



CAREER PATHWAYS

ALIGNING PUBLIC RESOURCES TO
SUPPORT INDIVIDUAL AND REGIONAL
ECONOMIC ADVANCEMENT IN THE
KNOWLEDGE ECONOMY

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This white paper sets out the basic concept and rationale for the career pathways model as a means for aligning education, workforce development and other publicly supported systems to strengthen local and regional economies and promote career advancement by individuals. Workforce Strategy Center is currently preparing a guide for practitioners and state agencies that details how communities can develop and implement career pathways. The guide also explores in greater detail how localities and states are grappling with the challenges of the approach, and what they are learning in the process. WSC is also producing a paper on how state governments can rethink their current policies to support pathway development. Both of these publications, as well as a web-based interactive resource, will be available to the public, in summer 2006. For more information about Workforce Strategy Center and career pathways, see our website at www.workforcestrategy.org.

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CONTEXT AND NEED

¹ On the “human capital” theory of regional economic development, see Richard Florida, *The Rise of the Creative Class* (Basic Books, 2004, paperback edition), 220–222.

² Author’s calculations are based on table 1, “Educational Attainment of the Population 15 Years and Over, by Age, Sex, Race, and Hispanic Origin: 2004” in U.S. Census Bureau, Current Population Survey 2004 (last modified March 27, 2005), available at www.census.gov/population/www/socdemo/education/cps2004.html.

³ Nan Poppe et al., *Whose Job Is It? Creating Opportunities for Advancement in Workforce Intermediaries in the 21st Century* (Robert P. Giloth ed., Temple University Press, 2003).

⁴ Anthony P. Carnevale, and Donna M. Desrochers, *Standards For What? The Economic Roots Of K–16 Reform*, (Princeton, NJ: Educational Testing Service: 2003), 36.

As technological advances and economic globalization have taken hold in the United States and beyond, the necessary elements for regional success in the emerging economy are no mystery. Regions will thrive or decline based upon how well they cultivate “knowledge workers:” individuals who have postsecondary education credentials, technical savvy, the ability to learn rapidly, and an entrepreneurial approach to employment. Knowledge workers earn higher pay than less skilled workers, and researchers and policymakers increasingly see them as the key to economic development.¹

Unfortunately, all too many communities are faltering in their efforts to grow a robust knowledge workforce. With few exceptions, publicly supported education systems are not well aligned with workforce, economic development and social service systems at any level of government, and none of these systems is adequately responsive to the labor market. In other words, our public systems—and our investments in those systems, as taxpayers and customers—are not paying off; they are producing too few workers with the skills our communities need to thrive in the emerging knowledge economy.

Individuals are falling short despite ever-clearer signals that education and training beyond high school have become the gateway to family-supporting jobs. As is evident from the figure on the next page, the real average earnings of full-time workers with a high school diploma or less have declined since the 1970s. By contrast, the earnings of workers with bachelor’s degrees increased during

that period. Those with graduate degrees have enjoyed even greater growth in earnings.

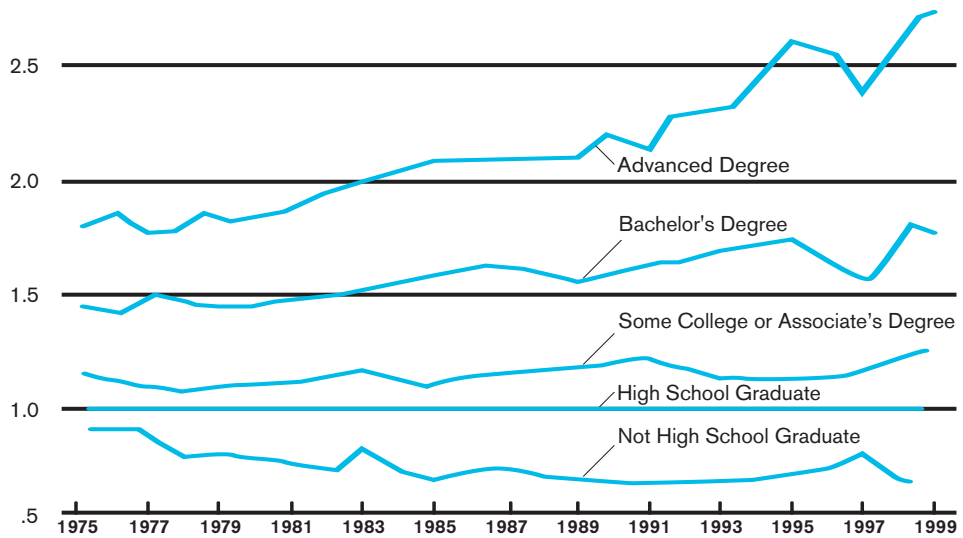
According to the 2004 Current Population Survey, 43 percent of adults between the ages of 25 and 64 have, at most, a high school education.² As the economy continues to shift from an industrial to a knowledge orientation, individuals with no postsecondary education or training will find it increasingly difficult to move beyond subsistence-level jobs. Research shows that workers with little education and few skills can rarely work their way out of low-wage, dead-end jobs on their own; they generally need at least some job-connected education or training to advance to jobs that pay wages sufficient to support a family.³

Jobs that require higher levels of education and skill not only pay more on average, they are the fastest growing segment of the labor market, expected to account for nearly two thirds of all new jobs between 2000 and 2010.⁴ Not surprisingly, more educated and

⁵ This figure is taken from Jennifer Cheeseman Day and Eric C. Newburger, "The Big Payoff: Educational Attainment And Synthetic Estimates Of Work-Life Earnings," (Washington, D.C.: U.S. Census Bureau: July 2002), 3.

⁶ See Lynn A. Karoly, and Constantijn W.A. Panis, *The 21st Century At Work: Forces Shaping The Future Workforce And Workplace In The United States* (Rand Corporation, 2004), and Frank Levy, and Richard J. Murnane, *The New Division of Labor: How Computers are Creating the Next Job Market* (Princeton University Press and Russell Sage Foundation, 2004).

AVERAGE EARNINGS OF FULL-TIME, YEAR-ROUND WORKERS AS A PROPORTION OF THE AVERAGE EARNINGS OF HIGH SCHOOL GRADUATES BY EDUCATIONAL ATTAINMENT: 1975 TO 1999⁵



⁷ Based on statistics compiled on www.higheredinfo.org by the National Center for Higher Education Management Systems, or NCHEMS.

