at Microsoft. The industry, though, has changed, to become broader, deeper, more inclusive and less strictly defined. As we use the term in this report—and as we will demonstrate—IT really encompasses a range of jobs: from the legions of system administrators that work at banks, insurance companies and service business to the help desk staffers that serve nearly every good-sized corporation, to the cabling technicians that make high-speed communications possible. It is these sorts of businesses—not the Intels and Doubleclicks of the world—that drive the demand for IT workers, even in these slower times. According to the Information Technology Association of America, companies of this kind employ ten times more IT workers than do the hard-core technology firms that still dominate popular perception of the industry.

Just as computers have become both ubiquitous and indispensable in the workplace, so have these jobs. Before the slump, IT jobs had gone begging all the way up the line from technician to Flash programmer, even though the lower-level positions don't really require much training beyond certification and general workplace aptitude.

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The need for trained IT professionals has certainly softened in the last 12 to 18 months. But industry observers say the slowdown is temporary. New York City's banks, major retail stores and nonprofits also require IT, and once the economy recovers, their needs will only grow. The current downturn will delay the surge in employment—not destroy it. Most experts agree that by 2003, IT employment will see consistent growth again.

IT certainly wasn't the only field that enjoyed dramatic job growth during the strong economy of the 1990s, nor is it the lone area of work expected to pick up again after the current recession fades away. But unlike positions in retail, food service, and tourism and hospitality—all of which saw tremendous employment gains during the last expansion—IT jobs are good jobs. Almost without exception, they pay wages and salaries above the poverty level. And unlike many low-level jobs, they usually offer opportunities for advancement.

A city that supports IT training and job placement addresses two vital needs. It sustains a wide range of businesses by helping them maximize efficiency and competitive muscle. It also blazes a trail to self-sufficiency for thousands of individuals struggling to escape from marginal work, poverty and dependence. For New York City in 2002, facing the dual concerns of a nervous business community and a projected rise in poverty, it's a golden opportunity.

In two short decades, IT has become a major part of New York City's present economic landscape—and a key to its future growth and development. The federal Bureau of Labor Statistics projects that "computer and data processing services" will be the fastest growing industry in the U.S. through 2008. Much of that growth will probably happen right here in the city: the Citizens Budget Commission, a nonpartisan group concerned with fiscal policy and spending priorities, has found that the New York area already has the biggest communications and computer services workforce of any U.S. city. In April 2001, the New York state Workforce Investment Board, an advisory group of officials from the business community and the public sector charged with guiding state job training policy, projected that state employers will fill an average of over 49,000 high tech jobs annually over the next few years, including over 18,000 newly created openings each year. Those jobs, according to the board's analysis, are likely to be concentrated in the information-intensive economy of New York City.

Among the city's un- and underemployed are thousands who could fill these positions, as successful training programs across the country—including a few here in New York—have shown. "With the IT industry, after a short period of training you can move someone from low-income into the middle class, making $18-25 an hour," explains consultant Caz Pereira, who has been involved in technology training efforts in New York and California. "The job opportunities are good, and the salaries are high."

But this promise has not been realized. Much of the lower-level IT job training in the city suffers from a lack of coordination among training providers. Programs largely fail to address what employers want and need. The slow pace of change and general absence of accountability among college-based undergraduate and continuing education programs have made those programs less useful to students and businesses alike. Further, the publicly funded job training system has all but abdicated the field when it comes to IT training (see "Train in Vain?", p. 7). Employers bear some responsibility as well; even as they complain about the lack of talent, few take on interns or partner with schools or nonprofits for customized training. Only the city's for-profit proprietary schools have made some effort to train students for the jobs the market demands (see "Getting Their Props", p. 12).

Now, as the sector faces its first major downturn, other disconnects become more obvious. As the pace of hiring slows, newly certified trainees must compete for jobs against better-educated and experienced IT workers who have been laid off. Hundreds who might have landed high-paying positions two years ago now struggle to find any work at all. Clearly, there is a need for coordinated internships and well-defined avenues leading from training to employment.

Fortunately, new efforts are reaching across the field, bringing cohesion and coordination to the system. The New York IT Career Ladders Consortium, a partnership designed by the Workforce Strategy Center that includes the New York Software Industry Association, the City University of New York, NPower New York, and the Federal Reserve Bank of New York, is currently

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SOURCES & RESOURCES

Studies:

- "When Can You Start? Building Better Information Technology Skills and Careers," Information Technology Association of America, 2001
- "Bridging the Organizational Divide: Toward a Comprehensive Approach to the Digital Divide," PolicyLink, September 2001
- "Findings & Recommendations of The Education and Workforce Development Subcommittee", Mayor's Council on New Media, Fall 1999
- "The NYC Software/IT Industry," NYC Office of the Comptroller, April 1999
- "New York City Community Technology Center Program Survey Results," MOUSE (Making Opportunities for Upgrading Schools and Education), February 2001
- "New York New Media Industry Survey Climate Study," New York New Media Association, 2001
- "3rd New York New Media Industry Survey," New York New Media Association, March 2000
- "From Promising Practices to Promising Futures: Job Training in Information Technology for Disadvantaged Adults," Bay Area Video Coalition, October 2000

Websites:

- New York Software Industry Association http://www.nysia.org
- New York New Media Association http://www.nynma.org
- Information Technology Association of America http://www.itaa.org
- CompTIA Computer Training Industry Association: http://www.comptia.org
- PolicyLink http://www.policylink.org
- CitySkills http://www.cityskills.org
- Workforce Strategy Center http://www.workforcestrategy.org
- National Workforce Center for Emerging Technologies http://www.nwcet.org

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WAITING FOR THE BOUNCE

The dot-com downturn and the national recession have slowed the pace of IT hiring, especially for those with lower-level skills or no experience. Better times are coming, but few can guess how soon.

IT MAY SEEM LIKE A FUNNY TIME to be talking about growth in the IT industry. Eighteen months ago, the high-tech economy looked invincible, with forecasts of near limitless growth and boundless opportunity. Unfortunately, we now know better.

At the end of the 1990s, confident that the good times would never end, many companies over-invested in technology. (One particular area of big spending was the infamous Y2K bug, on which U.S. corporations and government agencies spent a stunning $100 billion for preparations and repairs.) Since then, many tech-reliant firms have been reluctant to make additional high-tech capital investments. That collective decision has done much to depress the hiring market.

In 2001, companies in New York, as elsewhere, began to look upon their IT departments in a new light. With fewer major program rollouts or upgrades to work on, and layoffs in other divisions leaving fewer employees in need of tech support, many IT jobs suddenly seemed expendable. By summer, the NY State Department of Labor reported that unemployment claims for computer services workers had jumped 100 percent from the previous year. Between the end of June and the end of September, employment website HotJobs.com saw a 20 percent increase in online jobseekers visiting its Technology channel—and a 35 percent decrease in job postings.

"We've sort of overbuilt capacity," explains Jason Chervokas of Primedia Ventures, an NYC-based venture capital portfolio "Until the slack gets picked up, there's not going to be an increase in [tech] spending."

"Everything is a bit stilted right now," agrees Allison Hemming, president of The Hired Guns LLC and organizer of the monthly "Pink Slip Parties," where dot-com castoffs and tech recruiters have mixed, mingled and exchanged business cards since the slowdown began in late 2000. "Employers are starting to look at every additional head very closely and asking, 'What are they adding to the bottom line for us?'"

For entry-level workers, it is a particularly tough time. Many of the jobs cut this year are those at the bottom of the IT career ladder, where much of the previous boom in employment had come. New workers coming out of training programs armed with credentials like A-Plus, Network-Plus, MSCE and other popular certifications are finding few openings.

Cliff Miras, an IT recruiting specialist with The Cornerstone Group in northern New Jersey, points to networking as the single toughest IT field at the moment, precisely because it's an easier point of entry into the industry. "There are a lot of schools offering three- and six-month programs to enter the field," Miras says. "And the area is getting a double whammy because it's easier to automate" some of the basic functions.

