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THE PROMISE OF CAREER PATHWAYS SYSTEMS CHANGE

WHAT ROLE SHOULD WORKFORCE INVESTMENT SYSTEMS PLAY?
WHAT BENEFITS WILL RESULT?

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BACKGROUND

In fall 2009, the U.S. Department of Labor's Employment and Training Administration convened a working group on Adult Learning Strategies to identify proven and innovative practices for helping jobseekers and workers attain the industry-recognized, postsecondary credentials that are increasingly needed for high-demand, family-sustaining jobs and careers. The workgroup included officials from the Employment and Training Administration (ETA), the Office of Adult and Vocational Education (OVAE) at the Department of Education, and outside experts who would determine a strategy for: collecting and documenting lessons learned; sharing this information with system stakeholders; and using the findings for future decision making on federal workforce-related education and training policies and programs.

Beginning in spring 2010, a series of discussion forums took place around the country. Jane Oates, Assistant Secretary of the Employment and Training Administration, and Brenda Dann-Messier, Assistant Secretary of the Office of Vocational and Adult Education, engaged with experts and discussed commissioned papers examining the nation's arsenal of workforce development strategies. These forums looked at the development and implementation of career pathways for low-skilled adults, successful strategies for meeting the needs of workers in transition, and successful strategies for increasing the attainment of industry-recognized postsecondary credentials. Combined, the forums and the research that went into their development yielded useful and consistent findings—identifying proven and innovative practices for helping Americans attain the skills and credentials needed for the attainment of and advancement in high-demand careers.

The identification of successful strategies and initiatives, along with the challenges encountered in undertaking them, were documented to inform practitioners as well as policymakers (Acosta & Clagett 2011). The forums also informed administrative policies, guidance, and the subsequent Career Pathways Technical Assistance Initiative and Institutes carried out jointly by ETA, OVAE, and the Department of Health and Human Services in support of career pathways development in nine states and two Native-American communities.

This paper is part of that career pathways technical assistance effort. Prepared by Jobs for the Future, the paper focuses on the various roles and actions that Workforce Investment Act (WIA) systems, including state and local Workforce Investment Boards, One-Stop Career Centers, and service providers, can undertake with other system partners in the development and implementation of successful career pathways systems. It supplements the *Career Pathways Toolkit* developed by Social Policy Research Associates for the Department of Labor as part of the broader technical

assistance initiative, providing examples of workforce systems that are involved in career pathways activities.

ABOUT JOBS FOR THE FUTURE

Jobs for the Future identifies, develops, and promotes new education and workforce strategies that help communities, states, and the nation compete in a global economy. In more than 200 communities across 43 states, JFF improves the pathways leading from high school to college to family-sustaining careers.

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EXECUTIVE SUMMARY

A promising strategy has emerged to help individuals of all skill levels—and particularly those who are low-skilled—to pursue, progress through and complete the education and training they need to attain industry-recognized credentials and family-sustaining employment.

Career Pathways align major education, training, and workforce development programs to meet the skill needs of students, jobseekers, and workers; and the skill requirements of employers in high-demand industries and occupations.

For workforce systems and Workforce Investment Boards in particular, career pathways provide a valuable strategy for organizing and improving the effectiveness of education and training:

- Raising skill levels, credential attainment, employment, and career advancement for all students, jobseekers, and workers, but particularly for low-skilled populations;
- Boosting the effectiveness and relevance of education and training;
- Meeting employers' needs for skilled workers, spurring productivity and economic growth of businesses, industries, and regions; and

What Are Career Pathways?

Career pathways offer a clear sequence of education and training courses and credentials that are built around:

Sector Strategies aligned with the skill needs of industry sectors important to state and regional economies, where employers are actively engaged in determining skill requirements for employment and career progression in high-demand occupations.

Stackable Educational/Training Options that include secondary, adult, and postsecondary education and training that is arranged or “chunked” in a non-duplicative progression of courses, clearly articulating one level of instruction to the next. They provide opportunities to earn postsecondary credits and postsecondary credentials that have labor market value.

Contextualized Learning focused on curricula and instructional strategies that make work a central context for learning and help students attain work-readiness skills.

Accelerated/Integrated Education and Training combining adult education with postsecondary technical training, giving credit for prior learning, and adopting other strategies that accelerate educational and career advancement of participants.

Industry-recognized Credentials leading to the attainment of industry-recognized degrees or credentials that have value in the labor market.

Multiple Entry and Exit Points enabling workers of varying education and skill levels to enter or advance in a specific sector or occupational field.

Intensive Wraparound Services incorporating academic and career counseling and wraparound support services (particularly at points of transition), and the development of individual career plans.

Designs for Working Learners to meet the needs of adults and nontraditional students who often need to combine work and study, providing child care services and accommodating work schedules with flexible and non-semester-based scheduling, alternative class times and locations, and innovative uses of technology.

- Building a comprehensive, coherent workforce development system.

The design and implementation of effective career pathways systems requires the ongoing participation of all key state and local partners and stakeholders in such efforts. In many instances, Workforce Investment Boards are ideally situated to take up a leadership role for pulling system partners and stakeholders together and certainly for ensuring that career pathways are geared to the needs of the labor market, of high-demand industry sectors, and to employers in those industries important to the state and regional economies. Regardless of who takes on the responsibility for leading the career pathways effort (as other entities or intermediaries may be better positioned to take on the day-to-day management and coordination role), workforce systems should be integrally involved in planning for and carrying out career pathways systems change:

- Collecting, analyzing, and sharing labor market information;
- Providing skills assessments, skills matching, and career navigation functions, including the identification of skills gaps where training is needed;
- Providing counseling and support services;
- Providing access to and funding for training; and
- Providing job search assistance.

There are also more strategic functions that Workforce Investment Boards can perform in the development and implementation of career pathways systems:

- Providing support for research, development, and capacity building;
- Convening or assisting in the convening of key program partners;
- Using labor market information to identify high-demand employers and industry sectors in the state or region;
- Facilitating or convening sector partnerships;
- Working with partners to identify a common vision, mission, and goals;
- Sharing existing community asset audits or participating in such audits;
- Comparing the skills requirements of employers to the education and skills levels of the population, and identifying skills gaps;
- Collaborating with other partners to assess the region's education and training capacity;
- Coordinating with partners on career navigation and support services;
- Helping to identify and pursue leveraged funding and partnerships; and
- Continuously reaching out to community stakeholders, including employers, to build support for the career pathways system and initiatives.

In many states and local workforce areas, strategic Workforce Investment Boards already carry out these roles and responsibilities. Board members' expertise and stature should be utilized fully in support of career pathways systems change and initiatives.

This paper, prepared by Jobs for the Future, supplements the *Career Pathways Toolkit* developed by Social Policy Research Associates as part of the U.S. Department of Labor's Career Pathways Technical Assistance Initiative. The paper specifically focuses on the roles that workforce systems can play in carrying out career pathways systems development and implementation. Combined with the Toolkit, we hope that the paper will help those states and local workforce investment systems that want to become involved in or expand their work in this very promising systems change effort.

INTRODUCTION

In recent years, a promising strategy has emerged to help individuals of all skill levels—and particularly those who are low-skilled—to pursue, progress through, and complete the education and training they need to attain industry-recognized credentials and family-sustaining employment. **Career Pathways** initiatives seek to do this by aligning adult education, postsecondary education and training (degree and non-degree technical certificate programs), workforce development, supportive services, and economic development in ways that not only meet the needs of students, jobseekers, and workers but also the skill requirements of employers in high-demand industries and occupations.

While the idea of assisting individuals along a pathway toward credential and career attainment is not new, few places in the country have the systemic reforms in place that are necessary to reap the benefits of this strategy fully, let alone to take it to a large scale. The design and implementation of comprehensive and effective career pathways systems require the sustained participation of a diverse set of state and local stakeholders from both the public and private sectors.

While a good deal has been written about the roles of adult and postsecondary education institutions in career pathways strategies, very little has been written about the workforce investment system's role and potential in this effort, despite the fact that most WIA reauthorization and reform discussions assume a central role for the workforce system in carrying out career pathways in the future. This paper, prepared by Jobs for the Future, focuses on the various roles and actions that WIA systems, including state and local Workforce Investment Boards, One-Stop Career Centers, and service providers can undertake with other system partners in developing and implementing career pathways systems.

Specifically, this paper supplements the *Career Pathways Toolkit* developed by Social Policy Research Associates as part of the U.S. Department of Labor's Career Pathways Technical Assistance Initiative. The *Career Pathways Toolkit* offers a guide for partners, practitioners, and policymakers to use in developing and implementing career pathway systems at the state and local levels. It details a framework for establishing these systems and initiatives, identifying Six Key Elements that states and communities should carry out if they choose to develop and implement career pathways systems change (Larsen et al. 2011). This paper further highlights best practices and provides tools *designed to identify the role that state and local workforce investment systems can play in this effort.*¹ The Career Pathways Toolkit can be accessed at:

<https://learnwork.workforce3one.org/view/2001135442016073646/info>.

This paper references the *Career Pathways Toolkit* throughout, providing suggestions for workforce system involvement in career pathways development and implementation along the way. In the context of the Six Key Elements, this paper:

- Provides examples of state and local workforce investment systems that are centrally involved in the development of career pathways in their states and regions;
- Discusses the benefits for workforce boards that can come from such investment, and the value of having workforce systems at the table; and
- Describes specific investments of resources, time, and leadership by state and local workforce boards.

DEFINING CAREER PATHWAYS AND THE SIX KEY ELEMENTS TO SYSTEM DEVELOPMENT

What Are Career Pathways?

Career pathways systems offer a clear sequence of education coursework and/or training credentials aligned with employer-validated work-readiness standards and competencies. Career pathways feature the following characteristics:

- **Sector Strategies:** Career pathways education and training aligns with the *skill needs of industries important to the regional or state economies* in which they are located. They actively engage employers in targeted industry sectors in determining the skill requirements for employment or career progression in high-demand occupations.
- **Stackable Educational/Training Options:** Career pathway systems include the full range of secondary, adult education, and postsecondary education programs, including registered apprenticeships; they *use a non-duplicative progression of courses clearly articulated from one level of instruction to the next. They provide opportunities to earn postsecondary credits. And they lead to industry-recognized and/or postsecondary credentials.*
- **Contextualized Learning:** Career pathways education and training focuses on curricula and *instructional strategies that make work a central context for learning* and help students attain work-readiness skills.
- **Accelerated/Integrated Education and Training:** As appropriate for the individual, career pathways systems combine occupational skills training with adult education services, give credit for prior learning, and adopt other *strategies that accelerate the educational and career advancement* of the participant.
- **Industry-recognized Credentials:** Effective career pathways lead to the attainment of industry-recognized degrees or credentials that have value in the labor market.
- **Multiple Entry and Exit Points:** Career pathways systems enable workers of varying skill levels to enter or advance within a specific sector or occupational field.
- **Intensive Wraparound Services:** Career pathways systems *incorporate academic and career counseling and wraparound support services* (particularly at points of transition), and they support the development of individual career plans.

- **Designed for Working Learners:** Career pathways are designed to meet the needs of adults and nontraditional students who often need to combine work and study. They provide childcare services and accommodate work schedules with flexible and non-semester-based scheduling, alternative class times and locations, and innovative uses of technology (Larsen et al. 2011).

While all career pathways initiatives differ somewhat according to the needs of the states, regions, and individuals served, *Figure 1*, developed for the career pathways system in Wisconsin, illustrates the continuum of services provided along a career pathway, including multiple entry and exit points and stackable credentials (Schramm et al. 2010).

FIGURE 1.

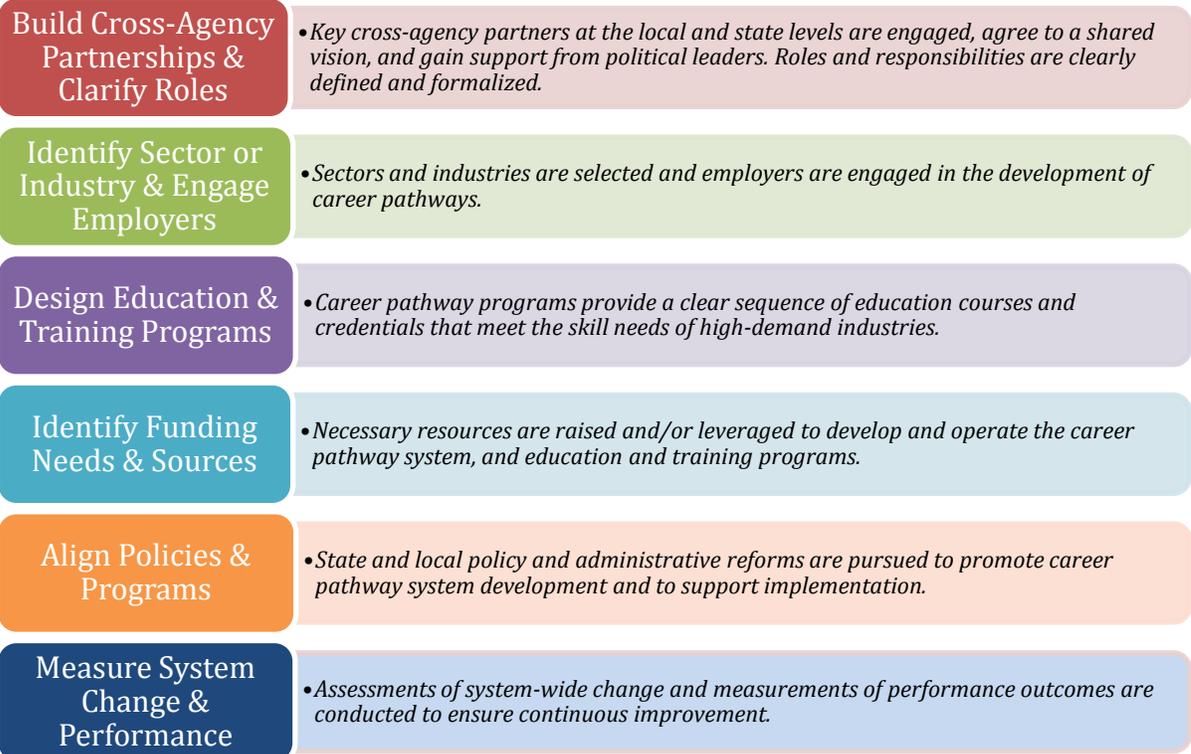


Six Key Elements of a Career Pathways Framework

Six Key Elements were identified, through the career pathways technical assistance initiative, as essential to the development and implementation of state and local career pathways systems (see *Figure 2*) (Larsen et al. 2011).

FIGURE 2.

SIX KEY ELEMENTS FOR DEVELOPING AND IMPLEMENTING CAREER PATHWAYS SYSTEMS



This paper examines the characteristics of career pathways strategies, as well as these key elements, *from the perspective of state and local workforce investment systems*. It assesses the roles and responsibilities that workforce systems can and should play in these important efforts, providing examples of actual workforce system involvement in carrying out these promising initiatives. We know that in the states and local areas where the workforce system is a full partner—and in some cases the convener of career pathways efforts—system alignment, the leveraging of resources, and the delivery of comprehensive education and training services that meet the skill needs of employers are significantly enhanced.

WHY INVEST IN CAREER PATHWAYS?

Implemented well, career pathways can help to:

- Raise skill levels, credential attainment, and employment for students, jobseekers, and workers, particularly for low-skilled populations;
- Boost the effectiveness and relevance of education and training;
- Meet employers' needs for skilled workers, spurring productivity and economic growth of businesses, industries, and of regions; and
- Build a comprehensive, coherent workforce development system.

The Current Economic Situation

The United States appears to be on the road to economic recovery after its worst economic downturn since the Great Depression. However, recovery in the job market is still very slow, with 13.3 million Americans unemployed as of November 2011 and the unemployment rate hovering at 8.6 percent. This rate excludes discouraged workers and those who have been forced into part-time employment, and it does not highlight the fact that over 42 percent of the unemployed have been without work for at least six months. As a result, the publicly funded workforce investment system faces unprecedented challenges as it tries to help the millions of workers who remain jobless.

The stakes could not be higher for U.S. workers, employers, regions, and the country as a whole. While millions of workers are without jobs, employers report difficulties finding skilled workers. Manufacturers have been adding jobs slowly but steadily since the beginning of 2010, yet they still report they cannot fill their openings because of a mismatch between the skills they need and the skills of the unemployed. We hear about similar skill shortages in other sectors (e.g., health care; professional and business services).

Workforce systems face numerous challenges in this economic climate. Slow job growth and high unemployment are of course primary. However, the workforce system also faces changing employer skill requirements as hiring resumes. Workforce education and training providers have to learn what those changing requirements are now—and will be in the years ahead. This is the central rationale for a market-driven approach to workforce development. Employers are our “ear to the ground,” validating and updating labor market information (Uhalde, Prince, & Clagett 2010).