⁸ Basmat Parsad, and Laurie Lewis, *Remedial Education At Degree-Granting Postsecondary Institutions In Fall 2000*, NCES 2004-010, (Washington, DC: Institute for Education Sciences, U.S. Department of Education, November 2003).

⁹ Howard N. Fullerton, Jr., *Labor Force Projections To 2008: Steady Growth And Changing Composition*, *Monthly Labor Review*, Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics, November 1999), 19–32.

¹⁰ Jane Sneddon Little, and Robert K. Triest, *The Impact Of New Immigrants on Productivity*, paper presented at the Conference on Economic Impact of Demographic Change, July 12-14, 2001, (Boston, MA: Federal Reserve Bank of Boston, July 2001).

skilled workers are most in demand by employers.⁶

Some regions, such as those located near mountains or beaches, can attract knowledge workers by virtue of their natural assets. Most cannot. They have to “grow their own” talent. This is particularly a challenge for rural and depressed urban areas, where the absence of good jobs provides few incentives for residents to get an education. Yet, the low skill and education levels of the workforces in those areas constrain their ability to attract and retain good jobs.

Another concern for the many communities struggling to increase their ranks of adequately skilled workers for the new jobs being created is the convergence of a number of trends indicating that these communities soon will have difficulty just replacing the current knowledge workforce. The aging of the Baby Boom generation means that many knowledge workers now in the labor force are likely to retire in the not-too-distant future. There are ominous signs that too many of those entering the workforce do not have the qualifications

to replace the aging Boomers. Nationally, by some estimates, fewer than half of students who enter the 9th grade graduate from high school and enter postsecondary education soon thereafter, and many of those who do go on to postsecondary education are not academically prepared.⁷ More than a quarter (28 percent) of first-time college freshmen in fall 2000 took at least one remedial course.⁸ Among first-time community college freshmen, 42 percent took at least one remedial course.

The increasing diversity of the U.S. labor force presents another set of challenges. Though whites will remain the largest group in the nation’s workforce, other groups are growing at a much faster rate, with Hispanic workers now outnumbering blacks.⁹ As Hispanics and

blacks come to comprise a larger share of the workforce, failure to improve the overall educational attainment of these groups, which currently lags behind that of whites, will result in an economically damaging net loss of skills as the older, whiter workforce retires. Immigrants and their children are expected to make up more than half of the increase in the U.S. population over the next century.¹⁰ Because many of these immigrants will have relatively low levels of education, they may not be able to support the higher work productivity levels needed to sustain the living standards expected by the aging native population.

Taken together, these trends threaten the two factors arguably most critical to economic development: a working population capable of earning family-supporting wages, and a thriving, technology-intensive industry base. They portend a growing knowledge underclass, unable to participate fully as breadwinners, taxpayers and citizens, and continuing tight labor markets for skilled labor, which will hamper the efforts of communities to attract and retain high-wage employers.

If we are to avoid this fate, most regions of the U.S. and virtually every state will have to find ways to improve educational outcomes for both youth (the future workforce) and adults (the current workforce). Unfortunately, states and localities face this crisis with limited resources, thanks to the rising costs of health care, prisons and other services and voter resistance to tax increases. Public funding of postsecondary education is particularly vulnerable to budget cuts. Increasingly, education beyond high school is seen as a private good, with benefits accruing primarily to the individual student, rather than a public good like national defense, public health services or streets and highways.¹¹

¹¹ See, for example, Richard H. Mattoon, Higher Education And Economic Growth, Chicago Fed Letter, Number 222a (The Federal Reserve Bank of Chicago, January 2006).

¹² Robert J. LaLonde, The Promise Of Public Sector-Sponsored Training Programs, *Journal of Economic Perspectives*, Vol. 9, No. 2 (Spring, 1995), 149–168.

¹³ Sandy Baum and Kathleen Payea, *Education Pays 2004. The Benefits Of Higher Education For Individuals And Society*. (New York, NY: College Entrance Examination Board, 2004).

Given the importance of postsecondary education and training to the economic health of both individuals and regions, maximizing the return on the public's investment in education must be a top priority for policymakers. For this to happen, public education systems from primary to postsecondary will need to operate in greater harmony with workforce and economic development efforts. Colleges and universities must coordinate with K-12 systems to ensure that students complete high school prepared and motivated to be career-long learners. To help low-skill workers advance, policymakers need to better align education with welfare and other services for the poor.

The disconnects among the various systems for human capital development hurt not only individuals, particularly those from disadvantaged backgrounds, but also the communities, regions and states in which they live and work. (We briefly detail several of these disconnects on the next page.) The existing education system functions more like a sieve than a pipeline, since only an elite group of young people—most of them from better-educated and wealthier families—emerge from high school well prepared to enter and succeed in postsecondary learning in knowledge fields. The rest, to a greater or lesser extent, are at risk of falling through the cracks. Most education and training for adult workers goes to individuals already in jobs that pay well and offer opportunities for advancement. The “second chance” systems for adults with limited skills, such as adult literacy and job training programs, are generally not very effective in connecting participants to postsecondary education and careers.¹²

Because states and localities have primary responsibility for funding and governing education, social services, workforce and eco-

economic development, they hold considerable power to push for positive changes in how these systems work together. The stakes are high for them to find strategies that maximize the impact of these resources on labor market outcomes for individual residents and economic development for localities. And, since the social health of communities is strongly associated with the education levels of their residents,¹³ states and regions also have within their control a key mechanism for ensuring their social vitality.

¹⁴ Sometimes “customized training” or “business and industry” units within community colleges have strong, customer-oriented relationships with employers, but too often these units do not work in concert with college-credit departments and their offerings, which tend to be non-credit, do not readily lead to degrees.

DISCONNECTED SYSTEMS

The existing systems in the U.S. that prepare youth and adults for employment are generally characterized by numerous disconnects among programs at different levels and between programs and the labor market. Here are just a few examples:

- SECONDARY AND POSTSECONDARY CURRICULA typically are not aligned and few high school students are exposed to postsecondary education and careers in knowledge fields. The result is that too many students leave high school both unprepared and lacking clear direction for careers and postsecondary learning.
- NEITHER ADULT BASIC SKILLS PROGRAMS, which prepare adults to improve their basic skills and earn a GED, nor college remedial or “developmental” programs, which are intended to help students place into college-level math and English, adequately prepares students to succeed in postsecondary technical education.
- THE TRADITIONAL “SEAT TIME” MODEL for awarding academic credit and inflexible academic calendars make it difficult to respond flexibly to the learning needs and schedules of working adults and their employers. Colleges generally find it difficult to use non-credit programs to complement and connect with degree-credit programs.
- FUNDING FORMULAE BASED ON ENROLLMENTS make it difficult to sustain high-cost technical programs, particularly in a time of limited budgets and diminishing public support—even when such programs are essential for helping students achieve their career goals, meeting employers’ hiring and training needs, and promoting local economic development goals.
- POSTSECONDARY OCCUPATIONAL DEGREE PROGRAMS often lack strong mechanisms for building ongoing relationships with employers, which are essential for ensuring that programs are effective in preparing students for employment or job advancement.¹⁴
- FEW EDUCATIONAL INSTITUTIONS HAVE THE CAPACITY TO TRACK THE LABOR MARKET and further education outcomes of their students, and many of those that do so fail to use this information to improve outcomes for students.