But despite this relatively stagnant hiring

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FIELD	DECEMBER 2000	DECEMBER 2001	% CHANGE
Apparel	602.9[‡]	523.6	-13.2
Manufacturing/production	18,389	17,061	-7.3
Finance	+3,737	+3,779	+1.1
Computer/data processing	+2,168.1	+2,196.9	+1.1
Nursing/personal care	+1,805	+1,842.3	+2.1

[‡]all numbers in thousands
note: all numbers not seasonally adjusted

EVERYTHING'S RELATIVE

Employment gains in the computer and data processing field were modest in 2001, particularly in comparison to the double-digit growth of the previous two years. But despite the perception of a slump in the field, high tech continued to compare favorably to most manufacturing fields, and was comparable to finance and other white collar service industries. Of the sample fields included to the left, only nursing showed superior job growth, reflecting an industry-wide shortage of several years' standing.

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assembling a network that embraces private industry, job trainers, community colleges, and government. The consortium has two goals: filling every possible job opening with a qualified candidate, and placing every qualified jobseeker in a career-track position paying decent wages.

The consortium's arrival seems well-timed; even as technology has continued its yearlong slowdown, the rest of the economy now is in as bad or worse shape. With this in mind, the organizers are hopeful that City Hall's new occupants will prove friendly. Under Mayor Rudolph Giuliani, the city helped IT companies with their physical needs, supporting an IT incubator at 55 Broad Street and wiring downtown office buildings for high-speed communications. But unlike in San Francisco and Chicago, local government here hasn't made the effort to ensure that New York City cultivates the skilled IT workforce that could help keep a range of businesses viable—and on the city tax rolls—in 10 or 20 years. Now advocates hope that new mayor Michael Bloomberg, who made a fortune in communications and technology, will recast city policy to provide much greater support for training in the field.

In these cash-strapped days, that will be no small task. But the commitment is essential for the city's future. As the world capital of finance and media, with unparalleled universities and research institutes and extraordinary cultural assets, New York City remains the country's best hope to lead the 21st century economy. But that advantage isn't guaranteed. We must act to preserve it now. ✳

Waiting for the Bounce, *continued from page 3*

market, and even as the press churned out endless copy on dot-com closures, NASDAQ freefall and devastating layoffs, a funny thing happened: the sector kept right on growing. Data released by the federal Department of Labor indicated that the computer services sector saw employment increase by 4 percent between August 2000 and August 2001. Though employment in the sector has declined in the months since then, the October numbers still represented a nearly 2 percent increase in computer services employment over October 2000. Clearly, the field remains stronger than the economy overall.

Expectations, not raw numbers, were to blame for the widespread perception of a high tech downturn. In calendar year 1999, computer services employment grew by 16%; in 2000 it was 12%. "If you're estimating double digits and [the growth] is only 4 percent," explains Federal Reserve economist Jason Bram, "there will be some people who were planning on those jobs who don't get them."

Plus, even though the high-tech melt-down has been front page news, the reality is that non-tech firms have been hit much harder. In the apparel and textile industries, for example, employment slumped by 17 percent between October 2000 and October 2001. The technology job market looks positively rosy in comparison.

Just like the boom that preceded it, the current ebb tide won't last forever. In fact, most industry observers think that job demand will resurface within the next 12 to 18 months, albeit with annual growth in the 3 to 5 percent range rather than the feverish expansion of the late 1990s. "We're kind of in a trough in terms of tech right now," concedes John Engman, director of training for the Computing Technology Industry Association. "But that was because it was an overheated industry in the first place. There will certainly be growth as the business cycle works out."

In the New York City region, IT growth in 2002 is expected to be concentrated within larger sectors of the economy primed for expansion, such as health care, defense-related work, and areas within finance. Most experts are hesitant to forecast more than minimal growth for the year overall, but the consensus is that the third and fourth quarter will see companies spending more for IT and stepping up hiring accordingly. New workers, however, may struggle for a while longer. "If you're entry-level, you'll have a hard time," Federal Reserve economist Rae Rosen recently told a meeting of the New York Software Industry Association. "If you have experience, you can hit the ground running."

Even beyond the anticipated resumption of growth in the IT positions we already know, it's likely that the sector will continue to broaden in such a way that IT-related skills, from troubleshooting to networking and designing customized programs, will become increasingly relevant to more and more jobs. "New York will always be dependent on IT," says Chris Cergal, a technical account executive at Adecco Inc., a Melville, N.Y.-based staffing agency.

Fed economist Bram points out that technological innovation drove the strong economy of the 1990s—and is likely to lead the way again in the current decade: "Over the next five to ten years, it's extremely unlikely that computer services and those kinds of jobs would do worse than overall employment, Bram says. Historically, it's been much stronger than average, and even now when everything is kind of weak, it's still stronger than average."

FROM BAD TO WORSE:
THE SEPTEMBER 11 EFFECT ON TECH EMPLOYMENT

The tech economy was already weak on September 11. But the attacks turned a slow slump into a sharp plunge, and pushed back the timetable for a rebound.

Since September 11, a few of the city's biggest economic sectors—fields like tourism and retail—have been devastated. The broader IT sector, by contrast, fared relatively well, losing only a few thousand jobs this fall.

But the economic shock of the attack accelerated some dismal trends for high tech workers. Companies' need for high-end skills, such as infrastructure development and network security, has increased. At the same time, recessionary strains have given new impetus to the push to cut payroll. Demand may be strong, but companies have reacted by trying to do more work with fewer people, relying on experienced and advanced workers to "double up" by covering basic functions as well.

A few years ago, companies were willing to spend time and money training their employees. Now, the trend is to hire finished products. The Redtop Co., a Manhattan firm that makes information systems for evidence-based professions such as health care and crime investigations, has stopped offering tuition reimbursement for employees who seek additional training on their own. "We're no longer bringing people in who we will bring up to speed, because we have good enough people on staff and not enough money to train (new hires)," says chief technology officer Erik Grimmelmann.

Even in telecommunications, where demand is increasing, employers are hiring only experienced engineers, not technicians. Underwriters Laboratories' Melville, NY office is hiring only engineers with fiber optics know-how—four-plus years of experience and a college degree—to do their telecommunications testing. In 2002, UL hired less than 100 people in its New York offices, compared to several hundred annual hires in previous years, as its primary telecom clients, JDS Uniphase and Lucent Technologies, drastically pared down operations.

The economic slump has also made some new hires more important than others. Even within the higher-end jobs, employers are now more interested in candidates with infrastructure and network security skills rather than software development skills—another indication that, though overall demand for workers is down, the need for solid technology has increased.

UNEXPECTED TECHNOLOGY INDUSTRIES

E-mail and the web popularized information technology for millions of office workers, and transformed the way most white-collar workers do their jobs. Now, a new generation of computer applications is making the same changes in nearly every other category of work. Within a decade, most jobs that pays a living wage will require some level of competence and familiarity with computer equipment and information technology applications.

Even though New York City is rich with IT-intensive industries like financial services, media, and professional services, it has seen just one aspect of the technology revolution thus far. The next wave will transform the infrastructure of the city itself—core functions like public transportation and the city's shipping and cargo industries. Along the way, it will also redefine the jobs of close to 100,000 blue-collar and service workers in these two industries alone.

Getting There: the IT Future of NYC Transit

If you feel like the subways and buses have become a lot more crowded in the last few years, it's not just your imagination. You can thank high tech for that, in part: Since the Metropolitan Transit Authority (MTA) introduced Metrocard technology in 1997, ridership has swelled by roughly 1.2 million passengers a day, according to the Straphangers Campaign.

More technological innovations are on the way, from cars that require workers to do diagnostic work with plug-in laptops to highly computerized buses that will provide en-route traffic information to drivers and supply performance data to maintenance personnel. For passengers, these advances hopefully will mean smoother, quicker, and more comfortable commuting. For MTA's 58,000 employees, however, the changes could put their jobs in jeopardy.