It is critical that the nation's workforce development system act strategically to identify job vacancies as they emerge and offer market-responsive solutions to jobseekers and employers. Workforce and education systems must recognize the heightened necessity

of linking and aligning workforce efforts with broader economic and community development strategies for regional growth. And our workforce and education policymakers and practitioners must recognize that just when our economy demands more skilled workers with postsecondary education or training, the number of new high school graduates is leveling off—and in many states declining. Thus, in addition to youth, we must also invest and succeed in helping adults, including those who are low skilled, to attain industry-recognized postsecondary credentials and family-sustaining employment (Kelly & Strawn 2011). Our economic competitiveness and shared economic prosperity depend on it.

Career Pathways to Address Skilled Worker Shortages

According to the Bureau of Labor Statistics, 45 percent of job openings between 2004 and 2014 will be “middle-skill” jobs that generally require some postsecondary education (e.g., a certificate) but less than a four-year college degree. Some estimates put that number even higher. A study from the Center on Education and the Workplace at Georgetown University forecasts that 63 percent of all jobs by 2018 will require at least some postsecondary education. The study further argues that employers will need 22 million new workers with Associate’s degrees or higher and 4.7 million new workers with postsecondary certificates (Carnevale, Smith, & Strohl 2010).

Yet as of 2006, over 40 percent of adults in the United States had a high school diploma at most; another 20 percent had earned some college credit but no credential (Jenkins 2006). Far too many Americans—as many as 93 million—score at the lower levels of national assessments of functional literacy skills and are unprepared to enroll in the postsecondary education or training programs they need for current and future jobs (National Center for Education Statistics 2005).

In fact, in carrying out its No Worker Left Behind program, Michigan found that one out of every three dislocated workers could not qualify for entry into postsecondary education and training programs because they lacked the basic skills to do so—and many of these individuals had extensive labor market experience. When the economy recovers, many displaced workers who previously worked in shrinking sectors will be unable to find new jobs without further education and training.

Economists Harry Holzer and Robert Lerman (2007), estimated that almost half of all current employment is already in middle-skill jobs that generally require some postsecondary education but less than a four-year degree. Many of these jobs—which do pay a sustaining wage—are in health care and other growing fields. They require investments in education and training but are within reach for adult learners who can transition to postsecondary education successfully. But for most low-skilled adults who are working, dislocated, or long-term unemployed, earning a postsecondary credential

will be difficult without changes in how we organize and deliver education and training in the United States.

Career Pathways to Increase Credential Attainment

Too few adults, particularly low-income and underprepared adults, complete a postsecondary credential or degree. In one study, only 38 percent of first-time, full-time community college students seeking an Associate's degree had earned any degree or certificate within six years of starting college (McIntosh & Rouse 2009). And the results are worse for nontraditional students. Only about one-quarter of GED completers subsequently even enroll in postsecondary education, and nearly all of those who do enroll in higher education still need some remedial (developmental) instruction. Once enrolled, fewer than a quarter of developmental education students complete a credential or degree program within eight years (Pleasant & Clagett 2011).

Career pathways systems can help to increase the retention and completion rates of these students by enhancing the productivity and relevance of workforce education and training programs and their contributions to the economic vitality of regions and states. While meeting the workforce requirements of regional economies and employers, a comprehensive career pathways system also enables individuals, including those with low skill levels, to attain recognized credentials and employment in high-demand or emerging industry sectors on an accelerated basis.

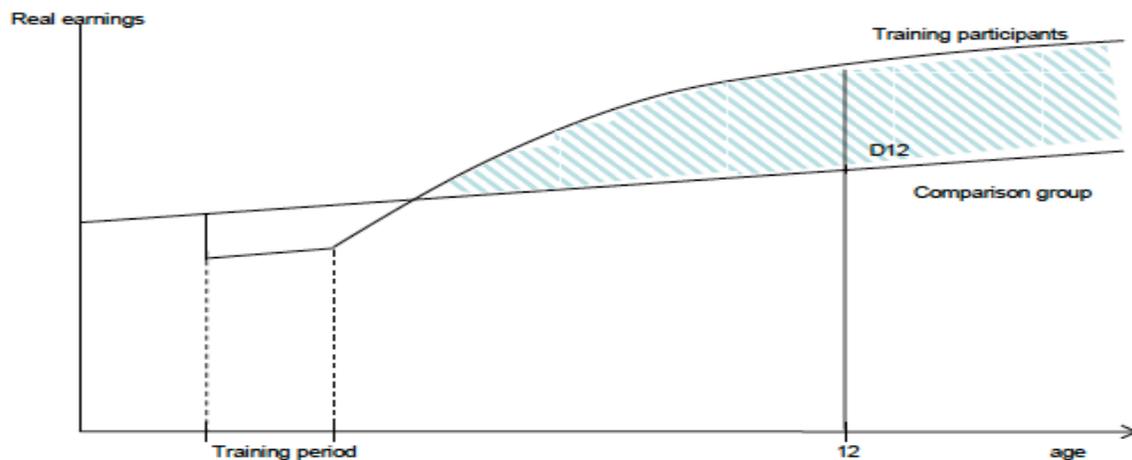
How do career pathways systems differ from our current education and training programs? For most low-skilled adults, attaining a postsecondary credential that results in related, well-paid employment is very challenging, in part because of the way education and training services are organized and delivered in most communities. Few "systems" are designed around the career advancement and related employment needs of low-skilled adults. Instead, there is a collection of programs and initiatives, each with its own different governance, funding streams, rules, and culture. Such an incoherent array of education, training, social service, and economic development programs is unnecessarily inefficient and costly for students, employers, and regional economies.

In contrast, career pathways systems and initiatives are a powerful organizational framework for aligning public investments in education, workforce development, social services, and economic development. By meeting the skill requirements of regional employers, a comprehensive career pathways system can help businesses prosper and grow while enabling individuals to attain employment at good wages in industry sectors vital to regional economies.

Career Pathways to Boost the Effectiveness of Education and Training Through Acceleration and Relevance

An inefficient education and training system wastes students' time and resources, reduces the effectiveness of training, lowers the measured return on investment, and reduces the chances of completion and credential attainment. When measuring the return on investment for education and training, a large component of the investment, often exceeding the costs of tuition and books, are the earnings students forgo as a result of not working while in training. Figure 3 shows these forgone earnings as the area under the curve for the comparison group during the "training period." For the return on investment in schooling or training to be determined as cost beneficial, the higher earnings that should result after completing training (the blue hatched area under the curve for training participants) must exceed the forgone earnings plus the costs of tuition, books, supplies, and fees.²

FIGURE 3.
AGE-EARNINGS PROFILES OF TRAINING PARTICIPANTS AND A
COMPARISON GROUP



Source: Hollenbeck (2009)

For youth transitioning from high school into college, forgone earnings tend to be much lower than for more experienced adults. Young people also have more time to pay themselves back for their forgone wages. Among adults, forgone earnings during training tend to be lower for disadvantaged and low-skilled individuals than for dislocated workers. Because dislocated workers often have relatively large forgone earnings, training programs for them tend to show lower returns on investment than does training for disadvantaged adults. Consequently, it is particularly important to streamline the time required for adult education and training to minimize forgone earnings and help participants get back to work.

Career pathways systems and initiatives should be designed to: accelerate the time needed for training; and make learning more relevant to the ultimate goal of employment. Our education and training delivery system must be redesigned, with ruthless efficiency, to enable adults to make their way through training as quickly as possible. This will require institutional changes at colleges—for example, more intensive class scheduling, more frequent commencement of new classes, and strategies designed for students who need basic skills or English language education as well as occupational instruction (e.g., co-enrollment; integrated learning).

This is not to suggest that only short-term training is of value for adults. Generally speaking, longer-term training is necessary to acquire the higher-level skills that employers reward with higher wages. And sector-based training and other strategies that closely link classroom instruction to employer demands help ensure that the labor market rewards training with higher pay. But it is important to recognize that time not spent learning or working unnecessarily reduces the returns to schooling and training.

Career Pathways to Meet the Skill Needs of Employers

Those firms that have survived and even prospered during this recent recession—especially small and mid-sized employers—have emerged leaner and smarter, with trimmed overhead, transformed production and service delivery processes, altered work organizations, revised staffing patterns, and new skill requirements. Going forward, they will demand “economically valuable skills” that will support their success (UK Commission for Employment and Skills 2010). The productivity improvements adopted by employers during the recession will probably become permanent fixtures in the post-recession labor market (Irwin 2010).

Therefore, workforce development, education, and training professionals have to learn what those changing requirements are now and will be down the road. This is the central rationale for a market-driven, dual-customer approach to career pathways. As noted, employers are our ears to the ground on the demands of the global economy. Consequently, meeting business needs through active employer engagement should be integral to any effective career pathways strategy: getting good jobs for workers depends on successful businesses (Uhalde 2011).

Career pathways rely on sector-based training strategies to engage employers and discern their workforce needs. Sector-based training usually takes place in collaboration with employers in industries important to regional economies. It helps students enter and advance in high-demand occupations. For employers, it provides training that meets industry needs, improving their competitiveness.

Sector-based training programs are also effective for low-skilled workers. According to recent studies by Public/Private Ventures and the Aspen Institute, sector-focused training delivered by organizations with a good understanding of and connection to industry were very effective in raising employment and earnings for low-skilled adults. Moreover, trainees attained industry credentials at a higher rate than their non-trainee peers and employers responded with higher wages and benefits (Maguire et al. 2010).

Businesses benefit from the knowledge, skills, and abilities that people bring to the workplace. They use educational and occupational credentials (along with experience and other factors) as signaling devices to help gauge the potential of job applicants to perform well on the job. Therefore, education and training institutions must design programs of instruction that ensure students acquire the skills and credentials that employers value.

THE ROLE OF WORKFORCE INVESTMENT SYSTEMS IN BUILDING CAREER PATHWAYS

Building the Career Pathways System

Constructing a career pathways system requires substantial changes at all points along the continuum of education, training, workforce development, and social services programs. Workforce Investment Boards, adult education administering agencies and providers, postsecondary and technical institutions (especially community colleges), One-Stop Career Centers, social services agencies, community-based organizations, and others that provide education, training, and supportive services in the community must agree on both the structure of a cohesive system and their respective roles and contributions in it.

Building a system like this requires leadership at the state and community levels. In most communities, no single individual or institution is responsible for organizing the wide range of programs and services that make up career pathways systems. All partners must be fully involved in the development and implementation of these initiatives, but it is also important that an agreed-upon entity organizes such efforts and manages them day to day. In many instances, Workforce Investment Boards are ideally situated to take up this leadership role, but regardless of who performs this function, workforce systems should be integrally involved in the effort. They can and should play a number of roles in carrying out career pathways systems and initiatives:

- Collecting, analyzing, and sharing labor market information;
- Providing skills assessments, skills matching, and career navigation functions, including the identification of skills gaps where training is needed;
- Providing counseling and support services;
- Providing funding for training; and
- Providing job search assistance.

There are also more strategic functions that workforce investment boards should perform in the development and implementation of career pathways systems:

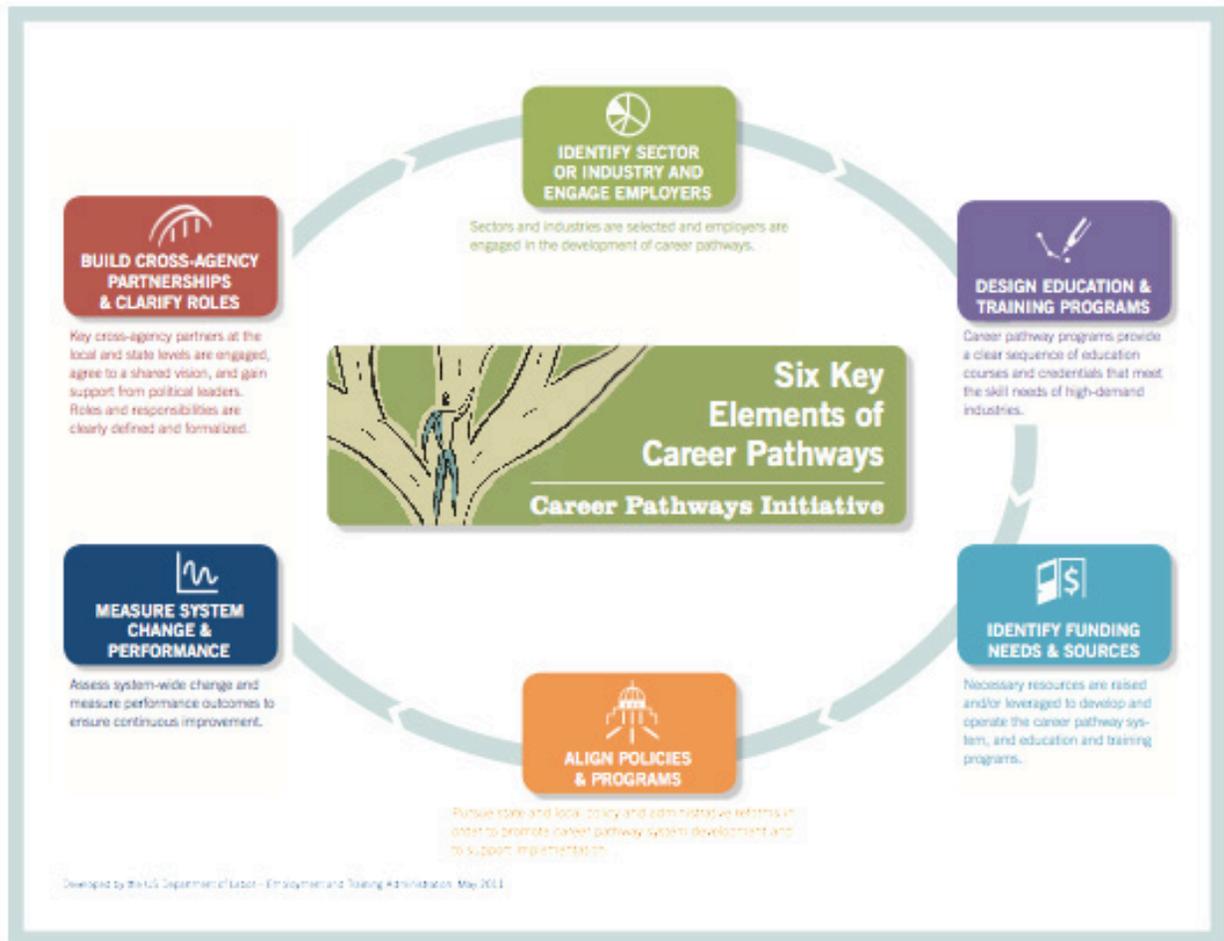
- Providing support for research, development, and capacity building;
- Convening or assisting in the convening of key program partners;
- Using labor market information to identify high-demand employers and industry sectors in the state or region;
- Facilitating or convening sector partnerships;

- Jointly identifying a common vision, mission, and goals;
- Sharing existing community asset audits or participating in such audits;
- Comparing the skills requirements of employers to the education and skills levels of the population, and identifying skills gaps;
- Collaborating with other partners to assess the region's education and training capacity;
- Coordinating with partners on career navigation and support services;
- Helping identify and pursue leveraged funding and partnerships for pathways initiatives; and
- Continuously reaching out to community stakeholders, including employers, to build support for the career pathways system and initiatives.

In many states and local workforce areas, strategic Workforce Investment Boards already carry out these roles and responsibilities. Board members' expertise and stature should be utilized fully in support of career pathways systems change and initiatives.

Figure 4 shows career pathways development and implementation as an evolving process, requiring continuous updating and improvement (Larsen et al. 2011).

FIGURE 4.
THE PROCESS OF CAREER PATHWAYS DEVELOPMENT AND IMPLEMENTATION



The following sections of this guide address each of the Six Key Elements of a Career Pathways Framework. They describe the implications for workforce investment systems and provide examples of workforce systems that play important roles in the development and implementation of career pathways systems and initiatives.

ELEMENT ONE.

BUILD CROSS-AGENCY PARTNERSHIPS AND CLARIFY ROLES

At the state and local levels, the development and implementation of a career pathways system should fully engage key cross-agency partners, and they should agree to a shared vision, mission, and goals for that system. It is also necessary to gain the backing of key policy and political leaders for such efforts to ensure support for the kinds of changes, partnering, and funding that will need to occur. The roles and responsibilities of all partners must be clearly defined and formalized, with agreement on the strengths each brings to the table. *Workforce systems, particularly state and local Workforce Investment Boards, should play a key role in convening system partners and in coming to agreement on these important decisions.*

In fact, the Workforce Investment Act, as enacted in 1998, envisioned this kind of convening role for Workforce Investment Boards. Not only are most of the key stakeholders in career pathways systems required partners under WIA and its One-Stop delivery system, but state and local workforce boards are already responsible for identifying the workforce investment needs of businesses, jobseekers, and workers in states and local areas, respectively. The boards are also responsible for identifying current and projected employment opportunities and the skills necessary for obtaining such employment. The fact is that workforce boards should be natural conveners, instigators, and partners in carrying out career pathways efforts.