These disconnects create barriers to educational and career advancement for students and others, and they lower the return on the public’s investment in education and other services.

CAREER PATHWAYS: A WAY TO MAKE THE PIECES FIT

¹⁵ Kevin M. Hollenbeck, and Wei-Jang Huang, *Net Impact And Benefit-Cost Estimates Of The Workforce Development System In Washington State*, Technical Report No. TR03-018 (Kalamazoo, MI; W.E. Upjohn Institute for Employment Research, July 2003) and Washington State Training and Education Coordinating Board, *Workforce Training Results 2002* (Olympia, WA; Author, March 2003). This analysis compared individuals who enrolled in community college occupational degree programs to individuals in the workforce who had similar demographic characteristics, but had not participated in training.

1.

What are career pathways?

In a growing number of regions around the country, local leaders are working to more closely coordinate publicly funded education, from primary through postsecondary levels, with social services and workforce and economic development programs to produce a better trained workforce and promote economic growth. Several states are actively supporting the efforts of these regional partnerships.

“Career pathways” is our term for a particular framework or approach by which regions can better align publicly supported systems and programs to build a knowledge-economy workforce customized to the needs of local labor markets. A career pathway is a series of connected education and training programs and support services that enable individuals to secure employment within a specific industry or occupational sector, and to advance over time to successively higher levels of education and employment in that sector. Each step on a career pathway is designed explicitly to prepare the participant for the next level of employment and education.

Career pathways target jobs in industries of importance to local economies. They are designed to create both avenues of advancement for current workers, jobseekers and new and future labor market entrants and a supply of qualified workers for local employers. As such, they also serve as a strategy for strengthening the “supply chains” that produce and keep a region’s knowledge workforce up to date.

This model, however, cannot be purchased off the shelf. The specific form and content of a career pathway will depend on the particular industries targeted, the requirements of employ-

ment and advancement in the target sectors, and the existing infrastructure for education and workforce development in those sectors.

Building a career pathway is a process of adapting existing programs and services, and adding new ones, to enable students to advance to successively higher levels of education and employment in the target sectors.

Where it is most effective, the career pathways process helps to transform institutions and organizations involved in education, workforce preparation and social services. The process strengthens cooperation among them in ways that improve their capacity individually and collectively to respond to the needs of local residents and employers.

Community colleges very often play a linchpin role in career pathways. Inexpensive, generally responsive to the needs of their communities, and geared toward providing education and training for individuals who lack the requisite basic skills for postsecondary learning, community colleges are well situated to serve both individuals seeking employment or job advancement and employers in need of qualified workers.

To the extent that they help local residents secure well-paying jobs and advance in their careers and assist local employers to hire, retain, and enhance the performance of their employees, community colleges serve as engines for the economic development of their communities. A rigorous study of the net impact on employment and quarterly earnings of nine programs in Washington State’s education and training system during the late 1990s found that community college occupational degree training has strong positive net impacts on employment, wages, hours worked and earnings, and that such training substantially increases the lifetime earnings of participants.¹⁵

The study estimated that the projected participant benefits to age 65 outweigh public costs by more than \$16 for every \$1 in public money invested in community college training.

The career pathways approach helps community colleges better integrate their various mission areas of workforce development, academic credentialing and transfer preparation and remediation. Students entering into adult literacy or college remedial coursework are more likely to advance to and succeed in college-level programs, and all students can benefit from stronger connections among levels of education and between education and the labor market. Pathways commonly feature community colleges working in partnership with other educational entities and with workforce and economic development agencies, as well as with employer and labor groups and social service providers.

Other common characteristics of career pathways include:

- Extensive reliance on data, from the initial step of selecting industries or occupations for targeting, through the work of identifying gaps in education and training for the target industries, to evaluating the effectiveness of efforts to improve educational attainment and economic advancement in those industries.
- “Road maps,” jointly produced by educators, workforce development professionals and employers, that show the connections between education and training programs and jobs at different levels within a given industry or occupational sector.
- Clear linkages between remedial, academic and occupational programs within educa-

KEY FEATURES OF CAREER PATHWAYS

- Target jobs in industries of importance to local economies
- Create avenues of advancement for current workers
- Increase supply of qualified workers in the target industries

tional institutions, and easy articulation of credits across institutions, to enable students to progress seamlessly from one level to the next and earn credentials while improving their career prospects and working within the field.

- Curricula defined in terms of competencies required for jobs and further education at the next level, and, where possible, tied to industry skill standards, certifications or licensing requirements.
- Emphasis on “learning by doing” through class projects, laboratories, simulations and internships.
- Programs offered at times and places (including workplaces) convenient for working adults and structured in small modules or “chunks,” each leading to a recognized credential.
- The flexibility to enter and exit education as participants’ circumstances permit.
- “Wrap-around” support services, including career assessment and counseling, case management, child care, financial aid and job placement.

¹⁶ For more information on bridge training programs, see Toni Henle, Davis Jenkins and Whitney Smith, *Bridges To Careers For Low-Skill Adults. A Program Development Guide* (Chicago, IL: Women Employed Institute: June 2005).

¹⁷ The Career and College Transitions Initiative (CCTI), working with regional partnerships and states across the country, is applying career pathways principles to increase the number of youth who are prepared to go on to postsecondary education and careers. See the CCTI website at www.league.org/league/projects/ccti/index.html <<http://www.league.org/league/projects/ccti/index.html>>. See also Katherine Hughes, Melinda M. Karp, et al., *Dual Enrollment/ Dual Credit: Its Role in Career Pathways*, in *Career Pathways: Education with a Purpose*. (Dan M. Hull, ed., Waco, Texas: CORD, 2005), 227-255.