Dr. Robert Paaswell, director of the City University Institute for Urban Systems at City College, argues that new information technology will change what the city demands of transit workers. "Maintenance is becoming much more computerized," Paaswell says. "On the computerized new model buses that are now emerging, instead of preventive maintenance, you track performance. Fleet maintenance workers will have to understand how to analyze bus performance not by dipstick and oil, but by computer readout."

Another example is the "tower" position—the women and men who control train movement across the subway system. "That system is being modernized into one [central] rail control center. The mechanism that controls the track is going to be centralized, and the skills needed to do that will be computer skills," points out Arthur Goldberg, education and training director of the Transit Workers Union (TWU) Local 100, which represents 35,000 city transit employees.

The union has already launched a training effort designed to ease its members into the new technologies of mass transit. "Our initial goal is to provide a baseline education in computer and electronics, in order for our workforce to have skills so that as new jobs are created, they're qualified to move into those jobs," explains Goldberg.

The modest program starts with an overview that provides basic information about both computers and electronics. "The idea is to give them a sense of context around their work," says Paaswell, who is also involved in the project. In addition to the overview, TWU is setting up nine classes of up to 16 students each on computer topics and four on electronics, all taught by instructors from either TWU itself or the Consortium for Worker Education,

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From Cargo to Data Flow: the IT Upheaval in Logistics and Shipping

Part of what transformed New York into a world class city in the 19th century was transportation and shipping. Likewise, three international airports helped the city keep that prominence in the 20th century. In the 21st century, the key to retaining our position as a shipping and transport hub could well be information technology, which regulates and rationalizes the flow of goods and people. Even before September 11 raised the specter of terrorism for anyone stepping onto a plane, congested airports in the NYC area posed a threat to our continued pre-eminence as a shipping leader. (See "On a Wing and a Prayer," Center for an Urban Future, October 2000)

For shipping companies, the skillful use of IT is becoming "the difference between being able to survive and not survive," according to Jeana Nordstrom, former president of the New York City Council of Logistics Management, a not-for-profit professional association of logistics workers. Aside from a few giants like Federal Express and UPS, most companies in the field are "non-integrated," meaning that many different carriers are enlisted in the process of moving cargo from supplier to destination. Nordstrom points to communication and "visibility"—the capacity to check on a shipped item at every stage in its journey—as the two areas in which IT can make the biggest difference.

But for firms to realize these gains in efficiency and keep clients happy, their workers on the ground must be trained in skills that simply did not exist in the field of air cargo 20 years ago. Shippers now keep track of content with bar coding, rather than labels attached by hand and paper manifests. Many firms, however, continue to struggle with the prospect of modernizing their processes, and lose business as a result. Spencer Ross, president of the Queens-based National Institute for World Trade, a nonprofit group that consults with corporations, communities and governments on international trade issues, has proposed that New York's Empire State Development Corporation help establish a Global Logistics Center at JFK airport, to both provide important training to some of the airport's 35,000 transportation workers and inspire companies that operate out of JFK to modernize their IT systems.

"The concept emerged from the need at our area airports to improve their processes for the handling of cargo and passengers," Ross says. "People are starting to bypass the area, formerly because of congestion, slow service, and theft, and now for reasons of [potential] terrorism." Ross' proposal also addresses fears of terrorist attack by detailing ways to improve tracking of shipments from boats, trucks, and planes into the city's airports, many of which involve IT applications.

From the perspective of the individual firm, IT is a double-edged

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an umbrella group that works with many different New York City unions on training and education projects.

The MTA has yet to disclose any specifics about when it might introduce new technologies or launch an upgrade of the city's aging system. Nonetheless, the new training program has met with an enthusiastic response. "Without any recruitment at all, we have something like 300 workers signed up for this," says Maureen Lamar, co-director of the program. Both Lamar and Goldberg hope eventually to fold the current program into a permanent transit technology institute.

Clearly, the task of making sure that transit employees follow the MTA into the 21st century is just beginning. What is evident already is the demand for strong computer skills and information technology aptitude will continue to expand. "In a year's time we'll know a lot more about offering training that more closely matches what's needed," Lamar says. "We just know that everyone's going to need to be at least a little computer-savvy." ✻

From Cargo to Data Flow, *continued from page 5*

sword. It offers tremendous potential to improve key functions like sales order processing, transportation and logistics coordination, and billing and freight payment. It also can be a major frustration, especially in the beginning; companies frequently lose accounts because of insufficient or incorrectly applied technology, and research within the logistics field has shown that firms continue to struggle with the challenge of integrating IT systems into their operations.

Despite the bumps along the road, the greater efficiency IT provides could be the key to the future of shipping at JFK and elsewhere in New York. "Efficiency will be measured by…the speed with which you can provide the kind of product and service that you require and that your supplier can provide," says Ross. In turn, greater efficiency will lead to greater volume of goods moving through, ultimately meaning more jobs in the industry. "Many of the processes [of shipping, packing, loading, etc] are pretty manual, especially with international shipping. As world trade grows, you'll have more workers." ✻

EMPLOYER PROFILES

For evidence that IT has become a permanent and non-negotiable part of the workplace landscape in New York City, look no further than the nearest office. The companies described here and throughout the report—a financial services business, a law firm, and a nonprofit providing housing services—have all seen their IT needs increase exponentially in recent years. While they differ in the scope of their IT workforce, the specific talents they require, their recruitment strategies and their plans for the future, they have one thing in common: an irreversible reliance upon workers who can acquire and manage information through technology. In that, they're all at the forefront of where business will go in the years and decades to come—and prime exhibits of why IT is likely to remain a growth industry far into the future. These portraits are intended to provide a snapshot of this sector as it currently operates, and provide some insights into how the city's workforce can be groomed for new jobs in the years to come.

IT Employer Profile: METROPOLITAN LIFE INSURANCE COMPANY

0The Met Life insurance company is an old New York business, as much a part of the city's commercial history as J.P Morgan or the New York Stock Exchange. Much like these financial titans, Met Life has emerged into the 21st century wholly dependent on the orderly flow and transfer of information. Its core business may be insurance, but IT is just as important on Park Avenue as it is in Silicon Alley.

The company directly employs 4,000 IT workers, and hires on approximately 250 more as freelancers. About three quarters of the Met Life IT workforce are engaged in applications development, writing individualized software programs specialized for the company. The remaining thousand provide "core services" such as database and desktop support, according to IT recruiter Gar Guttman.

Met Life is much more likely to be the last stop on the IT career ladder than a place for new workers to cut their teeth; the overwhelming majority of the insurance giant's information technology workforce has racked up substantial experience and built credentials and expertise elsewhere. "It's unusual for us to hire people who don't have at least two years experience in IT," Guttman says. "Whatever training they got, they probably got somewhere else." Employees typically augment their skills with one or two weeks per year of additional training.

Nevertheless, jobs at Met Life aren't out of reach. The company does not require its tech workers to have a college degree. Guttman estimates that 75 to 80 percent are college educated, but says that hiring is "more a function of experience. If they have three to five years of experience in programming, the degree isn't as important."

Like many large employers, Met Life conducts a great deal of its hiring through employee referrals; Guttman says that these represented about 30 percent of IT hires in 2000. For every referral that results in a hiring, the referring employee earns a bonus of $3,500 to $5,000. Job fairs are another source of IT workforce talent.

Met Life is an example of a solid company in an old-fashioned business with steady demand for IT employees. While it does not hire beginners, it offers solid work at a healthy salary without requiring a college degree or highly specialized skills—a good destination for career-track workers.

TRAIN IN VAIN?

Critics of New York's information technology job training system miss the most important point: as yet, there is no system.

IN A SENSE, THE CURRENT economic downturn, and especially the stark slowdown in tech hiring, has let New York City's job training community off the hook. The city's publicly funded trainers were caught unaware and unprepared for the tech hiring boom of the late 1990s, and weren't able to exploit that tight job market. But with the continuing integration of IT into new sectors and the widespread belief that the pace of hiring will pick up again soon, it's an open question whether the providers will be ready to catch the wave next time—or wind up all wet yet again.