Building Cross-agency Partnerships and Clarifying Roles at the State and Local Levels

- Engage a team of cross-agency partners at the state and local levels.
- Establish a shared vision, mission, set of goals, and plan.
- Identify an intermediary or lead entity to coordinate day-to-day collaboration and to keep the work going.
- Agree upon the roles and responsibilities of all partners based on the expertise and added value each brings to the table.
- Identify key non-public partners, including representatives of business, community-based organizations, and workers.
- Clarify the working relationship among all partners, including state, local, and private-sector partners.
- Gain support from senior state and local leaders, including elected officials. Get them to actively endorse and champion the initiative through their actions, policies, funding, and legislation.

State and local workforce boards are well positioned to provide leadership in carrying out these functions. Most of the relevant partners and policymakers are represented on or make appointments to the boards.

Portland, Oregon's Workforce Investment Board decided over a decade ago to partner with the region's community colleges to better respond to the region's severe economic downturn. The WIB wanted to help those who had lost jobs and to respond to employers who offered opportunities for regional economic growth. The workforce system looked at the region's demographics, the current and future skill needs of area businesses, and the educational levels of Oregonians compared to the skill needs of employers in growth occupations and industry sectors. The board realized that employers who were hiring required skilled workers in order to be competitive; and that education and training were essential to job placement, advancement, increased wages, and self-sufficiency.

The Portland WIB and the community colleges recognized that it was very difficult for adults to reenter and persist in schooling, particularly given the time required to attain a credential. The WIB and the colleges partnered to create new ways for dislocated workers and low-income individuals to access postsecondary education and obtain credentials for high-demand occupations through accelerated training and "chunked" curricula tied to real jobs.

The Portland WIB provided seed funding for venture capital, capacity building, systems change, and for the first student cohorts. The workforce system still provides counseling and support services for its customers, especially up front, but most of the costs of the programs are now covered by tuition that is paid through Individual Training Accounts and contracts for cohort training.

Today, the Portland WIB and the community colleges convene regional partnerships and operate a regional collaborative for discussions about workforce and career pathways. To create more structure and capacity for soliciting employer engagement in the design of employer services and direction of resources, they now manage skill panels that focus on emergent and incumbent worker issues.

At the state level, Oregon has engaged its workforce investment, adult education, and community college systems in its career pathways efforts. The state has an advantage in that all of these programs are under the leadership of a single state agency, the Oregon Department of Community Colleges and Workforce Development. Even so, this effort has required a strong commitment to change and hard work.

Oregon's workforce investment system is central to the state's career pathways efforts. Its original investment in the pathways effort came from the Governor's 15 percent WIA set-aside, followed by four years of funding from WIA's incentive grants. These funds supported the original research, the development of pathways initiatives at the state's first five participating colleges, and the state's first career pathways academy.

This partnership continues. Career pathways are one of the three strategic priorities of Oregon's State Workforce Board. All communications through the state's career pathways website and its *MyPathCareers* tool are linked with the WorkSource Oregon website. Labor market information from the workforce system is used to develop road maps for each pathway. And career pathways are an integral strategy for providing training in local workforce investment systems.³

As has been found in Oregon and other states and communities involved in pathways development, strong partnerships are necessary to provide for the sharing and leveraging of expertise, resources, and support needed for this kind of systems change.

The *Career Pathways Toolkit* provides a number of ideas for state and local workforce systems, as well as other partners, as they develop and implement career pathways systems and individual pathways initiatives.

State-level Interagency Team Members: To be most effective, state-level representatives on the cross-agency leadership team should include, at a minimum, individuals from the state agencies responsible for the following public services:

- Workforce development (including the state WIB);
- Adult education;
- Secondary and postsecondary education (including community colleges);
- Human services (including the TANF agency); and
- Economic development.

State team members assist in the development and implementation of policy, administrative, and regulatory environments that encourage local implementation, innovation, and statewide replication (Larsen et al. 2011).

Local-level Interagency Team Members: Similar to the state-level cross-agency team, local partners should include at a minimum, individuals from local agencies/entities responsible for:

- Workforce development (including the local WIBs);
- Adult education;
- Secondary and postsecondary education (including community colleges);
- Human services; and
- Economic development.

It is also critical to involve employers in key industry sectors, community-based organizations (including philanthropic organizations as appropriate), and other important stakeholders in the work of the local/regional team. This team is responsible for designing, piloting, launching, and growing a local or regional career pathways system.

Establishing a shared vision, mission, goals, and plan is important once the state and local teams are established. Getting all partners to agree on these critical elements can be challenging, particularly given the differing priorities and focus of the individual programs and the competition for limited funding in today's austere budget environment. Getting policy leaders and partners to organize around the shared goal of increasing the

number of adults with industry-recognized postsecondary credentials that are essential to economic prosperity and growth can be a unifying element that brings all parties together, whether at the state, local, or regional level. In fact, most states that have undertaken this work have built support for collaboration and systems change by framing the need for career pathways as an economic imperative to attract businesses and grow the economy. As the system evolves, the team should commit to reviewing and revising the vision, mission, and goals regularly to match changing interests and goals.

Partners must agree on financial and operational models for working together and develop a clear understanding of the value that each partner brings to the table and the role each will play. In some states, including Arkansas and Minnesota, legislation mandates interagency collaboration. Oregon combines the systems into a single department. In Washington, collaboration among partners and strong performance data were key to enactment of legislation that helps fund the state's career pathways initiative (Pleasants & Clagett 2011).

To assist partners in creating career pathways systems, the *Career Pathways Toolkit* contains a number of tools developed as part of the Department of Labor's Technical Assistance Initiative. The Career Pathways Readiness Tool and the Next Steps Action Planning tool included in the toolkit, may be particularly useful in helping partners come to agreement on important decisions, forming an initial implementation plan, and determining progress along the way. State and local Workforce Investment Boards were intended to carry out the kinds of assessments, prioritization exercises, and planning required for career pathways development. Workforce boards should play a key role in carrying out these functions.

In Wichita, Kansas, the workforce investment system, the Wichita Workforce Alliance, has taken a leadership role in the development of career pathways system change and specific initiatives in the region's two dominant sectors, aviation and health care. The local WIB acts as the convener and neutral partner, bringing key programs together.

The effort began when the board determined several years ago that their primary goal was to enhance the region's partnerships to increase the number of skilled workers in the regional and state labor pool. It also determined that it would not depend or focus on funding from WIA alone, directing staff to leverage resources and partnerships for this purpose.

Wichita pursued and received a WIRED grant from the U.S. Department of Labor. The community also became a partner in the National Fund for Workforce Solutions, and it has partnered with community foundations and the United Way, aligning and leveraging public and private resources.

Wichita's career pathways effort is now known as the Preparation for Advanced Careers Employment System (PACES). Since becoming involved in the development of this initiative, the Workforce Alliance has held two statewide Career Pathways Summits, bringing state and local

workforce, adult education, and postsecondary education officials together for planning and strategy development. Through these summits, Wichita's Workforce Alliance has been a driver for convening employers, policymakers, and educational institutions to discuss career pathways initiatives across the state. The workforce system in Kansas is leading the collaborative effort in support of sector partnerships and career pathways and in building awareness of the impact these initiatives have on the Kansas economy.

Defining roles and responsibilities requires all partners in the career pathways system to share knowledge about the services of their agencies, the populations they serve, the service models on which their programs are based, and the goals and outcomes that are expected for each program. As described in the *Career Pathways Toolkit*, asset mapping is a process that can be used to generate this knowledge (at the state and local levels). Asset mapping produces information and data that are necessary for coordinating services among multiple agencies and identifying expertise, services, and funding streams that can support the career pathways system. Many state and local Workforce Investment Boards have performed mapping exercises, and these can be used or built upon for the development of a career pathways system.

Information gathered by state and local workforce systems should not be duplicated even if it may need to be updated and supplemented. Workforce leaders can provide valuable information and expertise when conducting and interpreting asset-mapping exercises. Once services are identified and mapped, strategic and operational plans can be developed that take into account existing resources, capacity, gaps, and areas of expertise.

Table 1, from the *Career Pathways Toolkit*, outlines some of the common roles and responsibilities of key partners in developing a career pathways system.

TABLE 1. COMMON ROLES AND RESPONSIBILITIES OF KEY PARTNERS IN DEVELOPING A CAREER PATHWAYS SYSTEM

Workforce Agencies	<ul style="list-style-type: none"> • Provide labor market information • Engage employers • Facilitate sector partnerships • Recruit participants and make referrals • Assess skills • Provide counseling • Provide support services • Provide job-search assistance • Provide job-placement and follow-up services 	Educational Institutions and Agencies	<ul style="list-style-type: none"> • Design programs • Develop curricula • Chunk and modularize curricula • Create links between credit and noncredit instruction • Promote portability through articulation agreements • Provide support services • Assist with financial aid
Economic Development Agencies	<ul style="list-style-type: none"> • Provide labor market information • Engage employers 	Human Services Agencies	<ul style="list-style-type: none"> • Recruit and make referrals • Provide support services • Engage employers
Community-Based Organizations	<ul style="list-style-type: none"> • Recruit and make referrals • Engage employers • Provide support services 	Employers	<ul style="list-style-type: none"> • Develop curricula • Provide trainers/faculty • Provide training facilities and equipment • Provide work experiences (e.g., internships; on-the-job training; apprenticeships; employment)

Identifying an intermediary or lead entity to coordinate day-to-day collaboration and ensure progress is important to the development of a career pathways system.

This entity:

- Coordinates cross-system activities and collaboration;
- Functions as an intermediary between pathways partners and community stakeholders (including industry sector partners); and
- Conducts research and operational functions identified by leadership team members.

State and local Workforce Investment Boards can and often do carry out many of these functions, particularly in convening system stakeholders and facilitating the development and implementation of sector-based initiatives (and in more limited cases, career pathways systems).

In **Northeastern Ohio's "Area 17" Workforce Investment Area, serving Trumbull, Mahoning, and Columbiana counties**, the Workforce Investment Board served as the lead entity, coordinating the startup and day-to-day operations of the region's early development and implementation of career pathways. A senior executive from the area's workforce investment system took on this lead or intermediary role:

- Coordinating the activities of team partners as they assessed the region's education and training capacity compared to its labor market needs;
- Convening team meetings as the partners developed their implementation plan;
- Leading team efforts to identify targeted industry sectors and convening industry partnerships in health care, manufacturing, and information technology;
- Creating an operational framework for the career pathways system and initiatives, including a visual depiction of the region's career pathways system and initiatives; and
- Developing a communications strategy to build support for necessary systems change.

In addition to the day-to-day activities associated with those activities, the workforce system, with other regional partners, led efforts to gain support from the state's new political leadership for career pathways development and implementation statewide.

The Governor's Workforce Development Council in Minnesota established two priorities: strategically aligning public, private, and community resources to position Minnesota for increased and sustained economic prosperity; and analyzing and recommending workforce development policies to the Governor and legislature in support of talent development, resource alignment, and system effectiveness for global competitiveness. It did so driven by the state's increasing skills gap and its adverse effects on the state's residents and competitiveness. The council also recognized racial disparity in higher education as a major problem to be addressed.

In its annual report "All Hands on Deck," the Council identified increasing postsecondary credential attainment in areas tied to the state's skills gap as a major priority. In an important partnership with the United Way, the state is focusing on competitiveness and equity issues. In fact, with the growing diversity of the population in the future, the Council has recognized the need to address the skills of all individuals, including those who are low skilled.

Part of the answer to Minnesota's drive for increased credential attainment and equity is FastTrac, its Career Pathways initiative. FastTrac is housed in the Department of Employment and Economic Development (DEED), and the state recently elevated the program to the Commissioner's office due to its importance to system-wide reform. FastTrac's innovative approach helps educationally underprepared adults succeed in well-paying careers by integrating basic skills education and career-specific training in high demand fields.

FastTRAC is changing the way Minnesota implements workforce development, aligning limited resources toward meaningful long-term outcomes for adult learners. Unified with a shared vision for success, it is a collaboration among Minnesota's state colleges and universities, Adult Basic

Education at the Department of Education, the Department of Employment and Economic Development, the Department of Human Services, the Minnesota Office of Higher Education, the Department of Labor and Industry, the Governor's Workforce Development Council, the Greater Twin Cities United Way, and local employers, workforce development agencies, human services and community-based organizations.⁴

Oregon has a lead official to oversee the implementation of its career pathways system. The Pathways Initiative Statewide Director, housed in Oregon's Department of Community Colleges and Workforce Development, acts as facilitator, catalyst, organizer, and convener for the statewide career pathways effort—serving the governor, the department, and the system. She oversees the leveraging of partnerships and resources as well as coordinating technical assistance, cross-organization training, and the development of pathways road maps. The Governor's Workforce Policy Board enhances state-level connections among partner programs.

Local stakeholders across Ohio, Kentucky, and Indiana joined together in 2008 to launch the **Greater Cincinnati Workforce Network**, an unprecedented partnership among philanthropic funders, local and state government agencies, employers, chambers of commerce, educational institutions, service providers, *and the four Workforce Investment Boards in the Tristate region*. With funding from multiple public and private sources, including major support provided by the National Fund for Workforce Solutions and the region's workforce investment systems, the network serves as the region's intermediary, building career pathways focused on three industry sectors of critical importance to the region: health care; advanced manufacturing; and construction. This effort is intended to create avenues of advancement for current workers, jobseekers, and future labor market entrants, as well as a supply of qualified workers for local employers in the targeted sectors.

In each sector, employers provide formal leadership and set the stage for the career pathways process: identifying occupational shortages; articulating training needs; recruiting incumbent employees to take part in training; hiring new workers; and providing financial support and workplace policy changes where needed.

Seamless educational pathways are offered by establishing clear linkages among adult and developmental education, certificate and training programs, and academic degree programs, where credits are articulated across institutions and "stackable" certificates enable students to progress from one level to the next. Education partners work with employers to design innovative curricula and develop formal articulation agreements so students can move from one program and institution to the next.

Workforce Investment Boards involved in the strategic workings of the network are actively involved in regional network activities. They also assist with the recruitment of unemployed and underemployed individuals and provide financial support for worker training through the One-Stop delivery system.

Finally, the network focuses on institutional and systemic change, with the goal of transforming education, workforce, and social services programs and services in ways that build and improve their capacity individually and collectively to respond to the needs of local residents and employers. And because this network is a collaboration of regional partners and includes the involvement and resources of philanthropic and other private funders, it has flexibility that public funding alone does not provide: encouraging system innovation and expanded service delivery.

Employers are benefitting from improved access to qualified workers, improved retention, reduced turnover and vacancy rates, increased productivity, increased diversity, and assistance with managing workforce and training resources.

For workers, the benefits include access to job opportunities, assistance with career and educational advancement, increased wages, and increased educational attainment.

Partners also benefit. Educational institutions increase enrollment, improve retention and completion rates, and increase academic performance and job placement outcomes.

And the community increases educational attainment, socioeconomic self-sufficiency, employment rates, and the ability to attract and retain employers.⁵

ELEMENT TWO.

IDENTIFY HIGH-DEMAND INDUSTRY SECTORS AND OCCUPATIONS AND ENGAGE EMPLOYERS IN CAREER PATHWAYS SYSTEMS

Career pathways systems must be employer driven to ensure that they meet the skill requirements of business and the employment needs of jobseekers and workers.

Workforce investment systems have long worked with employers, providing services that include: collecting, analyzing, and disseminating labor market information; identifying high-demand industry sectors and convening industry sector partnerships; developing training programs (including sector-based and customized training); and providing human resources services (e.g., job fairs; employment screening; skills matching; job placement).

High-performing workforce investment systems, and especially high-performing Workforce Investment Boards, have developed strong relationships with business organizations and employers, particularly with employers in high-demand industries and occupations. It is important to:

- Capitalize on these relationships;
- Build on related work, particularly in areas where sector-based and related training is underway; and
- Establish career pathways systems and initiatives that align with ongoing efforts, rather than duplicating important activities and services.

In carrying out career pathways systems and initiatives, it is important to have access to high-quality, up-to-date labor market information. This is critical for making decisions about which industry-sectors and occupations will be the focus of pathways initiatives. Moreover, it is important to supplement this information and guarantee its relevance by vetting it with employers and economic development experts, ensuring that it reflects the latest intelligence on the ground.

How WIBs and Other Partners Can Make Career Pathways Initiatives Relevant to Employers

- Analyze the labor market and share the results with partners and employers.
- Target high-demand and growing industry sectors and occupations.
- Identify key employers within targeted industry sectors and occupations.
- Convince employers of the benefits of participating in pathways efforts.
- Convene industry partnerships for developing and implementing career pathways systems.
- Clarify the strategic and operational roles of employers in initiatives.
- Once value is proven, negotiate employer contributions to pathways.
- Sustain and expand business partnerships.