¹⁸ For more information on the Elizabethtown, Kentucky, career pathways initiatives, contact Dr. Thelma J. White, president, or Ms. Beth Jefferson, director of grants and special projects, Elizabethtown Community and Technical College.

- Outreach to middle and high schools to prepare and motivate students, as early as possible in their schooling, for postsecondary education and careers.
- “Bridge programs” for educationally disadvantaged youths and adults that teach basic skills like communication, math and problem-solving in the context of training for advancement to better jobs and postsecondary training.¹⁶
- Blending of funding from both public and private sources, such as the Perkins Act, Workforce Investment Act (WIA), Temporary Assistance to Needy Families (TANF), state and federal financial aid and employer tuition reimbursement, and sharing of costs among partners, to provide needed education and support services in a cost-effective way.

The career pathways approach is equally applicable to preparing young people for careers in knowledge fields and enabling adults already in the workforce to secure knowledge jobs and advance in their careers. Table 1 provides a framework for rethinking primary and secondary education using the career pathway approach to achieve better postsecondary and career outcomes for students.¹⁷ Table 2 shows how the career pathway approach can be applied to enable adults at various levels of education and skill to enter knowledge jobs and advance in their careers. At each point along career pathways, the objective is not only to prepare youths and adults for the next levels of education and employment, but to motivate them to advance by exposing them to the opportunities available.

2.

Sample Career Pathways: Elizabethtown, KY¹⁸

THE NEED. Over the past five years, the area around Elizabethtown, Kentucky, has lost more than 4,000 manufacturing jobs in a community of fewer than 100,000 residents. This loss has had a profound impact on this rural area of south central Kentucky, which was already poor and plagued by very low educational attainment. Only eight percent of the adult population has a bachelor’s degree, and nearly four out of every ten working adults have very low levels of literacy. Many of those who lost their jobs in the recent plant closings had been out of school for 20 years or more.

In response to this crisis, Elizabethtown Community and Technical College (ECTC) joined forces with the local Workforce Investment Board (WIB) to seek ways to help residents, including those who have been recently displaced, find jobs that pay family-supporting wages. In October 2003, the Kentucky Community and Technical College System (KCTCS) office sponsored a conference on career pathways as a process that colleges can use to become more responsive to the needs of students and local communities. KCTCS offered grant funding to all 16 colleges in the system to work in conjunction with other local partners to build career pathways in their regions. ECTC and its partners used the guidance and funding from KCTCS to implement career pathways as one solution to the workforce challenge facing their community.

The partners agreed upfront to develop new programs and services only in response to documented demand from employers, and to discontinue programs once the need was met. The first area they identified was health care, and the college and WIB reached out to

TABLE 1: CAREER PATHWAY FRAMEWORK FOR YOUTH

GRADE LEVELS	OBJECTIVES	SAMPLE ACTIONS/PROGRAMS FOR ACHIEVING OBJECTIVES
Grades 11–12: Postsecondary Preparation & Career Planning	<ul style="list-style-type: none"> • All students are prepared and <i>motivated</i> for postsecondary education and training • Students enroll in postsecondary education <i>before</i> they graduate from high school • Students continue to learn about work through part-time and summer jobs—they are motivated to work hard in school and advance beyond low-wage, dead-end jobs 	<ul style="list-style-type: none"> • Advanced courses in math, science and technology—heavy use of labs and projects • Dual high school/college credit programs and/or Advanced Placement courses • Senior projects • College exposure, planning and placement assistance for all students • Career exposure through work site visits, guest speakers, job shadowing • Short-term, substantive student “internships” during school and summer • Part-time and summer jobs
Grades 7–10: Academic Foundation & Career Exploration	<ul style="list-style-type: none"> • Students begin to think about how their own skills and interests fit with potential careers • Students develop education plans that will lead them in the direction of their career interests • Students develop applied math, science and technology skills that are the foundation for career-long learning • Students learn about the world of work and develop strong work habits through part-time jobs 	<ul style="list-style-type: none"> • Foundation courses in math, science and technology—heavy use of labs and projects • Computer games and simulations • Class projects • Technology (e.g., robotics) competitions • Career exploration—guest speakers, work site visits
Grades 1–6: Technology Awareness	<ul style="list-style-type: none"> • Students learn how to use computers • Students use computers to enhance academic learning • Students become aware of technology in the world around them and how technology affects their lives 	<ul style="list-style-type: none"> • Hands-on technology projects • Computer games and simulations • Community learning activities

TABLE 2. FEATURES OF CAREER PATHWAY PROGRAMS FOR WORKING ADULTS

PROGRAM LEVEL	REQUIREMENTS TO ENTER	CONTENT/FEATURES
Baccalaureate	<ul style="list-style-type: none"> • H. S. diploma or GED • Associate degree or equivalent (for community college transfer students) • Pass college placement exams 	<ul style="list-style-type: none"> • Advanced technical fundamentals • General education core • Project learning • Career exposure/planning • Internships/cooperative education
Associate Degree	<ul style="list-style-type: none"> • Pass college placement exams • 10th grade or higher reading • H. S. diploma or GED (to complete) 	<ul style="list-style-type: none"> • Applied technical fundamentals • General education core • Project learning • Career exposure/planning • Internships/cooperative education
Advanced Certificate	<ul style="list-style-type: none"> • Pass college entrance exams • 10th grade or higher reading + math • H. S. diploma or GED (to complete) 	<ul style="list-style-type: none"> • Applied technical fundamentals • Project learning • Industry exposure/career planning • Career success skills • Intensive GED
Intensive GED	<ul style="list-style-type: none"> • 8th grade or higher reading + math • Desire to earn GED 	<ul style="list-style-type: none"> • Assessment to target weaknesses • Intensive tutoring and computer-assisted learning focused on weaknesses • GED writing skills • Test-taking strategies
Sector-Specific Career Bridge	<ul style="list-style-type: none"> • 7th-8th grade reading and math • Stable work history • Demonstrated motivation • Drug free • Desire to enter specific field 	<ul style="list-style-type: none"> • Applied communication + math + problem-solving + computers • Technical fundamentals (sector-specific) • Career/college planning (sector-specific) • Job shadowing and internships • Career/college success skills • Test taking skills • Computer-assisted basic skills instruction • Job + college placement assistance
Career Bridge	<ul style="list-style-type: none"> • 6th grade or higher reading (native English speakers) or low-intermediate ESL • Stable work history • Desire to pursue postsecondary training, but unsure of field 	<ul style="list-style-type: none"> • Applied communication + math + problem-solving + computers • Career/college planning • Career/college success skills • Test-taking skills • Computer-assisted basic skills instruction • College placement assistance

local hospitals and other employers for help in developing career pathways. The result is an initiative the partners call NorthStar Health Careers. Rather than focus on one particular career pathway such as nursing, Northstar is designed to address the full range of local healthcare employment needs.