There is strong public demand for IT training, and New York City's for-profit technical schools have turned that demand into a major—and highly visible—business. Similarly, the City University of New York, in both its undergraduate and adult and continuing education programs, has begun to produce graduates with marketable IT skills. The public system that serves the worst-off among New York's jobseekers, however, has been virtually invisible in the field. (Public money does support IT training, but mostly through vouchers provided to jobseekers who use them for instruction at for-profit schools or community colleges.)

At first blush, this just doesn't seem to make sense. The substantial projected demand for IT workers in the years to come, the relatively good money IT workers earn, and the striking successes achieved by a few model programs that target low-income jobseekers all suggest that there's a big opportunity here.

But in recent years, New York's public system has been based on a "work first" philosophy, a theory that scorns the intensive training needed to prepare jobseekers for IT jobs. And for the part, most of the job training organizations that get city money to help poor people find jobs also have not put their energy behind high-tech worker training. With "training" itself almost a dirty word during the Giuliani administration, city services have concentrated almost exclusively on job readiness and job search activities.

Some defend the decision not to invest in IT training, saying that since the field tends to be a boom or bust proposition, it's not wise to prepare workers for such a volatile industry. But others argue that the publicly-funded job trainers just don't get it.

> *"Nonprofits tend to be run by people who have not grown up with technology," says Barbara Chang, CEO of NPowerNY, an organization that provides tech support to nonprofits. "When they were going to school, technology meant a typewriter."*

John Foley of Sun Microsystems, who put together a celebrated project to train welfare recipients as Sun network administrators, (see "Here Comes the Sun," p. 10) thinks that the city's leading training organizations simply don't understand the importance of technology.

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THE SELECT SECTOR

Data indicates that Per Scholas can train low-income jobseekers more quickly and cheaply than most other sector-based training programs. It is also unusually successful at placing its graduates, who earn above-average starting wages and see bigger income gains than alumni of other programs.

PER SCHOLAS VS. OTHER SECTOR-BASED PROVIDERS	Length of program	Cost per capita	Placement rate	Average starting wages	Average wages after 12 months
Per Scholas, NY (computer technician)	12 weeks	$5,000-$5,600[1]	73%	$9-$11.50	$12.50-$15
Cooperative Home Care Associates, NY (home health aide)	16 weeks	$4,000-$5,000	100%[2]	$6.25 + benefits	$6.50
Garment Industry Development Corp, NY (textile Industry)	10 weeks[3]	$2,983	67%	$7.50	$8-$9
Project Quest, TX (various)	approx. 2 years[4]	$10,000	85%	$8.50-$10	$9.50-$11.25
PhAME, PA (manufacturing)	61 weeks[5]	$21,400	40%	$12-$14	$15
Focus: HOPE, MI (manufacturing)	31 weeks[6]	$7,750	70%	$10.34	N/A

[1] Per Scholas splits the expense with the organizations it partners with, which provide recruitment and support services to trainees.
[2] Hires own trainees
[3] For "Super Sewers" program; customized training data unavailable
[4] Training is given mostly through the community college system, while Project Quest provides soft skills instruction in-house
[5] Instruction comes in "modules"; all numbers are for full 61-week program
[6] For "Core 1" training; Focus:HOPE also offers an additional advanced training component. All figures are for FY 1997

PER SCHOLAS

A FEW NEW YORK CITY organizations have shown that IT training can be adapted for low-income jobseekers. One of them, Bronx-based Per Scholas, has taken an early lead. Through a contextualized and highly focused training curriculum and a partnership model that brings in both money and expertise from community-based organizations, the program has achieved striking successes and won recognition as a national model for providing tech training to people without a lot of skills or experience. From modest beginnings in 1995, when the program trained five people to work as computer technicians, Per Scholas has grown into an organization that can train approximately 160 people a year, placing nearly three-quarters of them in full-time work at relatively high pay.

The bulk of Per Scholas training takes place in the classroom, but teachers work hard to keep the program both lively and relevant. "Most of our trainees have not done well under settings that appear didactic," says Per Scholas President and Chief Executive Officer Dr. Deborah MacFarlane. "So we try to make it feel like fun from day one—a 'they've never worked harder' kind of fun." At the outset, each student must build a computer from components, which they then use for the remainder of the program—if they can keep it working. As part of the course, according to training director Linda Lopez, instructors perform "sabotage" on student computers. The students then have to figure out what's wrong, and fix it.

"We learned a lot in so little time," says Dolores Perkins, who took the Per Scholas class in 2000 and now works in the computer lab at Borough of Manhattan Community College. "I think that was the hardest thing."

The training program complements the organization's other evolving mission: recycling and refurbishing computers from major corporations and other large employers and then reselling them at sharply discounted rates to schools, non-profits, and poor families. MacFarlane, a veteran of workforce development efforts in New York City, explains it succinctly. "We provide affordable technology for schools, and we train." The organization's two goals bolster each other in important ways, she adds: "Part of what makes [training] unique here is the interplay with a real-life manufacturing center. It's a semblance of real work, with opportunities to observe the process every day."

Per Scholas has pursued its nonprofit mission with a decidedly entrepreneurial approach. Its training programs are constantly being revised and fine-tuned, and the organization frequently strikes partnerships with both private firms and nonprofits for outside expertise and support. Per Scholas relies upon for-profit businesses like AMC and CompuTech, both business-oriented technology solutions providers, for advice and guidance on its training curriculum, checking in with advisors several times a year to make sure that courses are up to date with the latest technology and accurately reflect what employers need. Often, the same companies that send obsolete computers to Per Scholas for disposal or refurbishing wind up contributing advice, employee time, or other resources to the training program. In some cases, these companies have also wound up hiring Per Scholas training grads.

"Having a staff of consultants is so vital to us," explains Lopez. "Their feedback on our curriculum keeps us on top of changes."

Per Scholas' other partnerships are with community-based nonprofits, like United Neighborhood Houses, HELP USA, STRIVE, and the South Bronx Overall Economic Development Corporation. These groups provide outreach, recruitment and referrals, plus "wraparound" services and case management that allow students to focus on learning. "They provide support services that our students need, like when child care arrangements break down," Lopez says. "We're not experts in that area."

The real success of the program, though, comes from a single-minded focus on employment. Most trainees do complete the program: Of the 395 who enrolled, 339 graduated. But not all find work right away. To help support graduates during that period, Per Scholas has set up a paid internship program that employs roughly 60 new graduates each year—about 15 to 20 at any given time.

Ultimately, 247 of the 339 graduates have found work as computer technicians, an impressive 73 percent success rate. Per Scholas students have found work with companies ranging from technology and media giants like IBM and Time Warner to tiny computer service and repair shops throughout the region. Average starting wages may not be the stuff of dot-com fantasy, but they are far better than what most people coming off welfare earn: Most start out making between $18,000 and $23,000. By the third year, most make between $30,000 to $35,000—about a $12,000 wage gain in a two year period. And 86 percent of the workers who got hired out of Per Scholas' program are still on the job as of last summer (the most recent data available).

"Part of what makes [training] unique here is the interplay with a real-life manufacturing center. It's a semblance of real work, with opportunities to observe the process every day."

HR staff at Time Warner and other high-profile employers in the city praise the hands-on training at Per Scholas and the demonstrated ability of its graduates to learn new skills quickly. Cynergy Data, a Queens-based company specializing in electronic payment services, even decided to hire only Per Scholas graduates for its tech support positions after its first hire from the organization essentially redefined the position.

Other New York City training providers might find Per Scholas model difficult to reproduce without changes: the organization is self-sufficient through its computer sales and fundraising from the philanthropic world, and enjoys exceptionally good relationships with the private sector, both rare attributes. But its attention to private sector trends, and its willingness to partner and share resources with other organizations, are both eminently reproducible, and offer lessons any training provider interested in technology could learn from.

WIRED AND INSPIRED

MOST INFORMATION TECHNOLOGY jobs focus on the computer atop the desk, not the wiring beneath. That road less traveled became a good opportunity for Brooklyn Workforce Innovations (BWI), a branch of Brooklyn's highly regarded nonprofit Fifth Avenue Committee. By identifying a relatively overlooked part of the IT world, then forging relationships with a wide-ranging network of partners to build a path to training and placement, BWI has positioned itself to move thousands of low-skilled New Yorkers into IT careers.