Many local WIBs carry out these activities, possibly in other contexts.

It is also important to work with employers to identify the skills and credentials needed for high-demand occupations compared to the skills of jobseekers in the state or region, and arrange for training to address the skills gaps identified on an accelerated basis. Employers should also be engaged in curriculum design and instruction to help make the system relevant to their needs.

Employers can be a valuable resource for the career pathways system itself. They can provide technical training, mentoring, work-based learning opportunities, release time for employees, training facilities and equipment, resources for training costs, work experience opportunities (e.g., internships; on-the-job training; apprenticeships), and, ultimately, full-time employment.

State and local career pathways teams should become well-versed in the analysis and utilization of labor market information for determining industry sectors and occupations around which to build career pathways systems and initiatives. State and local workforce investment system experts should lead this effort, helping the team to interpret data, assess their quality and timeliness, and apply them appropriately.

The Lower Rio Grande Workforce Investment Board and the workforce investment system (Workforce Solutions), serving Hidalgo, Starr, and Willacy counties in south Texas, provides assistance to South Texas College and other partners, identifying appropriate target and demand occupations to incorporate in the region’s career pathways initiative. The workforce system bases its recommendations on its analyses of industry clusters and target occupations. The workforce system has an ongoing relationship with South Texas College for identifying the talent development needs of the region, identifying career pathways that are appropriate for the demographics of the jobseeker population, and serving as the voice for employers, helping to align career pathways with the actual needs of business and industry.

The workforce system’s active involvement in these efforts ensures that pathways are built around the needs of employers and driven by the acquisition of relevant skills. The WIB supports accelerated programming, system supports, and other strategies that are proven to work with lower-skilled populations

The Lower Rio Grande WIB has commissioned a regional targeted industry cluster analysis that covers its four-county area. These results are shared with all colleges, public schools, and business and industry partners. The WIB seeks input from employers to validate the labor market information and targeted occupations. It has active relationships in multiple sectors, meets with industry leaders and businesses regularly, and has ongoing task force meetings by sector. The WIB’s role—identifying high-demand industry sectors and representing the interests of business and employers—is essential to the success of career pathways initiatives and systems reform in the region.

While traditional labor market information is important in making informed business and workforce development decisions, career pathways efforts also demand “real-time”

information. In addition to gaining real-time LMI from employers and economic development leaders who provide intelligence on the ground, modern technology makes it possible to access such data using software that pulls information from web-based resources and provides recent, localized reports on labor demand and supply.

To maximize employment prospects for jobseekers, publicly funded workforce systems frequently assist workers in locating employment opportunities that require similar knowledge, skills, and abilities (also referred to as KSAs). This information is vital in determining the education and training necessary to address gaps between jobseekers' existing skills and those required by occupations in demand. Workforce boards can use this information to alert economic development agencies and businesses in their regions about new pools of workers (and skill sets) that become available as the result of layoffs or plant closings. Local boards can also use this information to inform education and training institutions and career pathways partners about the kinds of training needed in local areas and regions to address employer demands. Finally, identifying the skills gaps of individual jobseekers and providing training to address those gaps can shorten the time required in the classroom, especially when combined with other strategies (e.g., providing credit for prior learning). This approach to training is efficient and effective in helping participants get back to work more quickly.

Ivy Tech, Indiana's community college system, has developed a model for providing **credit for prior learning**. In addition, a **certification crosswalk** ties nationally recognized certificates to curricula and courses offered at the colleges, making certifications transcriptable. The crosswalk also allows for articulation between noncredit and for-credit courses and programs. Because Ivy Tech operates statewide, it has been able to develop common curricula and courses across Indiana, facilitating articulation among colleges.

Throughout the state, Ivy Tech has established Workforce Certification Centers that provide assessments and over 4,000 nationally recognized tests for industry-recognized certifications. This has led colleges to embed more certification courses in their curricula. Through these centers, over 40,000 tests were conducted in 2009-2010, over 31,000 certifications were awarded, and over 220,000 assessments were conducted.

Based on the principles for awarding credit for prior learning developed by the Council for Adult and Experiential Learning, Ivy Tech makes its students aware—during orientation, on its website, and through other means—that they can receive credit for prior learning. This is based on traditional portfolio reviews, testing (e.g., CLEF, DANTES), and the recognition of prior certifications (as seen in the crosswalk). These prior certifications are applied as college credit toward further credentials or degrees. *The state has paid special attention to the identification and award of credit for military credentials.* The colleges also provide training for faculty on this process.

The Ivy Tech system has the authority to award high school diplomas retroactively through a dual-credit offering. It also offers AAS degrees for apprenticeships, now in 14 trades at 67 sites, with 5,000 students enrolled.

The Ivy Tech system has articulation agreements with the National Labor College, Indiana University, Purdue University at Indianapolis, and the University of Southern Indiana. And it has close working relationships with the state's workforce investment system, and together they are examining ways to provide expanded opportunities for WIA participants through these innovations.⁶

Real-time LMI technology. A number of new tools and technologies have been developed to assist with the process of matching skills for employment as well as for identifying skills gaps and necessary training. Workforce investment systems should become familiar with these tools and technologies to determine which provide the information they need to make sound decisions. Following is a listing of some real-time labor market search and skill matching technologies and their corresponding websites.

- Wanted Analytics, <http://www.wantedanalytics.com/>
- Burning Glass, <http://www.burning-glass.com/technology/job.html>
- EmployOn, <http://www.employon.com/>
- Indeed.com, <http://www.indeed.com/>
- Simply Hired, <http://www.simplyhired.com/>
- Geographic Solutions, <http://www.geographicsolutions.com/>
- Monster.com, www.monster.com/
- TORQ, <http://www.torqworks.com/>

The *Career Pathways Toolkit* provides information about how to use these resources.

The U.S. Department of Labor has also developed several online skills transferability tools to enable jobseekers and staff intermediaries to match workers' occupational skills and experiences with the skills needed in other occupations, facilitating upward mobility. The mySkills myFuture and My Next Move national self-service tools integrate data from O*NET (including skills and work activities information) with the tools from Career One-Stop.org and other ETA websites, enabling users to easily obtain customized results that meet their individual and organizational needs.⁷ These new tools are intended for use by a wide range of customers including: jobseekers; employers; One-Stop Career Centers and other career guidance centers and institutions; non-profit and community based organizations; and economic development agencies.⁸

Targeting high-demand and growing sectors is key to developing career pathways initiatives that increase the educational and employment attainment of individuals and meet employers' needs for skilled workers in growing industries and occupations. Again, an increasing number of state and local workforce investment systems are already working with industry sectors and occupations that are important to their regions and support sector-based training to address these industries' skills needs.

Career pathways should be designed around industries and sectors that have high demand for workers and that support career progression and family-sustaining wages. Once the career pathways team, with the assistance of the Workforce Investment Board, identifies these industry sectors, it should identify subsectors within those sectors, and all occupations within them that are in high demand. As identified in the *Career Pathways Toolkit*, the U.S. Department of Labor's Competency Model Clearinghouse, the Career One-Stop.org Certification Finder and Licensed Occupations database, and the [mySkills myFuture](#) and [My Next Move](#) websites are useful tools for locating in-demand jobs in states and local areas. See the *Career Pathways Toolkit* for a list of links to these and other websites.

The Workforce Development Council of Seattle-King County is the driver of a number of local and regional initiatives for industry-sector training and for career pathways. These **sector partnerships** and sector-based initiatives depend on close collaboration with the 11 community/technical colleges in Seattle-King County. The WIB plays a key role convening employers and working with skill-sector panels that map out career ladders within industries.

In addition to identifying key sectors and convening sector partnerships, the WIB carries out multiple activities in pursuit of its sector-based and career pathways initiatives. In health care, the WIB puts career specialists from the One-Stop system on site at hospitals to work with incumbent workers who wish to advance and help them find appropriate training and sources of financial aid.

In the automotive industry, the WIB provides a career navigator for the General Services Technician program at Shoreline Community College (an I-BEST model), helping students overcome barriers, complete the program, and move on to employment. The navigator also works closely with employers to create opportunities for internships and jobs for students. An Aspen Institute evaluation showed that students are many times more likely to succeed in the course and in starting careers through this model.

Many of the sector panels convened by the Workforce Development Council have mapped career ladders in high-demand industries. The workforce system has seven maps, which it disseminates in booklet form and are also the focus of the WIB's new website: www.MapYourCareer.org.⁹

Identifying key employers in targeted sectors/occupations is the next step. Local WIBs, working with chambers of commerce and economic development agencies, and building on their own relationships, are well placed to assist in identifying the key employers from particular industry sectors. For example, the WIB in South Central

Wisconsin has identified industry sectors and convened industry partnerships for years, bringing together multiple employers within targeted industry sectors. This has provided an especially effective approach for getting the needed buy in and input from employers, as well as meeting employers' skill needs. Industry partnerships enable employers to identify common workforce problems and solutions, offer businesses a role in the design of training programs to ensure that trainees receive the skills needed by employers, facilitate the hiring of trainees, and increase the chances that career pathways system change will receive broad support, succeed, and contribute to regional economic growth.

In South Central Wisconsin, the workforce investment system began its involvement in developing career pathways as early as the mid 1990s, by focusing on the development of industry partnerships and recognizing the importance of leveraging resources beyond those provided through WIA for investment in innovation and employer responsive solutions. Since then, the workforce system, working with Madison College (the region's community and technical college) and other partners, has pursued and carried out numerous sector-based initiatives (discussed further under Element Five). It is now operating sector-based career pathways initiatives in information technology/business technology, health care, biotechnology, manufacturing, construction and the trades, agriculture, and energy efficiency. The workforce board recognizes that a key element of the system's success has been its long standing philosophy of partnership, collaboration, and alignment.

Through actions facilitated by South Central Wisconsin's Workforce Investment Board, Industry Partnerships:

- Enable employers to identify common workforce problems and solutions;
- Offer businesses a role in designing training that provides local workers with relevant skills;
- Help employers link skilled workers to quality jobs for the future, providing a forum for strategic discussion on regional economic and industry trends; and
- Provide a forum for partners to continually align their diverse programs, develop and implement a stronger strategic vision for skills development, and pursue joint efforts to make the workforce system more responsive to workers and employers.

In its plan for 2011, the local board set the following priorities:

- Support regional Industry Partnerships;
- Connect unemployed, underemployed, and dislocated workers with the information and training they need to enjoy high-wage employment in high-growth industries; and
- Invest in training opportunities connected to career pathways through the development of and support for modular training opportunities offered in more accessible and manageable formats, helping unemployed or working adults complete a credential or an Associate's degree.¹⁰

Helping employers realize the benefits of participation in career pathways initiatives is important to the effectiveness, growth, and sustainability of these efforts. If career pathways initiatives are carried out well, they provide an extremely valuable training

strategy for the workforce investment system and for employers that: helps the workforce system meet the specific skill needs of high-demand employers; provides employers with access to a larger pool of skilled workers with industry-recognized credentials; provides opportunities for upgrading the skills of incumbent workers, resulting in increased business productivity; and increases the overall competitiveness of the state and region (Larsen et al. 2011).

In Pennsylvania, the Governor and Pennsylvania's workforce investment system used state-appropriated funds to launch a particular form of sector--based strategies through the establishment of Industry Partnerships. These employer/worker consortia bring together companies with similar products, markets, and human resources needs. Based on statewide or multicounty regional analyses, Industry Partnerships are organized by sectors that have a competitive advantage, and they bring to bear public and private resources to address the needs of the workers and the firms that employ them. They also make investments in human capital development that lead to greater productivity, improved human resources practices, and innovation. The investments contribute to the survival and growth of the state's leading industries, including health care, transportation, manufacturing, mining, and lumber, among others. The workforce investment system uses industry intelligence created by the Industry Partnerships to help their education and training partners better understand industry needs.

As of 2011, Industry Partnerships had achieved a great deal:

- 6,300 firms involved in nearly 80 Industry Partnerships statewide;
- Over 100,000 workers trained;
- Average wage increases of 6.62 percent within first year after training workers;
- 88 percent satisfaction rate among participating firms; and
- More than \$9 million in private funds and \$30 million in in-kind contributions provided by private-sector firms to support worker training.

Note: Funding for Pennsylvania's Industry Partnerships is currently in jeopardy due to changes in state leadership priorities and state budget deficits. Regardless, this effort provides a good example of how states can successfully influence the widespread development of sector-based initiatives that are the underpinnings of career pathways systems (Pennsylvania Fund for Workforce Solutions 2011).

ELEMENT THREE.

EDUCATION AND TRAINING PROGRAM REDESIGN

Career pathways systems design is really about creating a framework for better connecting the education, training, workforce, and supportive services people need to attain industry-recognized credentials for employment in high-demand careers. While most of the responsibilities for education program design fall to the education partners, this section discusses the roles that state and local workforce systems may perform in these efforts.

Program Sequencing and Alignment.

Career pathways systems and initiatives should be designed to enable participants—particularly individuals with limited basic or English language skills—to enter into and progress as quickly as possible through education and training programs that:

- Are arranged in a clear sequence of courses;
- Prepare individuals, regardless of their skill levels at the point of entry, for postsecondary education or training;
- Lead to the attainment of industry-recognized postsecondary credentials;
- Result in family-sustaining employment and career advancement; and
- Are mapped and formally articulated from one educational level to the next so students clearly understand the path to their end goals of credentials and employment.

See the checklist from the Career Pathways Toolkit to the right.

In career pathways programs for adults, training should be designed to meet the needs of adult learners. It should be contextualized, accelerated, and offered at convenient

Checklist for Program Design

Outreach

- Who performs outreach services?
- How do you reach target populations?

Assessment

- Who performs assessment services?
- Are they non-duplicative across agencies?
- What assessment tools are used?
- Do the assessments provide credit for prior learning?

Education and Training Programs

- Is flexible, alternative scheduling available?
- Are curricula chunked and progressive?
- Are curricula contextualized?
- Are ABE programs clearly articulated with postsecondary academic and career-technical programs?
- Are programs designed to accelerate advancement?
- Are individualized career plans utilized?
- Does training reduce or accommodate language and learning barriers?

Credentialing

- Do education and training programs lead to industry-recognized credentials?
- Do they lead to stackable credentials clearly articulated to progressively higher-level credentials?

Wraparound and Support Services

- Are job placement services available?
- Career and financial aid counseling?
- Dropout prevention services?
- Child care?
- Transportation?

times and locations. Career pathways should provide multiple entry and exit points—“on ramps and off ramps”—recognizing that adults will enter at varied points along the continuum depending on their skill levels, and they occasionally must “stop out” of training due to employment or personal responsibilities. Training is often organized in modules or “chunked” into manageable segments. These chunks frequently correspond to credentials that have labor market value and are stackable. It is important that adequate supports are provided at these points of transition to encourage participants to continue on to higher-level credentials.

Extensive counseling, career mapping and supportive services are essential elements of the design of career pathways systems. Partners in career pathways efforts, whether at the state or local level, should come together with a commitment to contributing their special expertise, services and a portion of their resources to the system as a whole.

Some states and local areas identify those portions and services within career pathways programs that are specially designed to meet the needs of low-skilled participants as **“Bridge” or “Pre-Bridge” programs.**

In Minnesota’s FastTRAC program, low-skilled students are dually enrolled in adult basic education or ESL classes and postsecondary occupational training courses. For students who are below the sixth-grade literacy level or below level three in ESL, a pre-bridge program focuses on ABE or ESL skills taught with a focus on career exploration or in the context of a general occupational focus.

In Ramsey County, Minnesota, a Medical Careers Pathway is offered through a partnership among the Ramsey County Workforce Investment Board, health care employers (led by HealthPartners), Saint Paul College, Saint Paul Public Schools ABE/Hubbs Center, St. Paul Public Housing, and Goodwill/Easter Seals. Students in this program earn a for-credit Medical Records Clerk certificate that applies toward a Medical Coding certificate.

Basic skills and the technical content are taught by teams of ABE and college CTE faculty. Through this integration, the ABE instructor provides contextualized basic skills as well as reinforcement on technical content. The bridge also includes computer literacy. Goodwill/Easter Seals provides career exploration and intensive student supports. A pre-bridge course prepares ABE/ESL students with the lowest educational levels, to succeed in the integrated courses. Participants are a diverse mix of ABE and ESL students, dislocated workers, and incumbent workers. Health care employers provide work experiences and collaborate in the design of the programs (Strawn 2011).

Sector Strategies and Contextualized Learning

Building pathways around high-demand sectors is critical to system design. Again, Workforce Investment Boards are well positioned to identify the industry sectors and clusters to target for career pathways development. Once identified, boards can help facilitate the formation of sector partnerships to: identify the skills needed by key

employers; engage employers in the design of pathways programs and curricula; gain employer support for pathways programs and funding; and expand employment opportunities for participants.