PROGRAMS. The focal point for the initiative is the NorthStar Health Education & Career Center, which the partners opened in 2005 at Hardin Memorial Hospital in Elizabethtown. The center, which is open to the public, provides career information and referrals to ECTC's education and training programs, as well as all of the services offered by One-Stop Career Centers in the region. The partners signed a memorandum of understanding specifying what each would contribute to the initiative, including help staffing the center and advertising its services to employer associations, the local P-16 council and other groups, and the general public.

NorthStar's first offering was an associate degree program in respiratory therapy. Though ECTC did not have a respiratory program, the partnership was able to use faculty from the accredited program at Jefferson Community and Technical College in Louisville. Each partner made additional contributions as well: Hardin Memorial Hospital equipped and refurbished a teaching laboratory, funded a laboratory instructional specialist and part-time clinical instructors, and agreed to cover tuition and fees for its employees who wanted to enter the training in exchange for two years of service. The WIB provided funds for marketing and a mobile computer laboratory for students, and used WIA vouchers to fund tuition for students who did not qualify for financial aid. The college made its interactive TV mobile unit available to broadcast lectures by the

Jefferson CTC faculty from Louisville, which is 45 miles from Elizabethtown.

Thirteen students enrolled in the initial class in fall 2005. They varied in age and background. Some of these were hospital employees seeking to move up, others had been laid off from factory jobs and were training to "retool" themselves for the healthcare industry, and still others sought to move into healthcare from jobs in other industries. Twelve of the thirteen students completed the first semester and continued to the second one. Reports from both faculty and students indicated great enthusiasm for the program, undiminished even by the "remote" broadcast of the lectures—in fact, the Elizabethtown students had a higher grade point average than did those in live classrooms at Jefferson. Area hospitals are already contacting the college to ask when the current students will graduate and how many more will be enrolling. The partners have decided to run one more class of the program and then assess whether demand for it remains strong. If not, they will shut the program down and redirect their resources to programs in career areas with greater demand and opportunities.

In addition to the respiratory therapy program, ECTC has developed and offered a number of short-term programs to address training needs of incumbent workers at the hospital and provide lower-level workers with the skills they need to advance and the confidence to succeed in further education. These include a 12-hour "fast-track" medical terminology course for hospital clerical employees interested in switching to clinical work, and a 52-hour security officer training program that is team-taught by ECTC trainers, hospital security managers and state police training program instructors from Eastern Kentucky

University. Hospital officials claim that several workers have advanced to other positions after taking these courses.

A key objective of the next phase of the NorthStar initiative will be to better connect middle and high school students to postsecondary education and careers in healthcare. The partners are working with the local P-16 council and plan to use funds from a GearUp grant to bring high school students to the NorthStar center and ECTC for activities designed to expose them to postsecondary education and careers in allied health.

Building on their success in healthcare, the partners have begun to develop a second career pathway in transportation. As with healthcare, this effort is in response to a direct employer need. In 2005, the Kentucky Transportation Cabinet approached ECTC and the local WIB with a request to train workers for the agency, which expects that as much as a third of its workforce will retire by 2008. To help the Cabinet increase the racial and ethnic diversity of its workforce, the college and WIB partnered the racial and ethnic diversity of the Cabinet's workforce as well as train replacements, the college and WIB partnered with the local adult basic education provider and a minority local church to develop the pathway.

The pathway they designed consists of four tiers. See Figure 1.

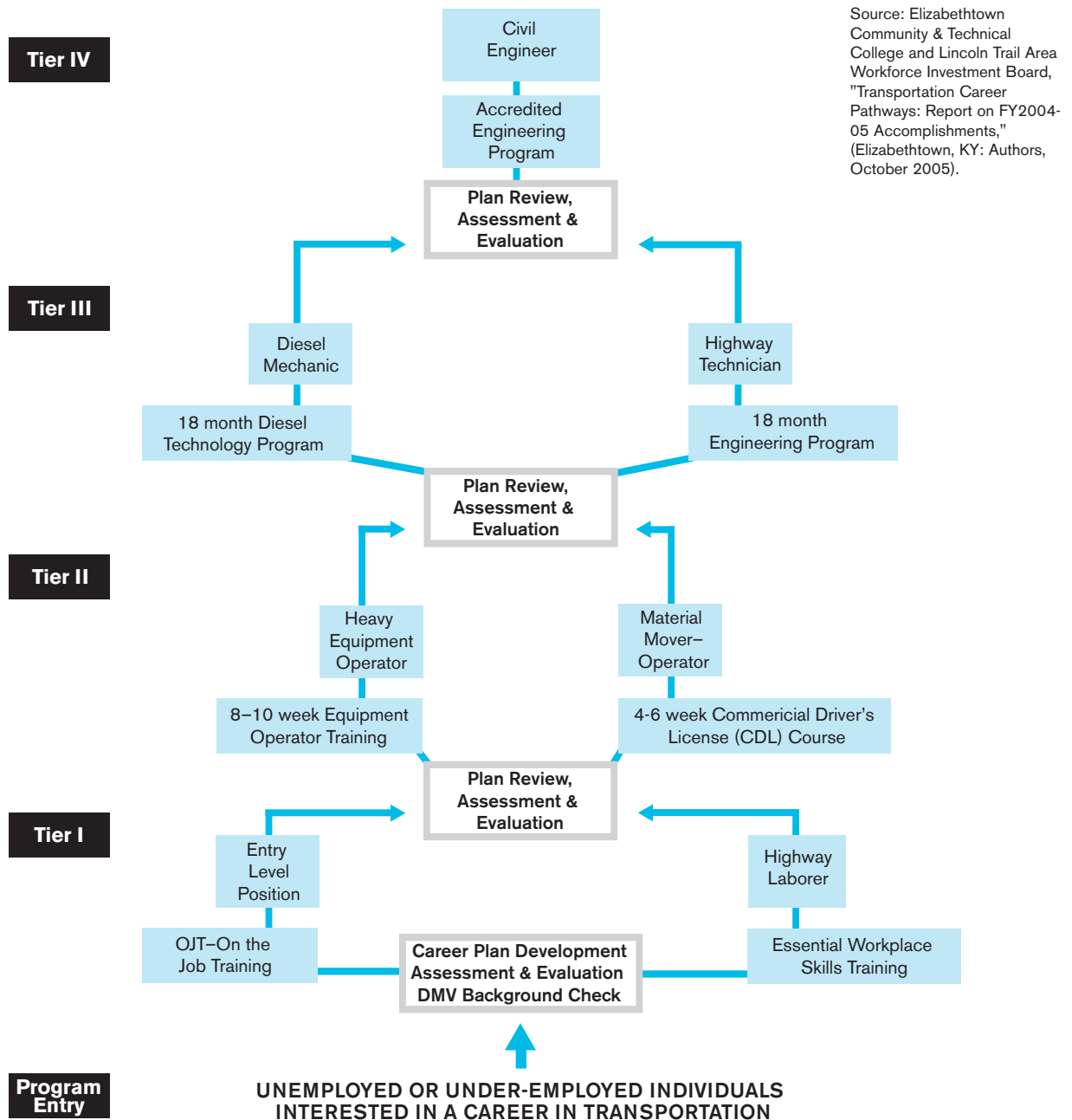
- TIER 1: Prepares individuals with limited education for jobs as highway laborers, which pay \$9.00-\$12.00 per hour. Services include a comprehensive assessment, interview, background check and creation of a career and learning plan. Individuals who do not qualify for immediate placement into these jobs through a WIA on-the-job training (OJT) arrangement begin a 16-week