BWI's core mission is to generate well-planned, carefully managed training programs and support community-minded businesses. In late 1999, BWI executive director Aaron Shiffman and then-director of business development Josh Wallack began getting interested in the potential of IT. But BWI's target population—poor Brooklynites with relatively low literacy or other qualities that make them hard to employ—seemed to limit the possibilities.

Their inspiration came from a *New York Times* article about renovating older buildings for high-tech capability. With an entire city full of older buildings that could benefit from retrofitting, the opportunities for a business that focused on rewiring seemed almost limitless. Shiffman and Wallack had already run a construction and renovation training program, so the type and scope of work was not completely new to them. Plus, the field could only expand. Jobseekers that were specially trained in rewiring renovation—essentially, laying wire and cable and performing networking tasks—should have a clear advantage.

With an entire city full of older buildings that could benefit from retrofitting, the opportunities for a business that focused on rewiring seemed almost limitless.

In early 2000, Wallack began by researching the field, reaching out to more than two dozen cabling employers to get a better sense for the employment market. Wallack was pleased to find that the wiring business was relatively easy to get into: entry-level jobs don't even require a GED, but starting wages begin around $8.50 an hour.

Wallack also consulted with Laura Wolf-Powers, a Ph.D. student at Rutgers University working on a dissertation on the telecommunications labor market. Among her research topics, Wolf-Powers had been focusing on the hybridization of construction and high-tech in new buildings. She had found evidence to support the notion that the field would enjoy major growth, writing: "Employment in the telecommunications industry as a whole is projected to increase by 23 percent in the 1998-2008 period, with strong growth in technical jobs being a major component."

Wolf-Powers had some important insights about the telecommunications labor market, particularly its union dynamics. Because the cabling sector is highly unionized in New York, the job training project would need labor backing. Plus, federal Department of Labor regulations hold that training programs preparing workers for highly unionized industries must have union input in order to get federal funds.

So BWI contacted both the International Brotherhood of Electrical Workers and the Communications Workers of America (CWA), which already had been getting federal money to explore training projects in other cities. CWA, which has 630,000 members nationwide, had been looking into expanding its training efforts, and union officials were looking for ways to diversify membership. A partnership with BWI made sense.

BWI also found that LaGuardia Community College had the physical facilities BWI needed, and was looking to do more in the field. And BWI had the union and employer connections that LaGuardia had been looking for. LaGuardia was ultimately designated as the "lead partner" in the training consortium, known as PACTT (Planning to Access Careers in Telecommunications through Training). Last year, PACTT received a $750,000 grant from the U.S. Department of labor, and will soon begin training 90 students at two sites in Brooklyn and Queens.

The 40-hour curriculum is built on a career ladder model and emphasizes hands-on work. After trainees pass an initial certification exam, they begin a two-year regimen of on-the-job experience and periodic evaluations. "After two years, they take another course, take another exam, then receive a substantial pay hike," Wallack says. "After another three years, all that happens again." The partnership with CWA helps ensure that trainees will get the initial job placements they need to start the long journey up the career ladder.

BWI and its partners are already thinking long term, says Wallack, who left BWI in January 2002 to take a job as legislative director for City Councilman Bill DiBlasio. "The original application calls just for entry-level workers, but I think all three partners want to move beyond that to a series of trainings to help people move up career ladders," he says. "They could become advanced premises wiring technicians, PC repair technicians with A-Plus [certification], they could decide to pursue additional training in software or networking and get Cisco certification. Or they could go to work with Verizon and get trained on other telephone equipment."

While BWI was still working out its partnerships with CWA and LaGuardia, BWI also launched "Brooklyn Networks," an effort to train Brooklyn jobseekers for work in cabling and networking. This past summer, an initial class of 16 began a six-week program at New York City Technical College (NYCTC), with BWI doing the recruitment and providing social supports and job placement help to complement the classroom work. Working with an industry group, BWI and NYCTC are offering a three-level certification for cabling technicians in the program, which staff members are viewing as a way to learn lessons and gain experience to help inform PACTT as well as to help jobseekers in the meantime. Even without union involvement for this project, 19 of the first 28 graduates in October and November found work, at average starting wages of $10 per hour.

As with most federally funded workforce projects, PACTT is designed so that it can be duplicated elsewhere if it succeeds. Through comprehensive labor market research, a thorough examination of how best to train in this field, and aggressive efforts to identify and recruit partners offering complementary strengths, BWI managed to overcome the obstacles nonprofits cite to explain why they don't train in IT. The result is a program of great promise, in a field where demand should persist for many years to come.

HERE COMES THE SUN:
FROM $600 A MONTH TO $100K A YEA

IT'S THE DARK LITTLE SECRET OF job development policy: while job trainers and employers should be natural partners, they are often at loggerheads, with strikingly different ideas about how to train, whom to train, and for which jobs.

That conflict, usually invisible, became all too apparent at an IT job training conference held in early 2001 at the Federal Reserve Bank of New York. A panel of executives, mostly chiefs of new media companies, spoke to an audience of trainers from small community-based organizations. It soon became clear that the jobs these companies most wanted to fill were sophisticated and technically challenging, a daunting prospect for job trainers that are accustomed to working with small budgets and low-skilled clientele. As the employers' presentations went on, the audience's questions began to turn more confrontational. "What do you have for us, for our people?" one frustrated trainer finally asked.

"That's the wrong question," answered Sun Microsystems district manager John Foley. "You guys need to do a better job preparing your trainees for higher-skill positions. We don't need people who can put together a simple web page. We need systems administrators and people who can handle high-end equipment."

It may sound pie-in-the-sky, but Foley, unlike many critics, actually knows firsthand what he is talking about. Over the past three years, he and his partners have managed to do the implausible: put a selected group of welfare recipients to work as high-paid computer professionals.

In 1999, as unemployment was approaching historic lows, Foley was plagued by chronic shortages of skilled Sun technicians. Fed up with this dilemma, he took the bold step of e-mailing then-Mayor Rudolph Giuliani himself, asking if city government could help. His request got the attention of officials within the Human Resources Administration (HRA), the city's welfare department, and Foley found himself spearheading an unprecedented partnership. Sun and HRA would join forces with several local nonprofit job trainers to recruit people from the city's workfare program to become Sun Solaris Administrators.

City officials were supportive but skeptical, privately projecting a 20 percent weekly attrition rate and estimating that Sun would be lucky to place a quarter of those who completed the ten-week training. But a rigorous screening process helped avoid that problem, weeding out all applicants lacking the computer skills necessary for the relatively advanced Solaris training. More importantly, candidates had to really want to work, learn, and stay in the program. "In the studies we look at regarding what employers find important, [positive attitude] is always one of the top responses," says HRA's Judy Marcus, who helped organize the program.

Even with those strict criteria, there were more than enough candidates among city welfare recipients, says Ilene Marcus (no relation to Judy Marcus), the HRA official who supervised the program. Foley and his collaborators actually had to turn away a number of qualified applicants.

The other trick to making this program work was the enthusiastic involvement of of HRA itself. With the city's welfare agency directly involved in the program, it was easier for the trainees to navigate many of the scheduling conflicts, paperwork difficulties and administrative snags that often hamper training programs. HRA staff ensured that trainees kept getting their benefit checks, and didn't get accidentally scheduled for caseworker appointments during class time. They also made sure that child care and car

Train in Vain, *continued from page 7*

"You've got a lot of service providers out there who don't even have a clue about what's going on the tech world," Foley points out. "They don't have a CTO [Chief Technology Officer] and they don't consult tech companies. As a group, providers don't get together and share ideas about where the tech world is going."

"Nonprofits tend to be run by people who have not grown up with technology," agrees Barbara Chang, CEO of NPowerNY, an organization that provides tech support to nonprofits. "When they were going to school, technology meant a typewriter."