Career pathways curricula and instructional strategies should be designed around the jobs for which the students are training, making work a central context for learning and for helping students attain work-readiness skills. Use of work-related content motivates students, showing them the relevance of their schooling. Contextual learning prepares students to perform at least some of the tasks required by technical courses and jobs. Combined with the use of authentic workforce materials, this familiarizes students with the world of work.

In addition to contextual learning, certain instructional methods impart the work-readiness, thinking, and reasoning skills that employers value. Adults learn best when information is relevant and practical and the objectives are clear. And they learn best by doing. Project-based learning, student study circles, and other active learning strategies enable students to develop a range of work-readiness skills including working in teams, solving problems, organizing sequential activities, and taking initiative. The more that curricula and instructional methods relate to the occupational areas for which students are studying, the better (Chisman, Kraemer, & Clagett 2009).

Accelerated/Integrated Education and Training

Education and training in career pathways should be accelerated to address the time constraints of adults as well as to increase credential attainment and reemployment. Semester-based classes that meet only three to four hours per week are rarely well suited to the needs of adult learners. Most adult learners simply cannot afford to spend a great deal of time in the classroom, or worse, waste weeks or months waiting for classes to begin. Yet most postsecondary education institutions still operate on a traditional schedule.

Many workforce investment systems have advocated for years on behalf of adults, particularly low-skilled adults, in support of shorter-term, more relevant, and more convenient training. However, the fact that nontraditional students cannot afford to spend so much time in the classroom should not preclude them from participating in higher-level, postsecondary education and training that leads to credentials and higher-paying jobs. *It is essential that the nation's education and training system change its culture and practices for serving nontraditional students.*

Strategies to accelerate training include:

- Compressed training;

- Dual enrollment (e.g., integrated learning; concurrent classes);
- Credit for prior learning; and
- Non-semester-based classes.

Additional strategies for meeting the needs of adults include:

- Classes offered evenings and on weekends;
- Alternative locations for training, including on site at businesses;
- Multiple entry and exit points along career pathways, providing flexibility around course completion when students encounter unforeseen barriers;
- Web-based training for individuals who may lack easy access to education and training facilities but can complete online coursework from home; and
- Mobile or satellite training sites for individuals in rural areas who may lack access to home computers and/or broadband Internet connections.

In **South Central Wisconsin**, the workforce board and Madison College jointly offer counseling, classes, and other services at rural sites through technology and, in some cases, through mobile classrooms, including a mobile health training lab.

Some of the innovative strategies that pathways programs have adopted to accelerate training include: compressed training (e.g., training “bootcamps”); awarding credit for prior learning; and dual enrollment (students are co-enrolled in adult education and postsecondary occupational training classes that are either integrated—team taught—or students are concurrently enrolled in separate but closely related adult education and postsecondary courses). These strategies not only shorten the time required for training but also begin to award postsecondary credits while students are working on their basic skills or English language studies. These strategies are not only effective but efficient, saving time and money for students as they make their way toward postsecondary credentials.

Washington’s I-BEST program, one of the nation’s most successful and well-known pathways programs, is built around an accelerated model. Students are co-enrolled in Adult Education and postsecondary technical training, with basic skills instructors and college-level career-technical faculty jointly designing and teaching college-level occupational courses for ABE and ESL students. Instruction in basic skills/ESL is integrated with the technical skills instruction, enabling students to begin earning college credit while still enrolled in Adult Education. Students benefit from the support of basic skills instructors who provide tutoring, additional projects, and test preparation, and they earn one year of college credit toward a professional/technical certificate or degree. Curricula integrate basic skills competencies with those of the technical program. The I-BEST model also seeks to create clear pathways for students that will help them earn a livable

wage and become employed in high-demand jobs. I-BEST challenges the conventional wisdom that students ought to complete basic skills instruction and attain a high school diploma or a GED before starting college-level courses.¹¹

Industry-recognized Credentials

Effective career pathways programs *lead to the attainment of postsecondary credentials that have value in the labor market*. Credentials attained through career pathways programs should be industry-recognized, portable, and, where possible, stackable. (See TEGL 15-10, the *Credential Resource Guide*, for the U.S. Department of Labor definition of industry-recognized credentials for the purposes of programs under the department's jurisdiction, including WIA.)¹²

There are many different types of credentials, including: educational diplomas; certificates and degrees; registered apprenticeship certificates; occupational licenses (typically awarded by state government agencies); personnel certifications from industry or professional associations; and other skill certificates for specific skill sets or competencies within one or more industries or occupations (e.g., writing; leadership). The glossary in TEGL 15-10 is an important tool for workforce boards and other partners who are in the process of designing career pathways programs that culminate in recognized credentials.

The *Career Pathways Toolkit* contains excellent information on the development of curricula, as well as the development of credentials where none already exist, using a database of competencies that the U.S. Department of Labor has developed. Workforce Investment Boards and other career pathways partners can utilize this information to identify the business and industry requirements that are essential for the development of curricula, skills assessment instruments, and certifications based on these competencies. Competency models also facilitate the development of career ladders and career lattices that provide the framework for career advancement. The Competency Model Clearinghouse (referred to and linked in the Toolkit) provides tools and resources for building competency models (from scratch or by modifying existing models) as well as for developing career ladders/lattices. It is important that all competencies and competency models be validated by employers (Larsen et al. 2011).

Stackable Credentials

An increasing number of states, communities, and institutions offer courses that are grouped together in manageable segments or modules, chunking the courses in ways that make progression along the pathway more manageable. Some of these efforts take stacking a step further, organizing the modules in ways that correspond with the skill requirements for specific jobs and corresponding credentials. Because these credentials

build upon one another, they are called stackable, with each credential having labor market value.

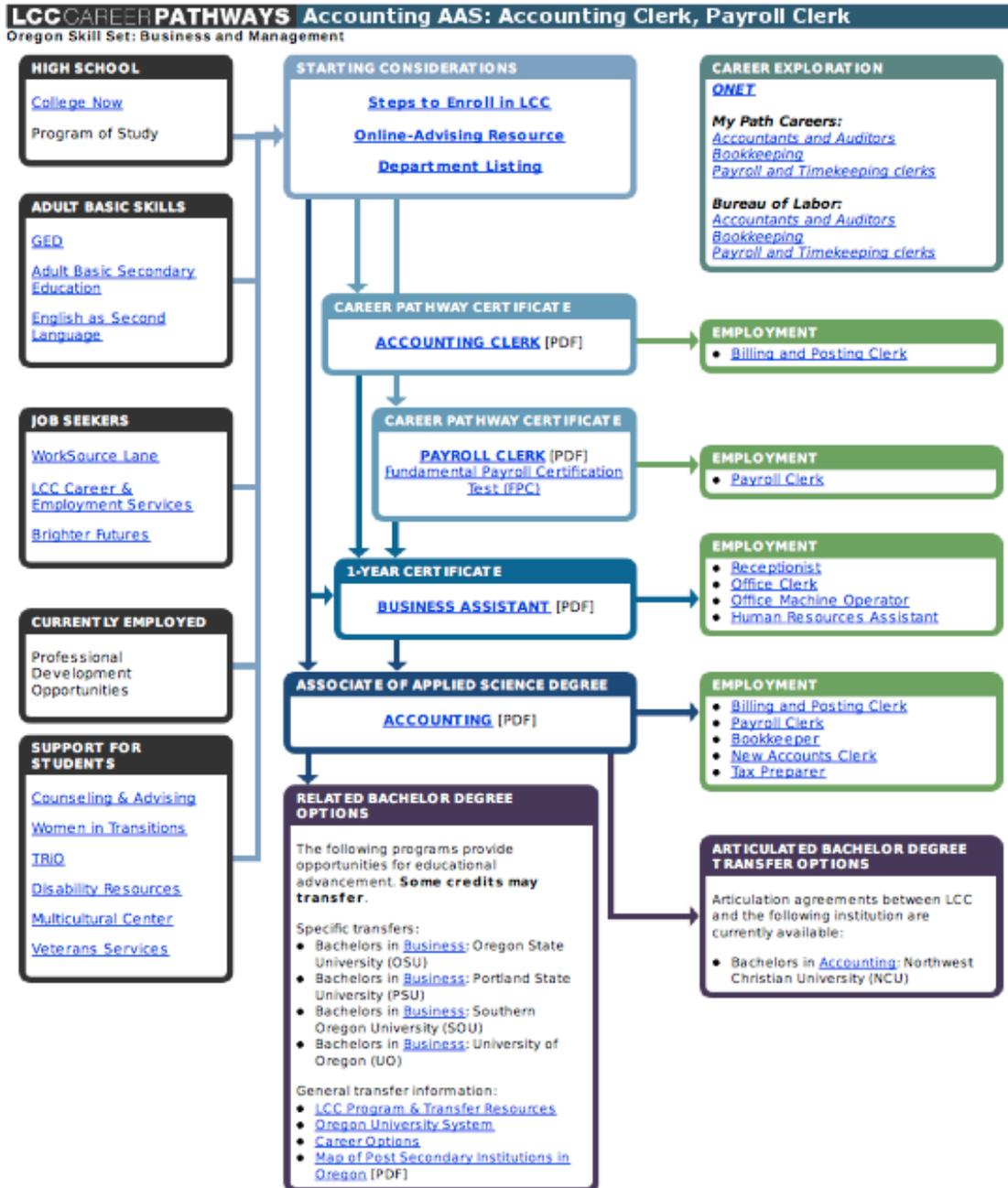
In a number of states and communities (e.g., Oregon; Wisconsin; Washington; Cincinnati, Ohio) career pathways partners have visually mapped the pathways they offer, making it much easier for students, counselors, teachers, program administrators, and employers to understand how courses are sequenced, articulated, and lead to the end goals of credential attainment, employment, and career progression. Workforce Investment Boards may be doing similar kinds of mapping in their sector-based and other training programs that offer career ladder or lattice opportunities. Because WIA places so much emphasis on providing participants and employers with information about career and training options and choices, these visual maps of career pathways in high-demand occupations are a next logical step for organizing the information provided through One-Stops. Career maps are valuable tools for helping program participants, employers, and program administrators and practitioners make important career and training decisions.

Because pathways mapping can vary according to the amount of detail shown, workforce systems and other partners may decide to develop several versions of the maps, depending on the audience. For example, career counselors and students would need relatively detailed maps that show how pathways can change course or how to choose among multiple providers along the continuum. Below are examples of pathways mapped in Oregon, Wisconsin and Ohio. In each case, courses are articulated one level to the next; classes are chunked, ending in stackable credentials; and all lead to employment in a high-demand field with family-sustaining wages and career advancement opportunities.

Oregon's Career Pathways are built from stackable credentials that: consist of 12 to 44 college credits; are transcriptable, leading to higher-level credentials, including two-year degrees; and are tied to a job in demand in the regional labor market. Oregon has over 180 career pathways, and every community college is providing some level of career pathways programming. For pathways, road maps show on and off ramps so students can “stop out” and restart according to their individual needs. The road maps (Oregon's term for career maps) are graphic organizers that outline how educational programs relate to the labor market. All road maps are available through the Oregon WIB website and accessible through “My Path Careers” for youth. Figures 5 through 7 show three different pathways' road maps in Oregon.¹³

FIGURE 5. ROAD MAP FOR ACCOUNTING, LANE COMMUNITY COLLEGE, OREGON

This road map shows how “chunking” the curricula, results in stackable credentials with labor market value.¹⁴



ROADMAP 6. ROAD MAP FOR IT, PORTLAND COMMUNITY COLLEGE, OREGON¹⁵

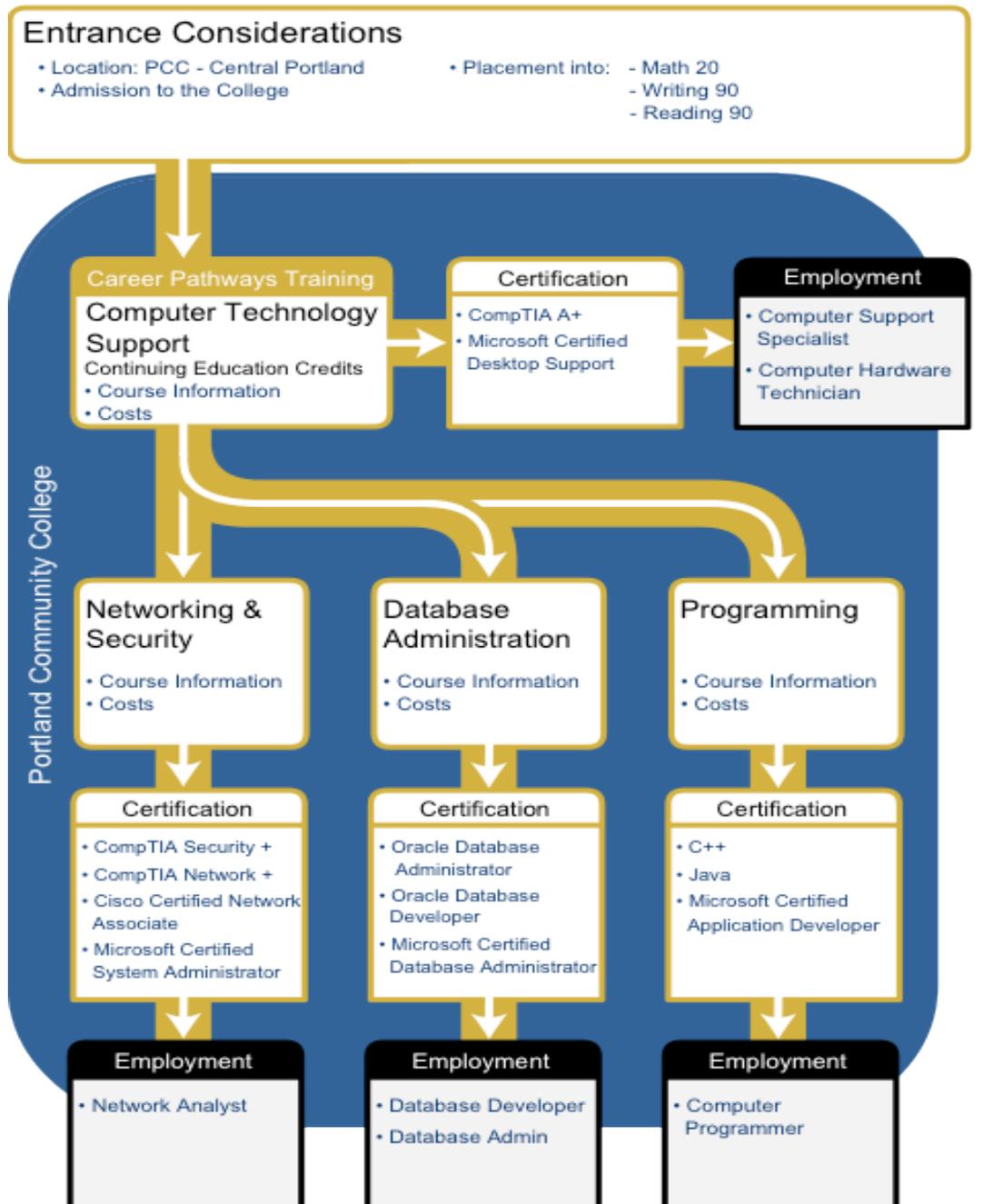
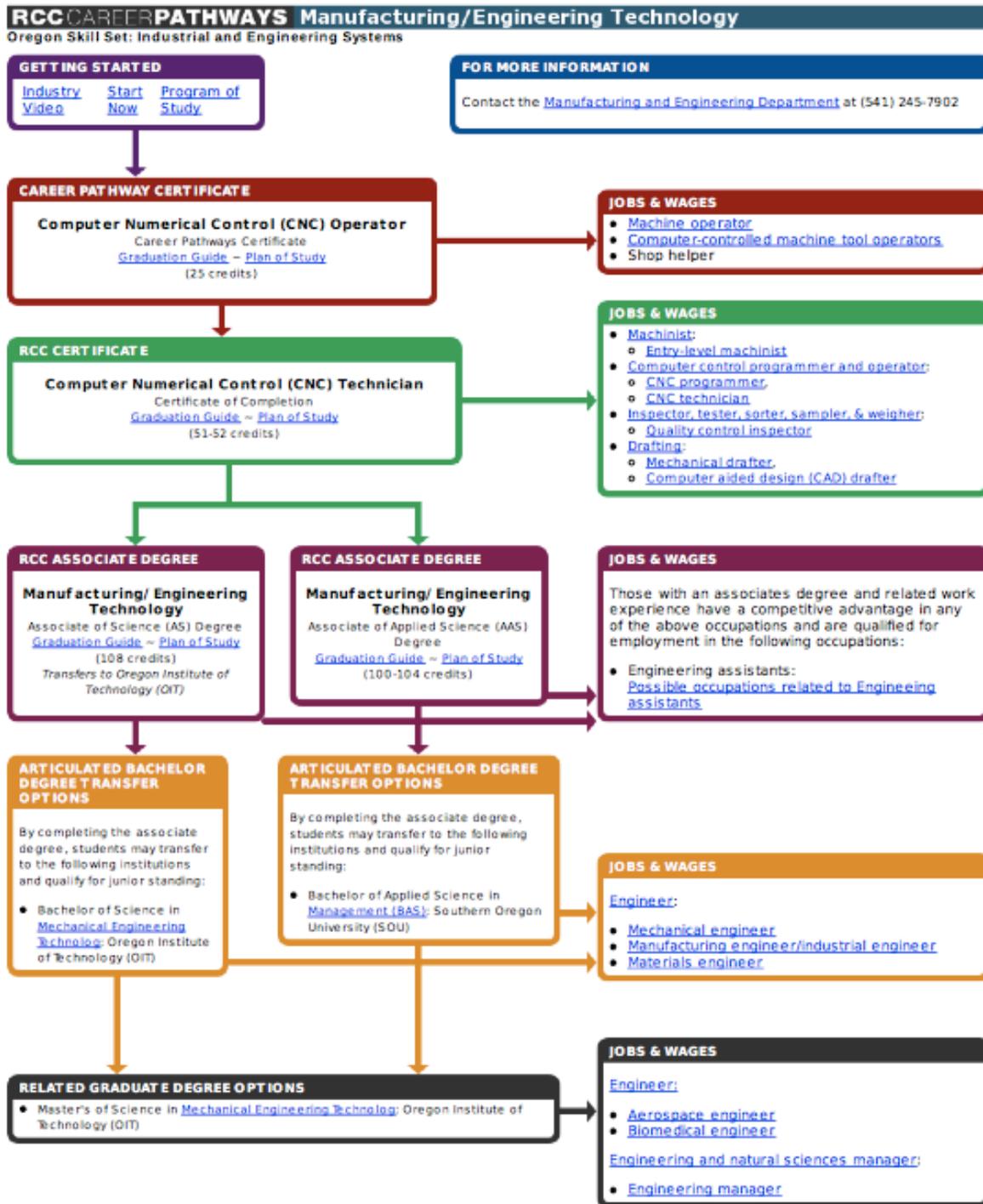