essential workplace skills training program that includes instruction in workplace success skills, basic road building skills, CPR and safety. The program also can serve as a bridge to the University of Kentucky's Roads Scholar Program, which provides basic training in personnel management, safety and road surface management.

- TIER 2: Prepares individuals with the requisite basic skills to earn a Commercial Driver's License (CDL). Individuals who earn or already have a CDL qualify for an eight-week course in heavy equipment operation. Commercial truck drivers and heavy equipment operators earn \$11.00-\$14.00 per hour.
- TIER 3: 18-month diploma programs in diesel mechanics or highway traffic technology, leading to jobs as a diesel mechanic or level 1 high traffic technician. Workers in these sorts of positions make \$13.00-\$17.00 per hour.
- TIER 4: Bachelor's degree program in civil engineering. Entry-level civil engineers earn salaries of \$30,000 or more per year.

In fall 2005, ECTC and its partners launched the Tier 1 program in under four months, with nineteen students completing assessment and training. Thirteen of them found jobs, seven are enrolled in the Tier 2 CDL program and five are in the Tier 3 diploma programs. Thirty students began Tier 1 training in February 2006. Anticipating higher demand for engineers as Kentucky moves forward with planned public works projects, the college president wants to build articulation agreements with the University of Kentucky and possibly other schools to enable the college's students to pursue bachelor's degrees in civil engineering.

FIGURE 1 ELIZABETHTOWN COMMUNITY & TECHNICAL COLLEGE TRANSPORTATION PATHWAY LADDER



ECTC and the WIB have raised \$950,000 thus far from state and federal sources to support the development of the transportation pathway. Funding from the Federal Highway Administration will allow the partners to offer the program in nearby Maysville and Covington, and they expect to secure funds to expand the program state-wide. This shows how the career pathway approach can help attract resources for workforce development, even in an economically distressed area like Elizabethtown.

LESSONS. Through their initial experience building career pathways in healthcare and transportation, the college and its partners have become adept at the process. Perhaps most important to their success is the strong working relationship they have developed. Each partner's role is defined by what it does best, allowing for more efficient use of the region's limited resources for workforce and economic development. With a clear understanding of each others' roles, the partners are able to respond quickly as needs and opportunities arise.

The partners also share a vision of what multi-level career pathways should look like. One college staff person states, "Whenever employers ask us to do training, we now think of the different tiers." As in Elizabethtown's transportation initiative, the first tier prepares educationally and economically disadvantaged individuals for semi-skilled jobs paying well above minimum wage, and it includes academic skills assessment, career exploration and planning, and training in workplace success skills. The second tier generally involves relatively short-term certificate programs that lead to more skilled and better paying jobs. The third tier consists of diploma or associate degree programs that prepare for technician

positions. At the fourth tier are bachelor's degree programs leading to professional jobs.

As is often the case in successful career pathway projects, the community college is a key partner. "The career pathway approach is becoming part of the fabric of the institution," an ECTC staff person reports. Through the career pathway work, the college's non-credit customized training division staff and credit academic faculty now work more closely together than in the past. The involvement by credit faculty helps to ensure that the college's degree programs meet ongoing labor market needs. The non-credit side is ready to provide customized training to meet immediate needs. The college's president says that the faculty understands and supports the career pathways vision. "They see that this is about moving students up the ladder."

3.

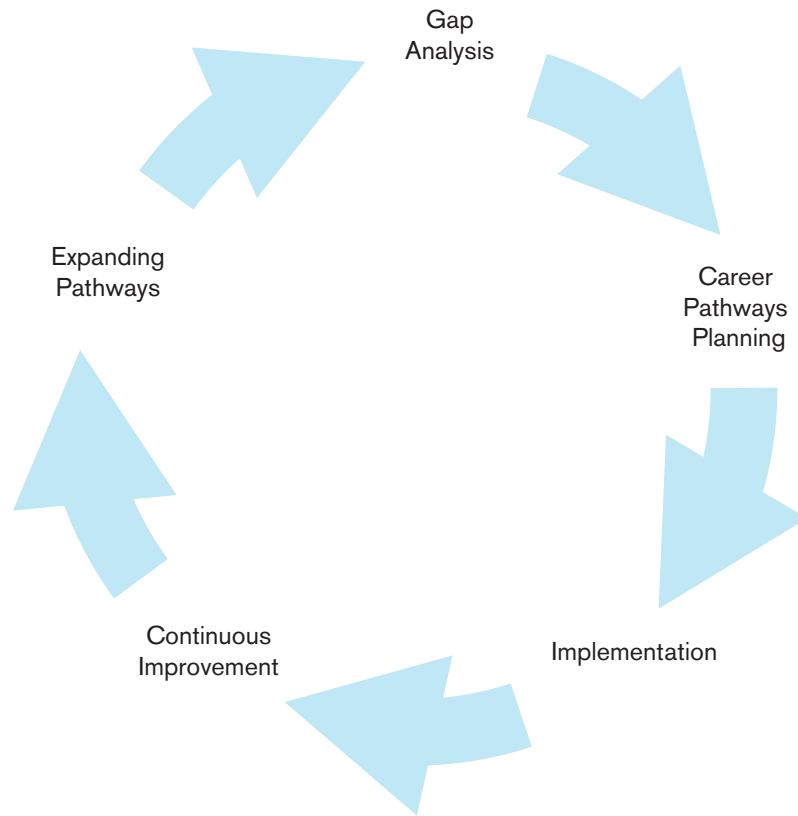
Overview of the process

Based on our work with regional coalitions and states across the country, Workforce Strategy Center has developed the following multi-stage process for building career pathways. Broadly speaking, we might characterize these five steps as Analysis, Planning, Implementation, Improvement and Expansion.