As a result, offering IT training requires providers to move beyond their operational and philosophical comfort zones. "Historically, [IT] doesn't fit into the traditional training model: take someone who's unemployed or underemployed, buff and polish them, and move them into jobs," says Julian Alssid, a Brooklyn-based workforce consultant who is involved with the IT Career Ladder Consortium project now underway in New York (see "Climbing the Ladder", p. 13). "IT takes more effort: better reading skills, better math skills." Indeed, virtually all the IT training efforts that are directed at low-income people, including New York-based programs like Per Scholas and the IT Career Ladder Consortium projects already up and running in California, require that trainees demonstrate at least 8th or 9th grade reading and math abilities—skills that many unemployed New Yorkers don't have.

As usual, money is also an issue. Alssid estimates that it costs as much as $5,000-6,000 to properly train an IT worker. New York City, committed to the "Work First" model, will rarely spend more than $3,500 per capita. At that rate, few providers can afford even to set up facilities. A recent survey conducted by MOUSE (Making Opportunities for Upgrading Schools and Education), a nonprofit that advocates a larger role for technology in New York City public schools, proves just how steep the price can be. On average, setting up a network of 25 PC workstations with printer, server and broadband Internet costs about $44,700. Additional equipment, including software, a scanner, and a digital camera, is likely to run another $10,000, and teachers might run another $70-80,000 per year.

NPower's Chang suggests another reason New York's job training providers might avoid IT: they may not think their clients can handle it. "I think that [trainers] are placing artificial barriers around the kinds of training IT entails," she says. "They might rule it out for the population they're serving. But technology, if you have the knack for it, is highly achievable. Maybe trainees won't become high end programmers for Oracle, but they can staff a help desk or do something entry level."

Chang and others think that effort is a worthwhile investment for many of the city's unemployed. Most low-skilled workers scrape by on very low wages. While IT work may not be the right fit for people with very little education or experience, it can offer a rare chance for good pay, regular raises and a real career. (see chart on pg. 7).

fare didn't become a problem for the students. According to Ilene Marcus, one key to a successful program is leaders that can fix the organizational problems that inevitably crop up—"someone at a high enough level to make the bureaucracy respond quickly."

Soon after the ten weeks of training, all twelve students had jobs with either Sun or clients to whom Sun had sold Solaris equipment. Of the first 20 students trained in the program, 16 were placed in jobs. One was dismissed for disciplinary reasons, and four more were laid off (an attrition rate, Foley points out, that's in line with overall Internet reduction rates during the 2000-2001 industry slump). The remaining 11 are still on the job, and are now averaging more than $45,000 a year.

While the slowdown in the IT economy has slowed the pace of Solaris training in New York, Sun continues to pluck out promising candidates referred by HRA and the U.S. Department of Labor and move them into training as Solaris administrators. In 2001, Sun handed over administration of the program, along with its training curriculum and a promise to help place all qualified trainees, to Met Council Futures in Information Technology, a nonprofit technology training provider affiliated with Metropolitan New York Council. The first of three planned training cycles was to conclude at the end of January 2002, and Met Council FIT staff reported that participants were already passing certifications at the beginning of the new year.

It may be a small program, but it's made an enormous difference in the lives of its participants. As the city recently announced plans to devote $5 million to customized training for specific employers, the lessons of Foley's project—find a company with both a need and a willingness to put up resources, then match training expertise with experience in case management and placement—are particularly relevant to city training policy right now.

Foley himself has become more deeply involved in New York's workforce development, and now chairs the city Workforce Investment Board subcommittee on business and employers. He remains ebullient about what his program at Sun has accomplished. "I recently ran into one of the trainees from the first class," he notes. "As we shook hands, a brochure fell out of his backpack. I reached down to pick it up, and I saw it was a BMW catalog. A year ago, this man was on welfare, and now he's shopping for sports cars."

When Foley ran into one of his Solaris graduates recently, a brochure fell out of the man's backpack: it was a catalog from BMW. "A year ago, this man was on welfare," Foley notes. "Now, he's shopping for sports cars."

Employer Profile: PROSKAUER, ROSE LLP

At the New York City flagship office of renowned law firm Proskauer, Rose LLP, moving information quickly and managing it efficiently is the name of the game. With over 400 attorneys working out of the office, plus cadres of support staff who work with them, the firm's large and diverse IT workforce is constantly in demand. "We try to make sure that we're staffed to provide user support, networking, and practice support to our attorneys and staff," says Ann Barkey, director of human resources at Proskauer, Rose. "We're fairly aggressive in our [IT] staffing."

IT staff at Proskauer might be called upon to provide technical support via help desk, hands-on computer repair, or working with specific software applications, such as the programs in the Microsoft Office suite. A separate networking group includes engineers, database administrators, and coders. Finally, there's a practice support group, the members of which work with the attorneys on data management and related applications.

Proskauer finds its IT workers from a wide range of backgrounds, a function of the firm's aggressive and eclectic hiring strategy. Referrals by current employees are the preferred approach, but for positions the firm can't fill through referrals, Proskauer works through staffing agencies and the internet, including its website (www.proskauer.com).

Proskauer has worked to make the idea of an IT "career ladder" a reality, hoping to minimize the high turnover that often plagues IT departments in professional services firms by developing its technology workers over time. Higher-paid senior workers often have risen from entry-level positions. "Depending on what's available, we have opportunities for people who are very experienced," says Barkey. "We prefer to promote from within, and we aggressively do that... It really makes a difference when people know that they have a career path and they can be involved in the things they want to be involved in. It's a great morale boost."

Proskauer, Rose is another good example of a destination job: the firm grooms talented workers and promotes from within, establishing an in-house 'career ladder' to cultivate and develop its employees.

GETTING THEIR PROPS

While the public job training systems sat on the sidelines, for-profit proprietary schools became the city's most reliable source of IT workers. Their strategy: flexible curricula and close connections to the private sector.

MOST NEW YORKERS KNOW NAMES like the Globe Institute and De Vries, if only from their ads that blanket entire subway cars. In the last several years, these schools, and dozens like them, have used the same aggressive approach to market themselves to local employers who rely upon IT workers. The schools tout virtues like quick turnaround, close ties to industry, and course offerings that reflect the latest trends and technology in IT.

High tech has become one of the largest focus areas for New York's approximately 400 proprietary schools. A Center for an Urban Future survey of 13 NYC-based proprietary schools found that over 80 percent offered degrees, certificates, or diplomas in skills like programming, networking, and Microsoft training—abilities that 0IT employers crave. In 1999 and 2000, 13 city proprietary schools alone trained and graduated nearly 5,000 students in IT fields as varied as Microsoft Office, graphic design, programming, and PC repair. More than half of the schools we surveyed said they had boosted their IT offerings, added an IT degree or certificate to their curriculum, or upgraded their old courses within the last two years.

The city's proprietary schools have had a lot to overcome, including their own checkered history. Unlike traditional four year colleges and universities, these schools are usually owned and operated by business people for profit—a structure that can lead to disaster. After a series of scandals in the late 1980s that led many people to view proprietary schools as the educational equivalent of three-card Monte, these institutions had to struggle to rebuild their credibility. But legislation in 1989 and 1999 regulated and reformed the industry, shutting down the most exploitative schools and ensuring that the rest actually provide a real service.

Now, students are flocking to these schools: Full-time enrollment is up nearly 10 percent over the last two years. In an era when an advanced degree has become a basic requirement for a wide range of jobs, they fill an important niche. "Traditional colleges aim to educate and develop students into 'well-rounded individuals,'" says Howard Goldsmith, chief of the Bureau of Proprietary Schools, a state agency charged with regulating the for-profit schools. "But proprietary schools have one mission: help students learn a skill and get a job."

One major benefit of proprietary school programs, for both employers and trainees, is that they cram a lot of knowledge into a short course. Five years ago, a student could expect to spend up to two years finishing certificate and degree requirements; today many IT certificates require as little as 25 credit hours—less than a month.

The rapid pace results from the market principle that guides these schools: Their training and services must reflect what students and employers want. Unlike state-supported school systems like CUNY, or private colleges with large endowments, if proprietary schools can't get their graduates hired and keep new students enrolling, they fail.