FIGURE 7. ROAD MAP FOR MANUFACTURING/ENGINEERING TECHNOLOGY, ROGUE COMMUNITY COLLEGE, OREGON



An exciting new initiative, ***Accelerating Opportunity***, is designed to assist community colleges, working with their workforce investment systems, in establishing career pathways systems built on “eight essential elements” (see box and Figure 8).

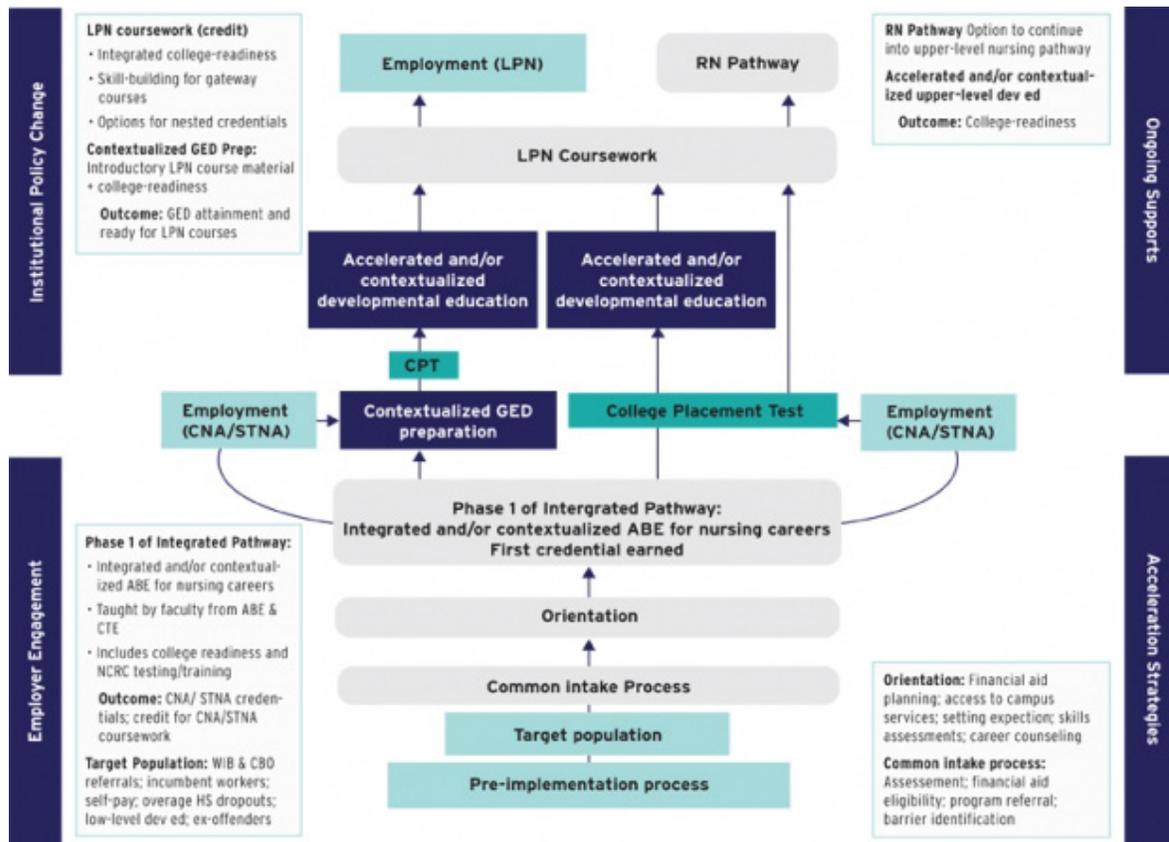
Accelerating Opportunity is an initiative of Jobs for the Future, with funding from the Bill & Melinda Gates Foundation, the Joyce Foundation, the W.K. Kellogg Foundation, the Kresge Foundation, and the Open Society Foundation, and in partnership with Washington State Board for Community and Technical Colleges, the National Council for Workforce Education, and the National College Transition Network.

Eight Elements Are Essential to Every *Accelerating Opportunity* Pathway:

- Explicit articulation of two or more educational pathways, linked to career pathways, that begin with Adult Education or ESL and continue to a one-year, college-level certificate and beyond;
- Evidence of strong local demand for the selected pathways, including the presence on the WIB demand list for the local area or other local data demonstrating robust demand;
- Acceleration strategies, including contextualized learning and the use of hybrid (online and classroom-based) course designs;
- Evidence-based dual enrollment strategies, including paired courses and I-BEST-like approaches;
- Comprehensive academic and social student supports (e.g., tutoring, child care, transportation, access to public benefits, subsidized jobs);
- Achievement of marketable, stackable, credit-bearing certificates and degrees and college readiness, with an explicit goal of bypassing developmental education;
- Award of some college-level professional-technical credits, which must be transcribed the quarter or semester in which they are earned; and
- Partnerships with Workforce Investment Boards and/or employers.

For more information, see <http://www.acceleratingopportunity.org>.

FIGURE 8. A MODEL ACCELERATING OPPORTUNITY PATHWAY



South Central Wisconsin's career pathways initiatives package curricula in sequenced modules targeted at specific occupations or career advancement opportunities. South Central's modules are stackable and lead to credentials that tie to jobs. Madison College has worked hard to ensure that training coursework bears credit and is included on students' transcripts to document progress toward a technical diploma or an applied Associate's degree. Figures 9 and 10, which are not actual career pathways maps, depict the career pathways system, showing how participants make their way through the system, and where services are provided (by WIA, the college, or both) in Madison, Wisconsin.

FIGURE 9. HOW THE WORKFORCE INVESTMENT SYSTEM PROVIDES SERVICES IN THE CAREER PATHWAYS SYSTEM IN MADISON, WISCONSIN

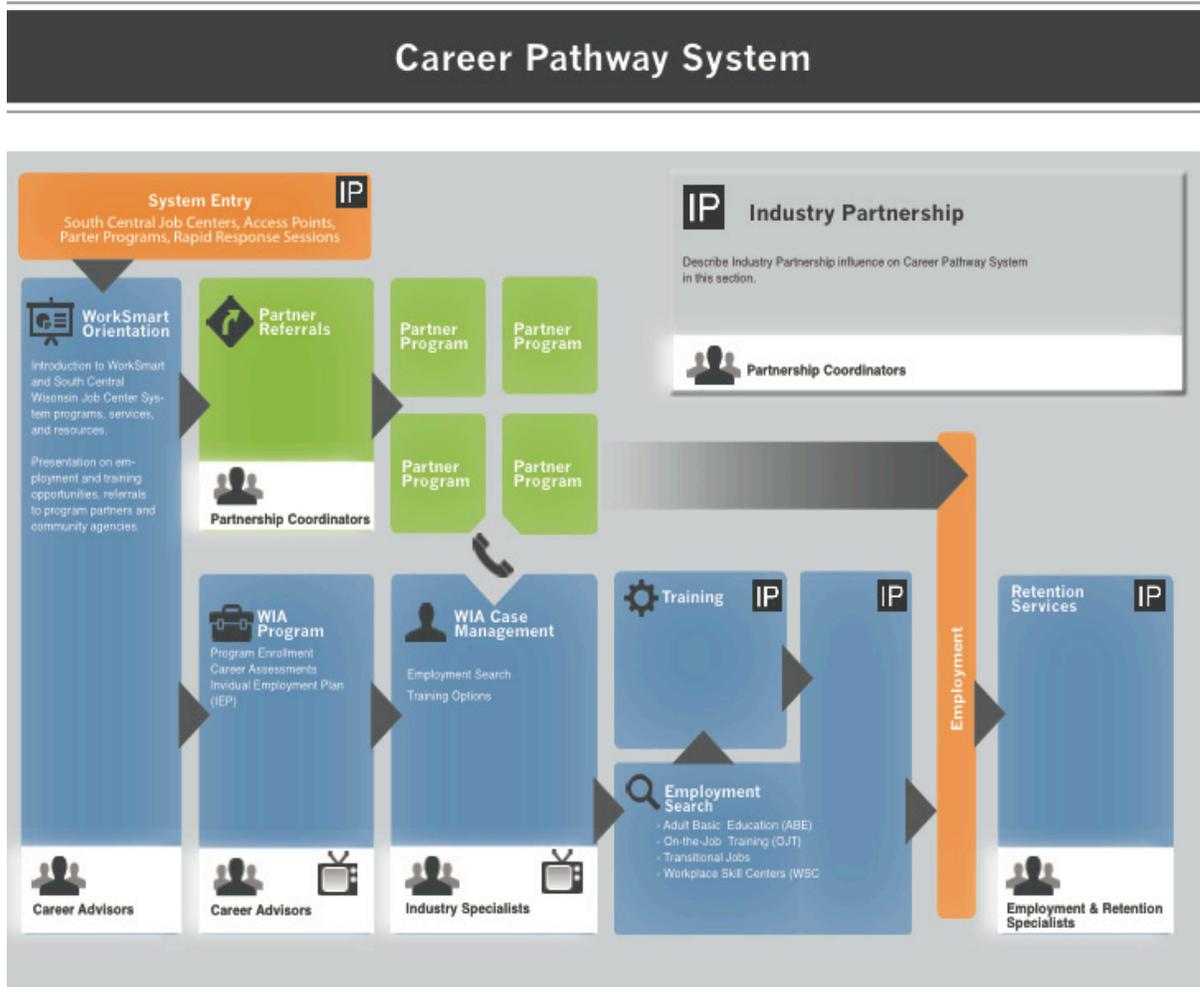
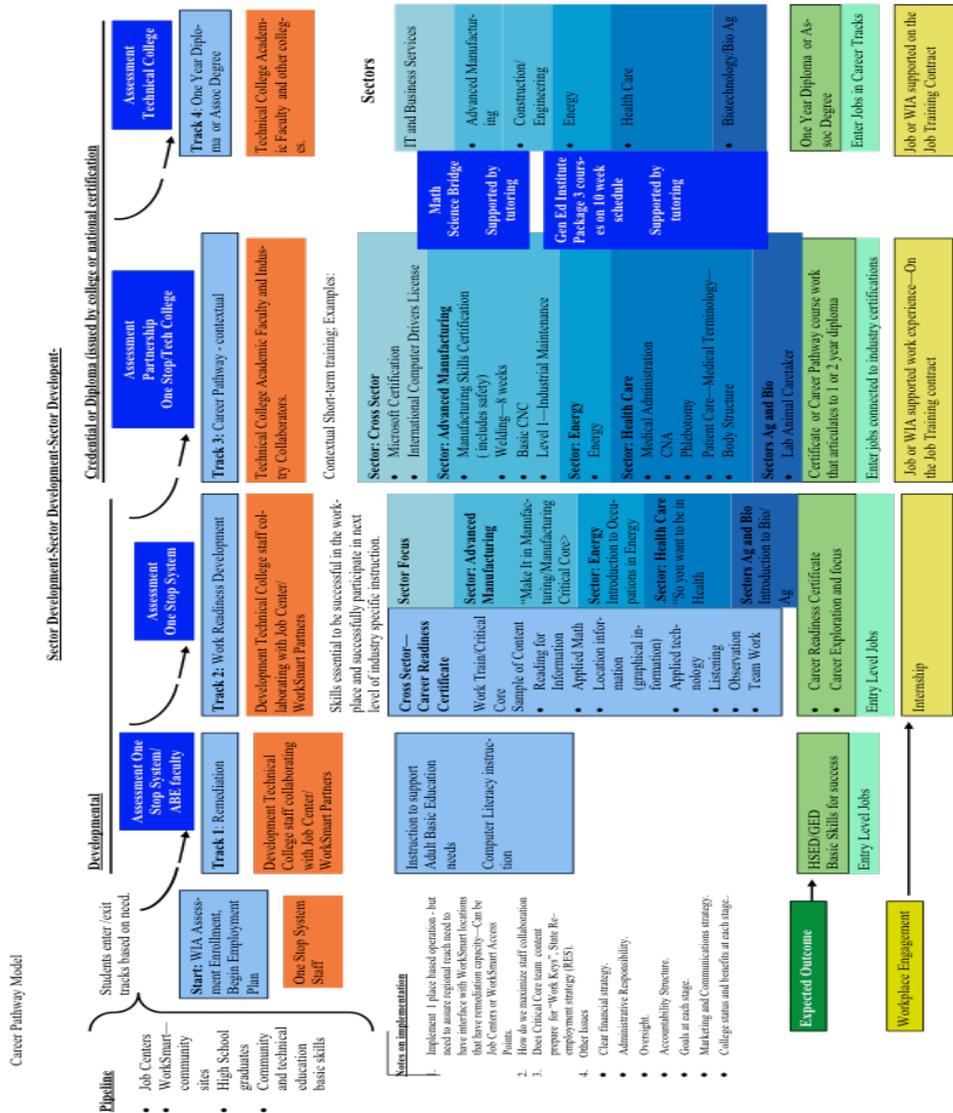


FIGURE 10. HOW LOW-SKILLED STUDENTS MOVE THROUGH CAREER PATHWAYS SYSTEMS IN MADISON, WISCONSIN



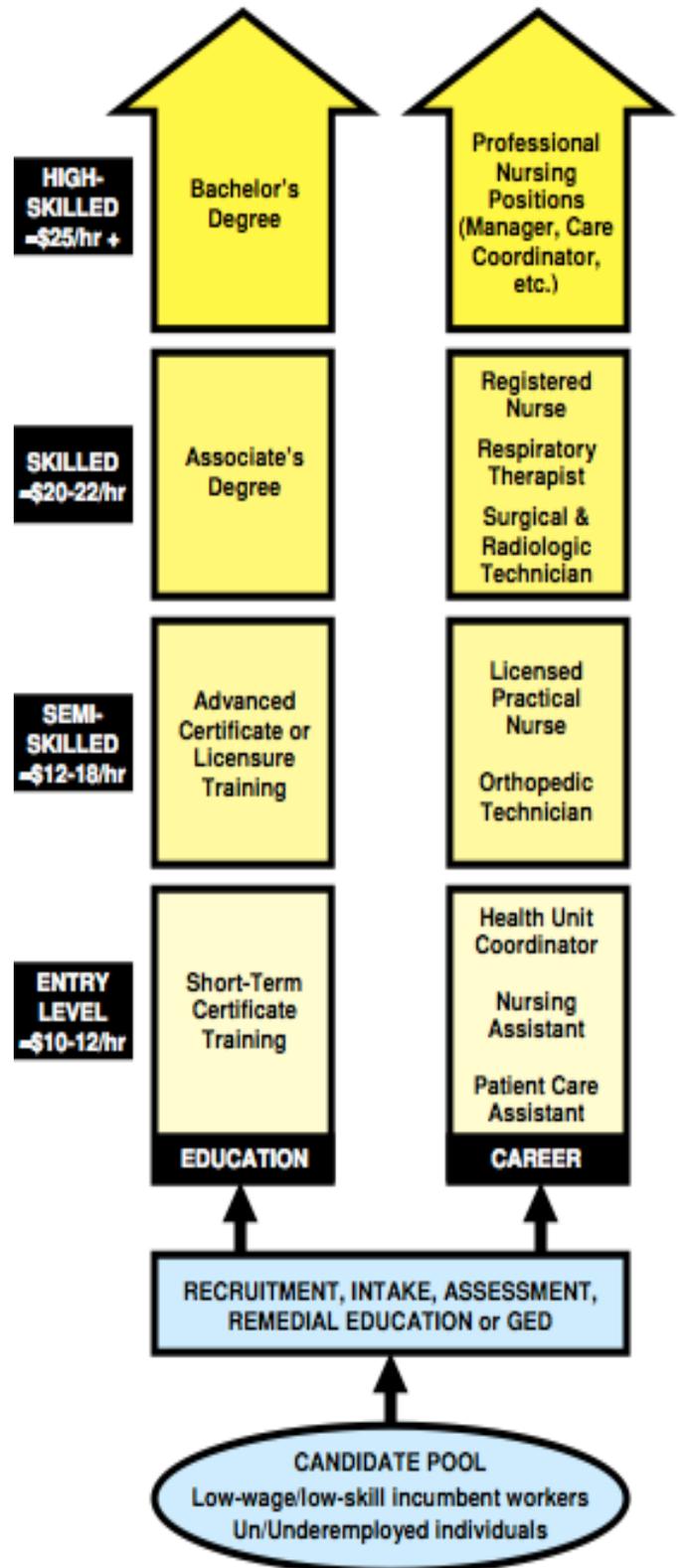
Multiple Entry and Exit Points

An increasing number of states, communities, and institutions are mapping pathways for specific occupations, with multiple on ramps and off ramps, usually at breaks between modules or chunks so participants can exit if necessary with a marketable credential and then easily reenter when circumstances allow. Upon reentry, individuals should be able to continue along the pathway toward higher-level credentials.