Stage 1. Target industries and job titles that will support individual advancement and regional growth objectives, and conduct a gap analysis

- 1.1 Analyze the current and projected supply and demand for labor in the region, identifying industries that offer high-paying jobs with opportunities for advancement
- 1.2 Assess the strengths, weaknesses and

FIGURE 2: THE CAREER PATHWAYS CONTINUOUS PROCESS



- gaps in current workforce programs and services for the target sectors
- 1.3 Consider the return on potential investment of public workforce development funds in each sector

Stage 2. Form a partnership to develop a career pathways plan

- 2.1 Organize partners, including education and training providers, employers, workforce and economic development and

- social service entities, to develop the plan
- 2.2 Involve employers in mapping the structure of jobs, job requirements and advancement pathways in target industry sectors
- 2.3 Rethink partner programs and services to support career entry and advancement in the target sector
- 2.4 Identify costs and develop funding a strategy
- 2.5 Develop a strategic engagement and communications plan to build broad-

based support for the career pathways vision and goals

- 2.6 Organize systems for data collection and management

Stage 3. Implement the plan

- 3.1 Establish MOUs specifying the roles, commitments and contributions of each partner, including employers
- 3.2 Coordinate the work of the partners, including curriculum development, recruitment and assessment of participants, training and support service delivery, work experience and job development, and data management

Stage 4. Evaluate and continuously improve pathway programs and services

- 4.1 Conduct regular in-process reviews
- 4.2 Track the employment and further education outcomes of participants at each level
- 4.3 Make adjustments based on evidence of program effectiveness and impacts
- 4.4 Regularly reevaluate the mission, vision and goals

Stage 5. Expand the pathways process to other key sectors, regions, and populations

- 5.1 Apply the pathways model to additional populations and/or sub-regions, expanding the partnership to include other organizations as needed
- 5.2 Replicate the pathways process in other sectors of importance to the regional economy

The figure on the next page shows how these five stages, when taken together, create

a continuous process of assessing the career opportunities afforded by the local economy now and in the future, revamping existing programs and services to enable residents to seize those opportunities, and evaluating the outcomes in order to make further improvements in practice.

4.

Career pathways and other models compared

The career pathways approach shares the objectives of certain other efforts to reform local systems of education and workforce preparation. In our view, the pathway model offers a more holistic approach, accommodating both youth and adult workers and serving jobseekers, workers, businesses and communities rather than just one or two stakeholder groups. As such, career pathways can provide a framework for strengthening existing efforts and better connecting them to maximize their impact. Here is how the career pathways model compares to other approaches to aligning education and career preparation resources with labor market needs.

TECH PREP. For nearly twenty years, the federal government and states have funded Tech Prep, a program model that seeks to help high school vocational students advance into community college occupational certificate or degree programs by better aligning curricula between the two levels. Tech Prep programs are often organized through consortia of high schools, community colleges and workforce agencies.

Tech Prep is aimed at the “emerging workforce”—young people entering postsecondary education and employment after high school—rather than incumbent workers. Though Tech Prep efforts have helped coordinate and align

19 Dan M. Hull, *Career Pathways: The Next Generation of Tech Prep* (Waco, Texas: National Tech Prep Network, 2004).

20 Dan M. Hull, editor, *Career Pathways: Education with a Purpose* (Waco, Texas: CORD, 2005).

high school and community college curricula, too often they are not strongly connected to career-path jobs and education at the baccalaureate level. However, a new model of Tech Prep is emerging that starts with the requirements of career-path employment and designs or redesigns postsecondary and secondary curricula and instruction on that basis, thus ensuring strong linkages to jobs and careers. This new model is entirely consistent with the career pathways framework we present in this paper. In fact, a 2004 book by Dan Hull, a pioneer of the Tech Prep model, is titled *Career Pathways: The Next Generation of Tech Prep*.¹⁹ An even more recent volume edited by Dan Hull titled, *Career Pathways: Education with a Purpose*,²⁰ provides additional perspectives and rich examples of how the career pathways model can help improve preparation of high school students for postsecondary education and careers.

P-16 PARTNERSHIPS. A growing number of “P-16” educational partnerships across the country are seeking to create stronger alignment from pre-school through postsecondary instruction to help students progress more readily from one level of education to the next. Like Tech Prep, P-16 initiatives emphasize curriculum alignment. Unlike Tech Prep, P-16 efforts seek to improve articulation across academic programs leading to degrees, with little focus on labor market outcomes. Career pathways differ from P-16 partnerships in that they help participants pursue both educational and occupational advancement while P-16 seeks to create more seamless educational transitions for the primary purpose of helping students enter and succeed in college.

REGIONAL SKILLS ALLIANCES AND INDUSTRY CLUSTERS. A more explicit strategy for meeting labor market needs is the formation of regional

skills alliances, consortia that include employers, educational institutions, and workforce and economic development agencies. Within these alliances, partners work together to address labor shortages in particular industries. Another demand-driven approach, known as industry clusters, consists of geographic concentrations of employers within one industry or sector that might share markets, suppliers and sources of labor. Both the regional skills alliance and industry cluster models facilitate partnerships to address shared workforce needs. But where skills alliances and industry clusters are generally geared toward meeting employer needs, the career pathways approach seeks to address the needs of both employers and current or future workers. These other efforts tend to focus on skilled or technical positions where demand is high and generally do not attempt to prepare youths or disadvantaged adults to qualify for the jobs in demand.

5.

Potential benefits and limitations of career pathways

Career pathways offer a number of potential benefits for the various partners involved. For community colleges and other postsecondary educational institutions, career pathways provide a means of improving enrollment, completion and job placement outcomes. For K-12 schools, community groups and social service agencies, career pathways can help youth and disadvantaged adults get on track toward postsecondary education and careers. For workforce and economic development agencies, career pathways provide a means of making better use of the publicly supported education infrastructure to help residents advance and to respond to the needs of employers in sectors of

²¹ Some analysts have argued that, absent efforts to change the structure of jobs in industries that rely on large numbers of low-wage, low-skill workers, career pathways efforts to educate low-skill workers will not by themselves reduce the proportion of workers stuck in low-wage jobs. See, for example, Pablo A. Mitnik, and Matthew Zeidenberg, *From Bad To Good Jobs? An Analysis of the Prospects for Career Ladders in the Service Industries* (Madison, WI: Center on Wisconsin Strategies, September 2004). This increases the importance of focusing career pathway efforts on industries that offer decent pay and job advancement opportunities to individuals who lack extensive education.

importance to the local economy.