In 1999 and 2000, 13 city proprietary schools alone trained and graduated nearly 5,000 students in IT fields as varied as Microsoft Office, graphic design, programming, and PC repair.

But the pace is not always a good thing for students new to technology. Some employers remain skeptical that entry-level workers trained at for-profit schools will have the theoretical background to do quality work, especially in more tech-intensive positions that might require more thought. They express concerns that these schools do little more than teach enough to pass a specific certification exam rather than furnish a full understanding of technology concepts.

One way companies circumvent this potential problem is by relying upon these schools to certify experienced IT workers who already have experience, giving them extra training to bolster their on-the-job learning. "Most of the proprietary schools are marketing their programs at people with significant work experience, and at people currently working in service and repair without [a] credential," says Brian Bosworth, a Massachusetts-based policy researcher who is studying the merits of networking credentials for IT jobseekers. "Some have a one-week intensive program where the employer sends the person to that cramming program, and then they take the [A-Plus] test and pass."

Many proprietary schools have less than 200 students at a time, and that small size allows a greater degree of flexibility and sensitivity to the market. In recent years, that has translated into a fast response to local growth in the IT sector. Since mid-2000, 55 new proprietary schools opened in New York, and three quarters of them have curriculums that are computer and technology related. "By their very nature," says Goldsmith, "proprietary schools would seem best suited to quickly respond to industry need by providing skilled workers in the areas of greatest need." All schools we spoke with indicated that they were continuing to make job placements, even in the slower IT economy of the past year.

Proprietary school officials throughout the city explain that they constantly re-assess and fine tune their curriculums to reflect industry demands. "The school is constantly upgrading its course offerings to reflect the industry," says Yelena Leichtman, chief operations officer of Centurion Professional Training, a Bronx-based for-profit trainer. "We make sure to always teach the hottest computer courses that are available." During the current downturn, Leichtman notes, enrollment at Centurion initially declined but then rose again as students with city funding started to show up.

The great expansion of proprietary schools' IT course offerings in recent years was designed to meet the burgeoning need for entry-level workers with IT skills. As employers' needs have changed somewhat, moving toward higher-end skills (see "From Bad to Worse", p. 4), the limitations of proprietary schools have become apparent. But their strengths—and their appeal to those in search of training—remain evident as well, and with luck, publicly funded trainers are taking note of them.

CLIMBING THE LADDER

In California, one smart new program connects the dots from training and placement through advancement in the field of Information Technology. Will it work in New York City?

WE'VE SEEN THAT NEW YORK HAS some effective training programs to move low-skilled, low-income workers into solid IT jobs. And despite the recent contraction in Silicon Alley, the job market for workers with IT skills is likely to rebound soon and remain strong. Without a systemic approach to training and placement, however, it's likely that well-trained, competent workers will only be available in dribs and drabs—a few dozen per year from one small program, one or two hundred more from a bigger one. The job market for IT professionals may remain chaotic and subject to cycles of shortage and excess. In response, companies will lose ground in efficiency and profitability, and New York could well cede its current position at the forefront of IT.

Or we could follow the trail now being blazed out west. In San Francisco and other California cities, local firms, non-profits, and government have come together to form IT Career Ladder Consortia, an effort to recruit, train, and place enough workers to fuel the growth and prosperity of companies that rely on IT. In the process, these programs also have the chance to transform the prospects of thousands of poor, jobless or underemployed Californians looking to improve their lives.

The premise behind the Consortium model is simple: every involved party should do what it does best. Community-based providers and local government human service agencies tackle recruitment; community colleges and specialized community-based job trainers provide instruction at a range of levels, from basic computer competency to advanced network administration and programming; and industry partners and job developers concentrate on identifying jobs and placing the new trainees. Money to run the program comes from both private foundations and public sources—since the program is so broad-based, the consortia have been able to enlist many different funders.

The Consortium model is primarily the brainchild of the Workforce Strategy Center (WSC), a consulting group that does work on both coasts. During the late 1990s, WSC's David Gruber began developing the project with San Francisco's Glide Memorial Church, a longtime supporter of social service programs. The effort was initially underwritten by California's Irvine Foundation, and city government soon got involved as well. "The welfare agency was interested in supporting those kinds of programs," says Gruber. "We decided that it made sense to put together a formal citywide initiative."

San Francisco takes a more integrated approach to getting people off welfare and into jobs than New York City, which for years has emphasized "work first": getting people into jobs right away, no matter how poorly paid or dead-end. "Our philosophy has been a hybrid of work-first and training," says Amanda Feinstein, special assistant for workforce development at San Francisco's Department of Human Services. "We get people with no work experience into work, and try to upgrade the skills of those who have worked but can't find wages to support their families. There's also the occasional person who's unemployed and on aid, but has enough work experience that if we give them a few months of computer training, they can begin to support themselves."

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Employer Profile: COMMUNITY ACCESS

A nonprofit organization dedicated to providing housing and other services to New Yorkers with mental health problems, Community Access employs close to 150 workers at ten different sites around New York City. With each site reliant upon its own computer network infrastructure, the organization leans heavily on its two in-house IT employees to keep things running smoothly.

"Right now they just mostly troubleshoot around modem connections and PC hardware problems—replacing equipment, upgrading equipment, chasing viruses, stuff like that," says executive director Steve Coe. "They respond to almost nonstop help desk issues from staff."

Like many organizations of similar size, Community Access has recently moved to outsource some of its IT work needs. "I used to have four full-time people, but we're trying to save money by moving to outsourcing," says Coe. "It's evolving."

But even though the organization now relies on outside contractors, Coe says Community Access—like countless other for-profit and non-profit firms across the city—is more reliant upon technology than ever: "We need help with network support. We have nine remote sites, and they have to get into a central database... everybody has to be on a computer for doing work, and you can't have any downtime or nobody gets anything done. As we become more wedded to the technology, there's less room for mistakes and breakdowns."

Nonprofits like Community Access are distinct both from small businesses struggling to make ends meet and giant corporations engaged in the battle for market share. Increasingly, however, they are discovering that IT has a major role to play in their operations—coordinating resources is no less important when resources are scarce, and reporting and record-keeping is indispensable in an industry largely fueled by public grants. With the nonprofit sector considered likely to emerge from the recession in relatively good shape, and with technology providers like NPower New York taking on the explicit mission of spreading the IT gospel to the city's nonprofits, this could be an area in which IT penetration is especially dramatic in the years to come. And their modest budgets often mean greater opportunities for less experienced workers—aptitude and flexibility matter more than a lengthy resume.

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To build the program, Gruber recruited technology trainers such as the Bay Area Video Coalition (BAVC), an organization which was then looking for a system to standardize curricula and skill sets, recruit trainees, and refer graduates onward for higher-level instruction. By 2000, BAVC, Glide and other participating CBOs had a new resource to draw upon: the expertise of Mission College, a Santa Clara community college that had been providing customized training to Intel, Cisco, and other corporate Silicon Valley institutions for a number of years. Mission had a grant from the state government to develop curricula for industry-relevant IT training. Plus, the college's relationships with major IT corporations held promise for keeping curricula up to date and relevant, and eventually for helping place trainees in jobs.

"The information people give us from these companies is always very current," says Ingrid Thompson, program manager at Mission's Workplace Learning Resource Center. "And we know how to customize; we've been doing it for years."

Mission provided the curriculum and some instructors, who drove nearly fifty miles from the school's campus to provide training onsite at Glide and other participating CBOs. Getting Mission involved helped keep the costs down for CBOs, and, by extension, for their trainees. It also allowed trainees to earn academic credit toward an associate degree—in effect turning the community organizations into satellite campuses, as staff at each site became certified as Mission College instructors. The CBOs themselves took care of the rest, helping out with support services from child care to transportation, and handling the "soft skills" part of the training.

"Instead of the competitiveness that usually goes on with most CBOs, we're in harmony," says Regg Saavedra, director of training at Glide Tech, the IT training arm of Glide Memorial. By sharing information about training programs, the CBOs also minimize unnecessary duplication among them. While each partner continues to offer training courses on its own, the Consortium provides a front door for new trainees, as well as a network for member organizations to refer their current students on to get more advanced training.