Workforce systems should be integrally involved in identifying potential participants in pathways programs, many of whom will presumably enter this training through the One-Stop delivery system, whether individually or in cohorts. While this training strategy focuses on low-skilled individuals at this point in its development, career pathways will offer expanded education and training opportunities to a wide range of participants in the future, making education and training more transparent, more relevant, and more accessible.

The Heath Careers Collaborative of Greater Cincinnati (and its health care careers mapped at right) is a career pathway developed by a partnership of health care employers, educators, the workforce investment system, and community agencies. The goals of the partnership are to alleviate occupational shortages in health care, provide career opportunities for lower-wage incumbent workers and un/under-employed individuals, and increase diversity in the workforce.

Managing partners in the collaborative include Children's Hospital, the Health



Alliance, Great Oaks Institute of Technology and Career Development, Cincinnati State Technical and Community College. Community partners include Dress for Success, Mercy Neighborhood Ministries, Super Jobs One-Stop Center (the local workforce system), and the Greater Cincinnati Health Council.

The collaborative is employer-driven. Tuition is prepaid for incumbent employees, including funding for developmental education as well as for for-credit certificate and degree programs. Convenient class locations and schedules are provided for working students, including flexible work hours that make it easier for employees to attend classes. Employers provide funding for the operation of training facilities. Community-based partners provide supportive services, job coaching, and work-readiness and soft-skills training. Transferable credits and articulation between educational institutions is prearranged, with certificate programs provided through the Great Oaks Institute of Technology and Career Development (the area's adult career and technical education provider) applying toward credit-bearing programs at Cincinnati State Technical and Community College. As illustrated, the program includes multiple entry and exits points along the pathway.

Intensive Wraparound Services

Career pathways systems must *provide academic and career counseling, as well as extensive support services*, particularly at transition points, to help participants persist in and complete their education and training, attain industry-recognized credentials, and find or advance in family-sustaining employment.

The barriers that adult students face, particularly those who are low-skilled and low-income, are among the major reasons they do not complete long-term education and training programs in greater numbers. Personal barriers (e.g., long work hours; the need for child care, transportation and other supports), coupled with time constraints and other challenges, make it very difficult for adults to engage in educational activities for long periods of time. Individuals who are low-skilled often require years of commitment to education if they want to make their way to postsecondary education and earn credentials, especially with the way our current system is structured. For these students to persist and succeed in a career pathways program, it is vital that adequate supports are in place to help them.

Ideally, each student should develop a career plan with assistance from a counselor, with a road map outlining the education, training, and credentials she or he must complete and a projected timeline. Case management is key to ensuring that students succeed in and complete their training. Group activities (e.g., study groups; tutoring; cohort learning) can help with persistence.

Because workforce investment systems historically have provided career navigation and support services, including counseling, assessment, and case management, partners may expect that the workforce system and its One-Stops will be responsible for most of these services. Realistically, with funding cuts and the increased demand for its services in recent years, it is unlikely that the workforce system can significantly expand or deepen what it provides without significant additional resources. Most workforce systems involved in career pathways initiatives provide these services at a minimum for their own customers who participate in pathways programs. A number of programs sponsor career navigators to help career pathways students persist in training. It is important that all partners work together to examine how they, as a system, will provide adequate levels of support for adult learners. Partnering with social service agencies, community-based organizations, and other service providers, as well as with educational institutions, will be necessary to meet the need for these services.

In Wichita, Kansas, PACES career coaches contribute substantially to the successful placement of students in jobs, resulting in a shared benefit for employers and educational institutions. The Workforce Alliance career coaches provide intensive case management to program participants. From the initial referral, coaches help participants overcome the barriers that stand in the way of their educational goals. Career coaches also work directly with partner organizations and make referrals for supportive services. Success depends on the ability of the coaches to help eliminate barriers and engage students to assure learning is relevant and aligned with their career goals.

In Seattle, Washington, the workforce system places career specialists from the One-Stop system in hospitals to work with incumbent workers who are interested in moving up in health care careers, helping them find appropriate training programs and sources of financial aid. The system also provides a career navigator for the automotive services technician program (an I-BEST model) at Shoreline Community College, helping students overcome barriers, complete the program, and move on to employment.

In Portland, Oregon, counseling and support services are provided through the workforce system up front before participants enter a career pathways program. The Portland WIB has developed a self-sufficiency calculator and requires individuals to complete that exercise. Individuals also must take a pre-education workshop so when they plan for skills training—and before pursuing it—they will know how the training and their pursuit of credentials along the pathway will affect their path to self-sufficiency.

A final component of wraparound and support services is employment assistance. The workforce system, including the Employment Service, plays an important role in providing job-search and placement services, assisting both students and employers in matching skills and making employment connections. The workforce system can further provide participants with workforce-readiness training, assistance in preparing a

resume, training in job search techniques, connections to internships and other work experience opportunities, and placement into full-time employment.

ELEMENT FOUR.

IDENTIFY FUNDING NEEDS AND SOURCES

A primary challenge for career pathways partners at the state and local levels is to identify how to pay for the pathways system and its programs.

Partners must first determine their vision for the system. Once they have a good idea of what they want it to look like, they must assess the costs associated with the systems change envisioned at both the state and local levels. Local partners must assess the costs of the individual initiatives or pathways programs envisioned. They must identify what funding, programs, and services in the state or local area may be available, at least in part, to contribute to and help in carrying out the career pathways system. And the partners must agree on their roles, responsibilities, and contributions to the pathways effort.

As noted, asset mapping is a necessary exercise to determine the resources and expertise available in the state, communities, and surrounding regions. However, partners must look beyond existing resources to identify other public, private, and philanthropic funding opportunities. They should also consider alternative financing options (e.g., bond financing) (Prince 2007).

The third category of costs to consider, beyond direct operational expenditures, are the costs for program participants. Federal student aid and other funding sources may cover some of these expenses. For example, students' eligibility for federal financial aid, such as Pell Grants, will depend in large part not only on each student's income but also on how the program of study is constructed. It is important to take all of this into consideration not only in looking for funding but also in putting the system together.

The workforce investment system may wish to lead, and at the very least should be central in, this funding assessment and mapping. If the state or local WIB has conducted an asset audit or map, its findings should be built upon to identify resources that may be accessed, in part or in whole, for the career pathways system. The WIB can also help

Strategies to Build and Sustain Career Pathways Financing

- Identify costs associated with system development and maintenance.
- Identify costs associated with developing and implementing programs.
- Identify costs associated with program operations.
- Determine the resources to be contributed by key partner agencies/stakeholders.
- Secure funding and other contributions (cash and in-kind) from public agencies, community-based organizations (including faith-based organizations), private foundations, businesses, and other sources.
- Secure funding to offset participants' training fees and consider students' financial-aid eligibility and other factors when constructing pathways programs.

convene system partners and conversations with the private sector, labor-management partnerships, CBOs, faith-based organizations, philanthropic interests, and policymakers for the purpose of building support for the pathways effort. These convenings will also help to identify additional resources that may be leveraged.

In **South Central Wisconsin**, the WIB sees leveraging resources as one of the workforce system's priorities to expand investments in its education and training efforts. The WIB has pursued and carried out numerous grants and initiatives over the years, including a Department of Labor Industry Partnership grant, a Community-Based Job Training Grant in biotechnology, a 12-county WIRED grant, and state-funded sector grants for biotechnology and health care. Currently, the WIB is convening sector initiatives in agriculture, energy efficiency, biotechnology, and health care. It also receives funding for carrying out Academy-based training; WAT grants, and federal EDA grants, in addition to its formula-based funding sources. Of particular assistance in further development of its career pathways efforts has been assistance provided by the Joyce Foundation's Shifting Gears initiative, providing the system with resources for data collection and analysis as well as technical assistance and other for critical purposes.

In **Wichita, Kansas**, the local WIB determined several years ago, and adopted in its strategic plan, that it would not depend or focus just on funding from WIA. It directed staff to leverage resources and partnerships for building a skilled workforce. Wichita pursued and received a WIRED grant from the U.S. Department of Labor. It also became a partner in the National Fund for Workforce Solutions, investing in major sector strategies in aviation and health care. It has partnered with community foundations and the United Way, aligning and leveraging public and private resources. Private-sector resources can be used more flexibly, which is especially important for serving incumbent workers as well as unemployed jobseekers.

The WIB has aligned WIA funding and leverages non-WIA funds for its PACES career pathways initiatives, including funding from:

- The National Fund for Workforce Solutions;
- The John S. and James L. Knight Foundation;
- Spirit AeroSystems;
- United Way of the Plains;
- The Glass Family Foundation (TECT Aerospace);
- The City of Wichita;
- The Lattner Family Foundation;
- The Kansas Department of Commerce (KHPOP grant); and
- Butler Community College (scholarships for qualified PACES participants).

Kansas is also one of eleven states that received *Accelerating Opportunity* planning and implementation grants, enabling it to further pursue institutional and state policy reforms, enhance student support services, align career pathways with industry needs, and implement evidence-based instructional methods.

The *Career Pathways Toolkit* includes tools that can help teams calculate existing and needed funding sources. It includes a Team Tools How-to Guide that provides an overview of how Resource Maps and Service Resource Maps can help to identify the agency funds available to support specific services offered through the career pathways system.

The Center on Law and Social Policy has also developed a Career Pathways funding toolkit that is helpful in identifying funding sources for the development and implementation of career pathways. This toolkit can be found at: <http://www.clasp.org/admin/site/publications/files/FundingCareerPathwaysFederalPolicyToolkitforStates.pdf>.

For a start, some of the public and private resources that career pathways partners should examine and pursue include funding under:

- WIA Titles I, II, and IV;
- WIA and other related competitive grants as they become available;
- Wagner-Peyser Act;
- Trade Adjustment Assistance;
- Federal student aid;
- Carl Perkins Career and Technical Education Act;
- TANF funds;
- Supplemental Nutrition Assistance Program;
- State and local government grants and other funding sources;
- Economic development funding streams;
- Foundation funding;
- Local businesses, industry, business, and trade organizations; and
- Alternative financing options (e.g., bond financing).

Developing Creative and Blended Funding Strategies

To support postsecondary access and success for lower-income adults, states must develop and expand flexible and comprehensive financial-aid strategies. They can adapt existing funding structures to pay for innovative programs. For example, in Washington

State, the I-BEST program, which combines professional/technical and basic skills (ABE, GED, and ESL) instruction, is funded at 1.75 FTE, which enables colleges to pay for both basic skills and technical instruction in an integrated program design. Other states use federal resources: Arkansas uses TANF dollars to fund its career pathways programs. Oregon uses a combination of WIA Titles I and II and Perkins funding. In fact, most states that have undertaken early career pathways development have used state-held funding from WIA's Title I and Title II and from Perkins Career and Technical Education Act programs. And many students, even those without a high school diploma or a GED, have accessed Pell Grants to pay for postsecondary tuition through the Ability to Benefit eligibility provision in the Higher Education Act. (Much of this funding is jeopardized in coming years due to severe funding cutbacks and changes in the law at the federal level.)

Other instrumental sources of funding in many of these early implementing states and communities have included competitive grants and resources from philanthropic organizations. These funding sources tend to be more flexible, so states, communities, and institutions can try innovative approaches without risking the loss of public funding due to poor performance results or working outside of the rules. To carry out innovative reforms like career pathways, state and local workforce systems and their partners must be aggressive in pursuing alternative financing.

Minnesota is seeking ways to “braid” its public and private funding. With its latest round of grantees in 2011, the state has 17 Minnesota FastTRAC Adult Career Pathways partnerships up and running, receiving over \$1.6 million in funding from the Greater Twin Cities United Way, the Minnesota Department of Education/Adult Basic Education, the Minnesota Department of Employment and Economic Development, the Minnesota Department of Human Services, and the Minnesota State Colleges and Universities.

The initiative has also received funding from the Joyce Foundation's *Shifting Gears* initiative for initial planning and ongoing assistance and from the Otto Bremer Foundation, which provided a planning grant in 2007.

ELEMENT FIVE.

ALIGN POLICIES AND PROGRAMS

As the *Career Pathways Toolkit* notes, “Implementing a career pathways system is not business as usual. It requires new approaches, new partnerships, creativity, and hard work. It requires changing not only *what* the partners are trying to do and *how* they do it, but also the structure within which the system operates.”

Many of the ideas behind career pathways are not new. As earlier stated, the Workforce Investment Act and the systems that preceded it envisioned system alignment and the delivery of comprehensive education and training services that prepare Americans for good jobs. Unfortunately, few places in the country have made the systemic reforms needed to implement this strategy fully and take it to scale. In most places, public funding is still provided through funding silos, each with its own: administrative structures, missions, target populations, program rules, eligibility requirements, and program

outcomes. Some of these differences are based in statute, some in regulations, some in state and local interpretations of law and regulations, and some in program culture. What they have in common is that they stand as barriers to system alignment and the development of a comprehensive workforce development system. Perhaps most important, *they all stand in the way of helping Americans get the full range of education and training they need to find good jobs and careers; and of helping employers find the skilled workers they need to compete.*

To break down these silos, partners must agree to a common mission, vision, and goals—at the state and local levels—that place a priority on current and future workers, employers, and state and regional economic growth. Next, partners must identify the actions needed to realize the mission, vision, and goals. They must identify the barriers that stand in their way and find ways to eliminate them. Federal, state, and local laws, regulations, policies, procedures, and cultures associated with the different programs must be analyzed to see where changes are needed. And these changes must be documented in a format geared to senior leaders of the partner agencies and

Suggested Steps for Interagency Alignment

Partners should develop:

- An integrated customer flow process;
- An integrated support services process;
- A common assessment process and set of tools;
- A common career planning approach;
- A shared business-services approach;
- A shared client management information database;
- A common career pathways message;
- A shared professional development process; and
- A shared approach to collecting and using real-time labor market information.

organizations, as well as to policymakers, political leaders, and other system stakeholders.

The *Career Pathways Toolkit* contains an abundance of materials for partners to use in coming to these important decisions and for pursuing systems change. State and local Workforce Investment Boards should lead or be integrally involved in these efforts. This sort of systems change, and any resulting policy changes, will significantly affect the goals and mission of the state or local workforce investment system and how it operates. These recommendations will be strengthened if the boards are not only supportive but at the center of them.

Career pathways partners must identify key policy changes necessary to implement the goals and vision for a pathways system, and they should collaborate in pursuing them. Members of state and local WIBs, as well as community colleges and other state and local leaders, can be highly effective in communicating this information to legislators and agency heads. In addition, business and industry partners can be effective advocates for policy and legislative changes.