Career pathways are probably most readily developed in regions with growing economies and industries in which there is strong demand for labor. However, we also believe that career pathways can be viable in depressed economies, particularly when they seek to prepare residents for the middle class jobs that do exist in such areas—for example in schools, hospitals and government agencies. The Elizabethtown, Kentucky, career pathways initiatives described earlier illustrate how a rural area that recently suffered a series of devastating factory closures can use the pathway approach to better prepare residents for family-supporting jobs in health-care, transportation and other fields where good employment opportunities remain.²¹

Despite their promise, career pathways are no panacea. Improving education for employment will not by itself guarantee that high-paying, career-path jobs will be there for graduates. Policymakers must complement career pathways with concerted efforts to retain and grow existing good jobs and attract new ones.

Career pathways also carry added costs and sometimes daunting management challenges. The process encourages the partner organizations involved to pool resources toward the common goals of individual and regional advancement. But convening and coordinating multiple partners requires funding that is often above and beyond the operational funds that flow to educational institutions and others typically involved in pathways efforts.

Moreover, career pathways require substantial changes in the way every partner operates. Changing organizational practice is rarely easy to do, especially when each partner is responding to a different set of funding requirements and incentives that may not be aligned with the overriding goals of career pathways. Small

employers, large employers, educational institutions, government agencies and community-based service providers all bring distinct perspectives; while they may share the goals that drew them to the pathway process, those differences in outlook can lead to misunderstandings and conflicts.

Given the limitations and added costs of career pathways, why bother? One reason is that educational institutions and other publicly funded entities now face growing pressure from policymakers and the public to be accountable for outcomes. Accreditation agencies are increasingly seeking evidence from colleges that their students, including those who arrive unprepared for postsecondary education, are learning and succeeding. Career pathways provide a means for schools to meet rising expectations for performance and outcomes.

In the final analysis, it comes down to our mission as educators and human services, workforce and economic development professionals. If our students and clients are to thrive in the face of globalization and technological advances, they need ready access to postsecondary education and training that is connected to careers in knowledge fields. And increasing postsecondary attainment in fields of local economic importance is a pressing economic and social need in most communities.

We know that the status quo does not serve these ends as well as it could. Career pathways provide a framework and process for improving the outcomes of our publicly supported systems for education, workforce development and social services by aligning their resources and energies toward the common goals of individual career advancement and regional economic development. In doing so, they help increase the return on the public's investment in human capital development.

MOVING FORWARD: OPPORTUNITIES AND CHALLENGES

Policymakers in a growing number of states and localities and at the federal level are using the career pathways approach to address the imperative to build a knowledge workforce despite shrinking public resources. Statewide career pathway initiatives are underway in Arkansas, Kentucky, Massachusetts, Ohio, Oregon and Washington State. Regions as diverse as Madison, Wisconsin, New York City, San Diego and St. Louis are also building career pathways.

A number of private foundations, including The Ford Foundation, KnowledgeWorks Foundation (Ohio), The Annie E. Casey Foundation and The Joyce Foundation are funding career pathways as a strategy for helping low-wage workers and other disadvantaged populations advance up the educational and economic ladder. At the federal level, the U.S. Department of Education is supporting the League for Innovation in the Community College's Career and College Transitions Initiative (CCTI), which is using career pathways to strengthen the transition to postsecondary education and careers for youth. The Departments of Education and Labor are collaborating on Strategic Partnerships for a Competitive Workforce, a series of institutes designed to promote the career pathways approach.

These vanguard initiatives are starting to yield lessons for others seeking to build career pathways. The most promising efforts focus on transforming institutions and systems and leveraging partnerships rather than creating boutique programs. Because of this, high-level leadership at the institutional, regional and

state levels is critical to institutionalizing and sustaining the career pathways process. Creating the infrastructure for career pathways takes a long time and involves extensive planning and relationship building. Effective initiatives have sought to achieve early successes by capitalizing on existing program strengths and addressing priority needs, and then build on the working relationships and enthusiasm generated through the early "wins." The Elizabethtown, Kentucky, pathways initiatives described earlier are a good example of this strategy.

The early adopters of career pathways are also confronting some common challenges. Not surprisingly, one challenge is bringing about fundamental changes in how the key partner organizations and agencies operate. Experience suggests that building relationships with external partners is often easier than changing internal operations. For example, it is often very difficult for community colleges to engage their academic program faculties in career pathways efforts. Involving faculty who teach college remedial or "devel-

opmental” courses, as well as general education programs, is essential if colleges hope to increase opportunities for students to earn degrees as well as build skills. Therefore, career pathways initiatives need to consider what sorts of incentives might persuade faculty to take part. Related to this is the long-standing need to strengthen baccalaureate opportunities for community college students, particularly those in occupational programs. No one has figured out how to connect pathways for youth entering college soon after high school with those for returning adults, although Kentucky and Oregon, among others, are working on this.

A second challenge is working effectively with employers. One specific issue is how to tap into the resources that employers can contribute to pathways. Few pathways efforts have done enough to capitalize on employer tuition reimbursement as a means of covering the costs of participation by employed students. Some colleges have been proactive in negotiating tuition arrangements with employers that provide incentives for employees to pursue education and training. This is an area where local and state leaders, working with business groups, could educate employers on the potential benefits for themselves and their communities of thinking in a more strategic way about how they invest in the education and training of their employees.

A third challenge is tracking individuals as they progress along career pathways. A substantial number of states can track students through public postsecondary education and into the labor markets, although Florida may be the only state that can readily track students from primary and secondary grades into postsecondary education. States and localities are only beginning to use longitudinal data on students' educational and labor market

progress and outcomes to inform improvements in practice and policy.

Workforce Strategy Center is writing a guide to developing and implementing career pathways for practitioners and state agencies that will explore in greater detail how localities and states are grappling with these challenges and what they are learning in the process. WSC is also developing a paper on how state policies can be rethought to support pathway development. We plan to release both of these publications, as well as a web-based interactive resource available to the public, by summer 2006.