Gruber reports that Consortium member groups in San Francisco plan to produce between 300 and 400 work-ready trainees in 2001—and expects larger numbers in succeeding years. "It's really a labor market issue," he explains. "If demand is there, it's possible to move to something on the order of 500-1,000 a year."

The California Consortia have been able to expand their reach even as the IT industry has struggled. It might seem like a risky proposition during the industry's downturn, but with employment expected to rise again, trainers are using the current slack period to build capacity and forge important connections. One asset has been the leadership of workforce officials, including local Workforce Investment Board members, in connecting high-tech training efforts to money from the federal Workforce Investment Act. In California's East Bay, the Workforce Investment Board for the city of Richmond took the lead in supplying the local Consortium with federal cash. That local Board also reached out to the many high-tech employers in the area in order to get input on training curricula and let them know about this new source of trained workers.

So can this model be brought to New York?

"It's a tough nut to crack," admits Julian Alssid, Gruber's partner at the Workforce Strategy Center, who has spearheaded outreach and planning efforts for a New York IT Consortium. "There isn't much of a history of partnering…in New York City, every CBO wants to build capacity soup to nuts."

Nevertheless, Alssid, Gruber and their associates have already begun working to build California-style consortia in New York. One partner is the Federal Reserve, which hosted a forum on the San Francisco Consortium last May; also onboard are City University of New York (CUNY), the New York Software Industry Association (NYSIA), and NPower New York, a nonprofit dedicated to helping other nonprofits better utilize technology. The new consortium already has startup funding from the New York Community Trust and a number of local banks.

NYSIA, which has long been involved with various training and internship efforts in the city, will ensure that local IT employers stay informed and involved in the consortium's work. NPowerNY will provide similar links to New York's sizable nonprofit sector, working to gauge the needs of nonprofit organizations and to place consortium trainees in internships and paid jobs. The organizers hope that both groups will ultimately serve as consistent conduits to job openings. "I think NYSIA offers legitimacy and connections with industry," Gruber says. "We can get to industry in a way we couldn't in San Francisco," where the consortium relied upon the staffing company Manpower for placements.

The plan also fits in well with NYSIA's mission, says president Bruce Bernstein. "NYSIA wants to play the role of bridging the gap between employers and training providers," Bernstein says. "One of the things I like about the proposal is the ladder—internships, pre-employment or early stage employment where the firms don't feel locked into the person. And you get a concept of moving people into those jobs and seeing how they do." In other words, the consortium hopes to offer employers a "try before you buy" internship program that could go a long way toward making sure that the hasty and ineffective hiring decisions of the late-90s internet boom don't recur.

The consortium plans to launch its New York effort with several "clusters" that bring together community colleges and other trainers with CBOs in Manhattan, Brooklyn, Queens, and the Bronx. WSC staff are now approaching CUNY schools to serve as anchor organizations and primary training providers. Alssid and other consortium organizers hope to have the players onboard for at least two of these clusters by late winter.

The organizers realize that the task is difficult, especially in the current economic climate. With firms both in high tech and "old economy" businesses loath to take on additional staff, even as interns, consortium partners face a formidable sales challenge. (However, consortium members expect that by the time their trainees begin to hit the job market, economic conditions will have improved.) And the persistent tendency of job trainers and other potential partners to "go it alone" remains a challenge: already, one planned consortium cluster had to be revised when a potential training partner abruptly announced that it was applying separately for a federal grant the consortium had planned to pursue, and withdrew from the cluster.

But the potential rewards—to jobseekers and to the IT industry—compel the partners to make the effort. "I don't perceive it will be easy," says NYSIA's Bernstein, "[but] I think you have to start making the links, developing an actual pipeline."

RECOMMENDATIONS

The dearly departed New Economy has proven once again the old adage that what comes up must come down. But just as the boom of the late 1990s came to an end, so too will the current downturn. And despite the high visibility of dot-com failures, the technology revolution is still expanding, reaching out into other industries and changing the way businesses do their work.

"Now that the smoke has cleared, traditional companies are moving forward at a rational pace," says Bob Ponce, president of the World Wide Web Artists' Consortium and a veteran of the city's IT scene. "They're no longer scared of dot com. They've had a chance to absorb and learn about the Internet and how to integrate it in their business processes."

In other words, while dot-coms may have been the hula hoops of the late 1990s, IT is really more like the decade's Model T Ford. Just as the invention of the automobile forced employers and governments of the early 20th century to contend with a transformed economy, we now need to take stock of the ways in which computers are changing the nature of American employment.

The policies that New York City adopts now can help balance and advance the interests of both IT employers and workers, and ensure that this transition happens smoothly and with the maximum benefit to the local economy. More importantly, the city can play a crucial role by having the foresight to develop the workforce now that local employers will need in the future. It's an extraordinary opportunity to cultivate a home-grown industry—and help thousands of New Yorkers into well-paying, rewarding jobs.

1

IT is dead, long live IT.

The technology business, narrowly defined, has taken some hard hits in the last year as the dot-com bubble collapsed. But information technology in its broader sense has only begun to transform many of New York City's most vibrant industries: finance, media, and business services represent just the first wave. Once the economy picks up, the demand for skilled computer professionals will expand and broaden. New York City is still a leader in information technology, but in order to keep this prominent position, the city should focus on producing and retaining the workforce that will drive the economic recovery.

2

New York City and State governments should support the IT Career Ladder Consortium by helping connect this promising program with the welfare agency, public housing agency and public university system, and using tax credits to encourage businesses and other organizations to connect with the Consortium.

IT job training in New York City is fragmented, and proprietary schools have stepped in where publicly funded programs fear to tread. The newly formed IT Career Ladder Consortium, with its range of partners, has real potential to coordinate and streamline job training and career development. In California, where the IT consortium model has been up and running for TK years, government has worked hand in hand with job trainers and IT employers to connect low-skilled, low-income jobseekers to entry-level positions within the industry. Other local New York programs have also succeeded by integrating industry, community organizations and city and state social services agencies. Government can play an important role by lubricating these relationships and offering incentives. One example: the city Human Resources Administration could refer qualified welfare applicants to the consortium for training and placement rather than send them through the work-first system that has done little to lift clients out of persistent poverty.

3

IT should be an integral part of city workforce development efforts as the new federal Workforce Investment Act is fully implemented in New York City.

The Workforce Investment Board, which is charged with setting job training policy and spending priorities in the city, should include IT among the industries it targets for potential employment growth and training services. In the next 12 months, the Board should look to provide services like an online and print clearinghouse of IT training providers in the city, information about public money for training, and "middleman" services to connect employers in search of IT workers with training providers.

4

IT employers, community technology centers, the public school system, and the City University of New York should strengthen ties and coordinate activities. The Career Ladders Consortium, industry associations, city agencies, and others can all play a role in this effort.

Self-interest on the part of one organization often leads to a "go it alone" strategy, but enlightened, cooperative self-interest on the part of an entire industry is much more successful. In IT, these partnerships are crucial: employers can create internships as points of entry for skilled but inexperienced applicants; public schools and community technology centers can boost computer literacy, broadening the pool of potential workers; and CUNY has the resources to provide both customized training for employers and sophisticated instruction for qualified jobseekers.

Ideally, these partnerships will create a pipeline of talent that produces well-qualified workers for productive careers in IT. City agencies—which themselves are substantial producers and consumers of IT-related products and applications—can help smooth the way to this climate of cooperation with tax breaks for firms, incentives for contract agencies (including CUNY schools that provide job training), and other programs.

5

New York City should appoint a technology ombudsman to advocate for the technology-related needs of city employers.

Industries like film and television already have specially designated offices in city government which represent the interests of the sector as a whole. Though this report has focused on workforce dynamics in IT, the industry has many other concerns important to its survival and growth, from real estate and infrastructure issues to the need for seed funding. Official recognition in city government will be an overdue gesture acknowledging how important this still-evolving field is to the city's economy. ✳

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