Arkansas and Michigan are examples of states that have implemented statewide policies and programs and taken advantage of multiple funding streams and administrative structures to implement career pathways or pathways-like programs. In both states, the initiatives had the strong backing of their governors.

Arkansas' Career Pathways Initiative was created in 2005 as a result of state legislation to address the state's low per-capita income (it ranked 49th) and low educational attainment for adults (more than half had no postsecondary credential). The statewide initiative was also seen as a way to increase the state's economic competitiveness. Funding came from state TANF funds—an investment of \$12 million in FY 2008—but its postsecondary education and workforce systems are partners in its implementation.

The Career Pathways Initiative, jointly managed by the Arkansas Department of Higher Education and the Department of Workforce Services, is designed to better serve low-income adult students by creating alternative delivery models. The initiative provides flexible scheduling, job-focused training programs, access to comprehensive supports and counseling, and clear pathway maps that illustrate the connections among programs, credentials, and jobs. The Department of Workforce Services provides colleges with labor market data so the programs can respond to regional labor market needs. Programs start with remediation that is self-paced or accelerated depending on students' needs (utilizing technology combined with instructor support), and include a work skills curriculum that leads to an employability certificate. The next step in the pathway offers fast-track and modularized training programs that quickly lead to marketable credentials.

Southeast Arkansas College was one of the early adopters of the career pathways initiative. It has created accelerated, contextualized remediation for students entering the health care professions that condenses three semesters of developmental education into one—and also

prepares students for the certified nursing assistant exam. The college has also accelerated the Licensed Practical Nursing curriculum: even students who enter at an eighth-grade skill level can earn a marketable credential within two years (Leach 2008; Wheeler 2010).

In 2007, **Michigan** established No Worker Left Behind under the leadership of Governor Jennifer Granholm. NWLB provided up to \$10,000 for two years of free tuition and other supports for any unemployed or underemployed worker willing to study toward a degree or certificate leading to an in-demand job in the state. More than 150,000 adults enrolled in NWLB-financed training by the end of 2010, and many more were steered to Pell Grants for training. As of the end of 2010, 59 percent of the participants eligible for federal workforce programs had found a new job after completing their training. At its peak in 2009, Michigan devoted \$189 million to No Worker Left Behind, particularly from federal funding sources available to the state.

While many workers benefited from participation in NWLB, *one out of every three workers could not qualify for entry into postsecondary programs because they lacked the basic skills to do so.* As a result, the state established No Worker Left Behind: Everybody In! to help low-skilled adults access postsecondary education and training integrated with education programs that would build basic skills in ways that are relevant to workers. In addition, a number of community colleges worked with national initiatives sponsored by national philanthropic organizations to increase postsecondary credential attainment, including *Breaking Through*, *Achieving the Dream*, and *Shifting Gears*.

Three colleges—Mott Community College, Lake Michigan Community College, and Macomb Community College—had particularly strong relationships with their workforce investment systems in carrying out NWLB, identifying challenges and key strategies for helping low-skilled dislocated workers attain postsecondary credentials and new careers.

Community colleges realized that many of the workers were unprepared for college-level work. They also realized that they would have to develop alternative service delivery strategies for the bombardment of dislocated workers who entered their institutions, accelerating the pace of their programs of study; providing basic skills instruction integrated with related skills required for college-level instruction. They developed innovative programs to assist dislocated workers by partnering with Michigan Works! (the state's workforce agencies), as well as with other key partners, including adult education providers, economic development agencies, and employers.

Michigan Works! staff collaborated with Lake Michigan College staff to develop "Career Transitions," a cohort-based course that teaches basic literacy and numeracy skills and instructs students in computer proficiency and key aspects of "college knowledge." At Macomb, the college co-located Michigan Works! counselors on campus. With funding and assistance from the Macomb/St. Clair Workforce Development Board, Macomb Community College developed programs to help displaced workers with low reading and math skills improve to college-ready standards. "Basic Skills Upgrade," an intensive open-entry/ open-exit course, provided literacy and numeracy instruction, contextualized to life themes that would be meaningful to students.

Mott Community College worked closely with its Michigan Works! Agency, known as Career Alliance, to develop programming that meets the needs of low-skilled adult workers, providing

career advising up front. It also created “Operation Fast Break,” a highly intensive precollege bridge program that met thirty hours per week for eight weeks. Operation Fast Break utilized KeyTrain computer software to provide individualized instruction in basic literacy skills. The course also instructed students with career counseling and in learning the computer and soft skills needed for employment (e.g., collaboration; problem solving). Mott also expanded and extended its career pathways initiative, which provides clear routes from noncredit vocational courses yielding certificates to credit-bearing coursework leading to Associate’s degrees.

Mott’s career pathways programs, developed in coordination with the national *Breaking Through* initiative, have targeted several areas: business, management, marketing and technology; engineering/manufacturing and industrial technology; human services and public administration; green construction; and health sciences. Packaging adult education and occupational training courses together enabled the college to pay for instruction received in a “program of study” from WIA title I funding. The state, Michigan Works!, and Michigan’s community colleges learned the following lessons from their experiences with NWLB:

- Reward collaboration between community colleges and Workforce Investment Boards.
- Target benefits to adults with low basic skills.
- Support a shift in the Adult Basic Education system to support postsecondary transitions.
- Develop strategies for accelerated learning for adults.
- Develop a common understanding of college readiness among workforce and higher education systems.
- Strengthen data systems and analysis.
- Train in cohorts of students (dislocated workers respond well in learning communities with peer support systems).
- Develop open-entry and open-exit policies for program participation, aggregating small sets of students entering together into study groups.
- Tailor curricula to the goals and cultural interests of the students.
- Integrate multiple funding sources to support long-term training (Hillard 2011; Jenkins, Zeidenberg, & Kienzl 2009).

ELEMENT SIX.

MEASURE SYSTEM CHANGE AND PERFORMANCE

We began this paper by referring to career pathways as a promising strategy that has emerged in recent years. We believe that this kind of systems reform will yield significant outcomes. However, career pathways as envisioned in this technical assistance effort are relatively new, so performance outcomes are not yet widely available. As a result, performance measurement and the collection and analysis of data are especially important.

We can now see promising results: career pathways strategies are helping individuals of all skill levels, and particularly low-skilled individuals, make their way through the continuum of education and training courses they need to gain industry-recognized credentials and family-sustaining employment. We are encouraged that these strategies provide the skills employers need to increase their productivity and boost local and state economies. We have reason to expect that career pathways will increase our collective competitiveness. Finally, we anticipate that these strategies and this form of systems change will lead to the development of a truly comprehensive workforce development system—one in which all programs work together toward common goals and funding is leveraged to the fullest extent. It is critical that we measure the outcomes of program participants, employers, state and regional economies, and the system itself to determine its outcomes and make course corrections along the way.

Key Questions for Measuring System Change and Performance

- What are the desired outcomes of the career pathways system and its programs? How can they be measured?
- What data should be collected to determine if the outcomes are achieved?
- Is some of this information available as part of other measurement systems (e.g., WIA, Adult Education)?
- Who will collect the data and how?
- How will data be maintained and shared?
- How will data be used to make *program* improvements?
- How will data inform *system-wide* change and continuous improvement?

Washington's I-BEST Program. We have performance data on one of the most well-known and most evaluated career pathways programs in the country: Washington's Integrated Basic Education and Skills Training (I-BEST) program. The Community College Research Center at Teachers College, Columbia University, which has conducted several evaluations of I-BEST, has found that low-skilled students (including those without high school diplomas or GEDs) can persist in and complete postsecondary education programs and attain meaningful credentials that lead to family-sustaining employment. The evaluations have further shown that I-BEST students outperform similar students in earning college credits and occupational certificates and in persisting to program completion (Jenkins, Zeidenberg, & Kienzl 2009).

I-BEST combines adult education and postsecondary technical skills classes to ensure that Washington's least-prepared students complete their education and training programs and that they can compete in the workforce. Students are dually enrolled, with basic skills instructors and college-level career-technical faculty jointly designing and teaching college-level occupational courses for adult basic skills and ESL students. Instruction in basic skills/ESL is integrated with instruction in college-level career-technical skills.

Workforce Investment Boards should play an important role in working with partners to determine how to establish a performance measurement system for career pathways. The U.S. workforce investment system (including its predecessor program) was one of the first federal programs to require performance measurement. As a result, it has a significant history working within the constructs of an outcomes-driven system and understands the influence that performance measurements can have on workforce development activities.

In performance-driven systems, the collection and analysis of data are essential. It is important that common data be collected and analyzed across partner programs: for use in determining system progress; to ensure continuous improvement; and to make necessary corrections along the way. States and local areas can use data to identify student achievement gaps, improve education and training programs, identify transition issues, and evaluate the effectiveness of education and workforce development strategies as a whole.

Through its work with the states that participate in the Shifting Gears initiative, the Joyce Foundation has identified the following promising state approaches in the collection and analysis of data for improving system outcomes, all with implications for career pathways systems:

- Establishing authority for data sharing and the capacity to link data systems to track student outcomes across education and training sectors and into the labor market;
- Creating indicators of student success that include data on progress in basic skills and workforce education, in for-credit and noncredit programs, and for part-time and full-time students;
- Providing incentives to institutions and students that reward student success at reaching critical education and career pathway milestones;

Measuring Systems Change and Performance

As detailed in the *Career Pathways Toolkit*, workforce boards with the other career pathways partners should carry out the following steps to measure systems change and performance:

- Identify desired system and program outcomes.
- Determine measures for system and program outcomes, taking into account measures for individual partner programs and their impact on the system as a whole.
- Decide on collection methods.
- Establish how the data will be stored, tracked and shared.
- Analyze data, revisit desired outcomes, and assess progress.

- Identifying gaps in student achievement and developing strategies to close them;
- Making timelines for credential completion flexible to accommodate the realities of low-skilled adults' lives;
- Helping local education and training institutions use data for program improvement; and
- Evaluating the performance of programs and providers.¹⁶

Positive data can be used to sustain and expand employer engagement, as well as to build community and political support for the system. In Washington State, legislators have provided additional funding and applied additional FTE for students participating in the I-BEST program, based on the program's impressive performance outcomes. This funding has been instrumental in helping to expand the program into all of the state's community colleges.

Partners on state and local leadership teams should also analyze how existing performance measures (e.g., those required under WIA titles I and II) fit with the vision, goals, and measures for the career pathways system. If it is determined that an individual program's performance requirements conflict with the broader pathways vision, partners should seek ways to address such conflicts in support of the pathways effort, even if it means pursuing waivers or policy changes within the specific program.

The Oregon Pathways Alliance Career Pathways Accountability and Improvement Framework was developed in 2007 by the Oregon Pathways Alliance (a group of 11 community colleges funded by the state to advance career pathways practice and policy) and reviewed in 2010. Its goals are:

- Increasing the number of Oregonians who attain degrees, certificates, and other credentials;
- Increasing entry into employment and further education in fields of economic importance to localities and the state; and
- Increasing wage gains over time for graduates.

Two studies are underway to provide information characterizing students who have completed a certificate and track students after completion of their first certificate. These data will be used to enable Oregon's community colleges and partners to improve educational and labor market success for students and better meet the economic needs of their communities and regions.

A Retrospective Study will identify students who have attained certificates in career pathways programs to identify groups that are and are not participating and to determine the academic routes that students take to completion. In addition, the study is looking at how many and what kind of credentials are awarded at each college. What are the career focus areas? And what are the outcomes for former students (e.g., completers' milestones/momentum points; credits completed; number of adult education/remedial courses taken; time needed to earn first certificate)?

A Prospective Study, tracking students after they complete career pathways certificates, will identify their subsequent educational and employment accomplishments. Looking forward, this study will obtain data on what happens to career pathways students after they complete the first certificate, including: employment; wages and wage gains; numbers that return for additional certificates; degrees earned in the same area as stackable credentials; and the total credits earned.

As part of the development of its career pathways system, **Wisconsin** is establishing a longitudinal data system to track the educational trajectory of low-income adults and measure the effectiveness of career pathways efforts. This new system will use data from the Wisconsin Technical College System, Unemployment Insurance, WIA, and the National Clearinghouse.

Washington's State Board for Community and Technical Colleges has adopted a performance-based funding system to track the progress of students (including those entering from adult education) and to identify the key academic benchmarks that students must meet to complete degrees and certificates. The Student Achievement Initiative focuses students and institutions on shorter-term, intermediate outcomes that provide meaningful momentum toward degree and certificate completion for all students, no matter where they start. And they reward colleges that meet positive outcome goals.

In **Arkansas**, data linkages among the Arkansas Department of Higher Education, the Department of Workforce Services, and partners in the Career Pathways Initiative enable the state to track demographics, enrollment, completion, and employment data, a type of data sharing that is rare but valuable. Using this data collection, the initiative analyzes progress and develops future goals for the initiative. Going forward, the state aims to further integrate adult education into the pathways: most students have a secondary credential, the pathways enroll more men than women (the ratio is 1:11), and a major goal is to increase the percentage of participants who complete a credential (Leach 2008; Wheeler 2010).

To date, 88 percent of participants in **Minnesota's FastTRAC** credit-bearing integrated Adult Basic Education/postsecondary courses have completed their programs. In traditional programs, by comparison, only an average of 25 percent of working learners lacking basic skills complete all of their remedial coursework, and only 4 percent complete a degree or certificate within five years of enrollment.¹⁷

CONCLUSION

Our nation has been through a very rough economic period. Too many Americans remain unemployed with little hope of returning to their prior jobs or occupations. Yet we hear from employers in certain sectors of our economy that they cannot find the skilled workers they need to expand their operations and compete in today's marketplace. The future of our nation's economy depends in large part on what we do in coming years to address this education and skills mismatch in America's workforce—so employers have the skilled workers they need to be competitive and workers have the skills they need to build family-sustaining careers.

We cannot depend solely on solutions from the past but must look for innovative new service delivery strategies that prepare jobseekers and workers with the skills they need today and in the future. Career pathways systems offer a promising strategy for helping individuals of all skill levels—but particularly those who are low-skilled—to pursue, progress through as quickly as possible, and complete the education and training they need to attain the industry-recognized credentials that lead to good jobs and careers. Career pathways also offer significant opportunities for states and local communities to align a broad range of education, training and workforce development programs around common visions, missions, and goals—resulting in a comprehensive workforce development system that will help all Americans achieve the education and skills needed for economic prosperity and help employers who are important to regional economies find skilled workers.

Workforce investment systems, and particularly state and local Workforce Investment Boards, should play a central role in the development and implementation of career pathways systems. While they may or may not wish to lead these efforts, as community colleges or other intermediaries may be better situated in some communities to fulfill this day-to-day leadership function, it is important that workforce systems and other key partners be at the table for all important decisions. Workforce systems bring great value, expertise and resources to these efforts, particularly knowledge about the labor market, important relationships with employers, and experience in strategic planning, convening system partners, and carrying out performance-based programming.

As described throughout this paper, a number of state and local boards already play pivotal roles in the development and implementation of career pathways systems. These examples, as well as the resources provided in this paper and the *Career Pathways Toolkit*, will assist state and local workforce investment systems throughout the country to become involved in these very promising efforts.

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ENDNOTES

1 See the Career Pathways Toolkit:

<https://learnwork.workforce3one.org/view/2001135442016073646/info>

2 Since the investment is made and costs incurred at the front end and the higher earnings returns to training accrue over months and years, the future returns must be discounted (by an appropriate interest rate) before investment costs can be compared against returns to training.

3 See:

http://www.worksourceoregon.org/index.php?option=com_content&task=category&ionid=14&id=123&Itemid=48

4 See: Minnesota's FastTrac Initiative Brochure, available at: <http://www.mnfasttrac.org/>

5 See: <http://www.cincinnatiworkforce.org>

6 See the Ivy Tech website: <http://www.ivytech.edu/pla/>

7 See: <http://www.myskillsmyfuture.org/> and <http://www.mynextmove.org/>

8 For more information about real-time labor market information, see the Workforce3One webinar: <https://www.workforce3one.org/view/5001107429765257509/info>

9 Source: Seattle-King County WIB.

10 See: South Central Wisconsin WIB local plan for 2011 and career pathways website:

<http://www.wdbscw.org/initiatives/career-pathways.html>

11 See the Washington I-BEST website:

http://sbctc.edu/college/e_integratedbasiceducationandskillstraining.aspx

12 See the DOL TEGL on Credential Attainment:

<http://wdr.doleta.gov/directives/attach/TEGL15-10.pdf>

13 See the Oregon Career Pathways website: <http://www.oregonpathways.org>

14 See: <http://www.lanec.edu/pathways/maps/business-accounting.html>

15 See: <http://www.pcc.edu/pathway/?id=340>

16 See: <http://www.shifting-gears.org>

17 See:

http://acceleratingopportunity.org/sites/default/files/imagecache/wysiwyg_imageupload_shadowbox_preset/image_uploads/1/ao_ideal_model_graphic_0.jpg



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