Program Administrative Handbook for Local Directors

Adult Education: Wyoming

Chapter 3: The Career Based System for Adult Education

I. Career Pathways

Career Pathways is a workforce development strategy used in the United States to support workers' transitions from education into and through the workforce. This strategy has been adopted at the federal, state and local levels in order to increase education, training and learning opportunities for America's current and emerging workforce. Career pathways are an integrated collection of programs and services intended to develop students' core academic, technical and employability skills; provide them with continuous education, training; and placethem in high-demand, high-opportunity jobs. A career pathways initiative consists of a partnership among community colleges, primary and secondary schools, adult education, workforce and economic development agencies, employers, labor groups and social service providers. Community colleges coordinate occupational training, remediation,academic credentialing, and transfer preparation for career pathways initiatives.

Career Pathways Definition

WIOA, Section 3(7), defines a career pathway as "a combination of rigorous and high-quality education,training and other services that --

(a) aligns with the skill needs of industries in the economy of the State or regional economy involved;

(b) prepares an individual to be successful in any of a full range of secondary or postsecondary education options,including registered apprenticeships;

(c) includes counseling to support an individual in achieving the individual's education and career goals;

(d) includes, as appropriate, education offered concurrently with and in the same context as workforce preparationactivities and training for a specific occupation or occupational cluster;

(e) organizes education, training, and other services to meet the particular needs of an individual in a manner thataccelerates the educational and career advancement of the individual to the extent practicable;

(f) enables an individual to attain a secondary school diploma or its recognized equivalent, and at least 1 recognizedpostsecondary credential; and

(g) helps an individual enter or advance within a specific occupation or occupational cluster.

The legislation provides universal access to career services, which are defined and addressed in each of Wyoming's AdultEducation Career Services course. (See Section II of this Chapter.)

Core Elements

Career Pathways is an important element of WIOA legislation and of the Wyoming Unified State Plan. As such, local Adult Education programs are **required** to develop programming that aligns to a career pathways system. The Career Pathways initiative is a unified planning system that reorients existing education and workforce services to focus on successes in postsecondary / workforce (economic success for the region). The figure shown in the graphic depicts the six core elements to the development of the Career Pathways initiative.

While the six key elements provide states and local programs with a framework for building a career pathways infrastructure, it is critical that leaders have a vision of the types of services that comprise a local career pathways system. The view of local career pathways services has evolved under WIOA to one that is much more workforce based. The new vision supports local adult education providers in their efforts to recruit and orient a diverse range of clients and provide integrated career pathways services that will help participants identify and achieve their career goals.

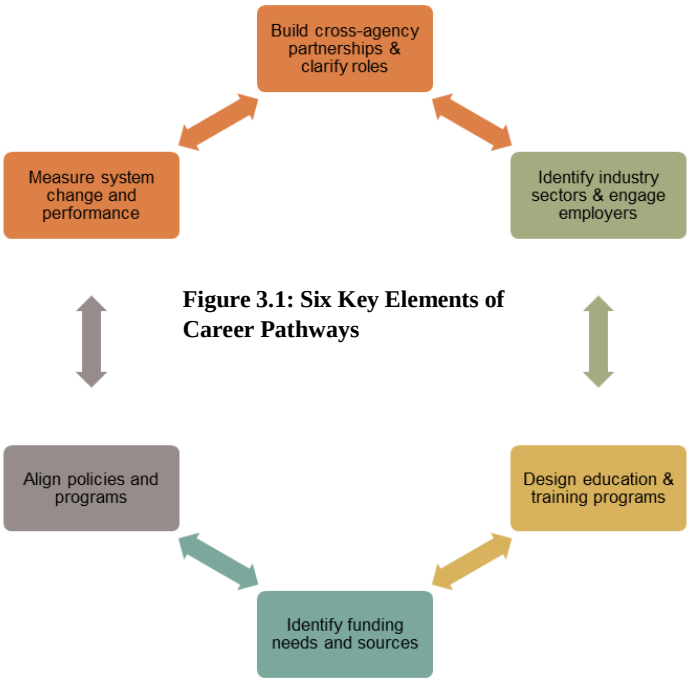


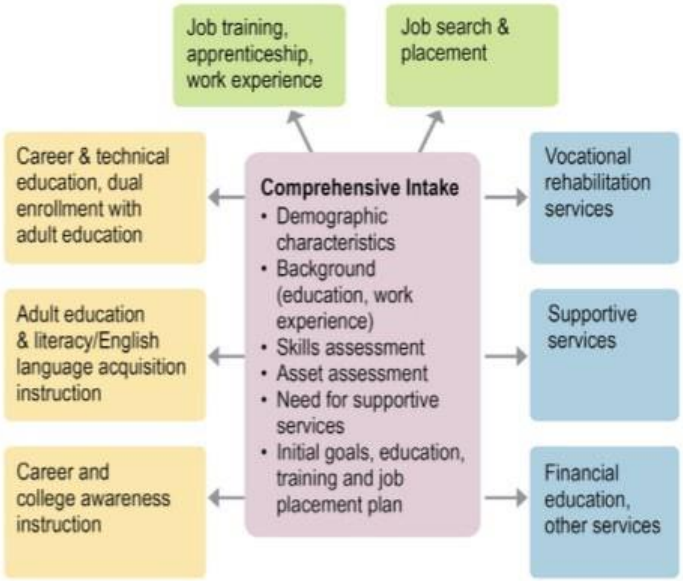
Figure 3.1: Six Key Elements of Career Pathways

An important assumption guiding the successful implementation of WIOA is that participants who enter local education and employment services will develop a career and education plan that enables them to participate in a range of education, employment and supportive service either simultaneously or sequentially.

WIOA Vision of Services

Illustrated in Figure 3.2 is an ideal vision of service access under WIOA, in which clients enter one building, participate in a comprehensive intake process, and then access a range of services. The more common situation is that clients will seek services in a variety of education, workforce, and social service organizations; local providers will need to ensure that all clients, regardless of where they enter, can develop a career and education plan and pursue education, employment, and supportive services that are well-aligned to those plans.

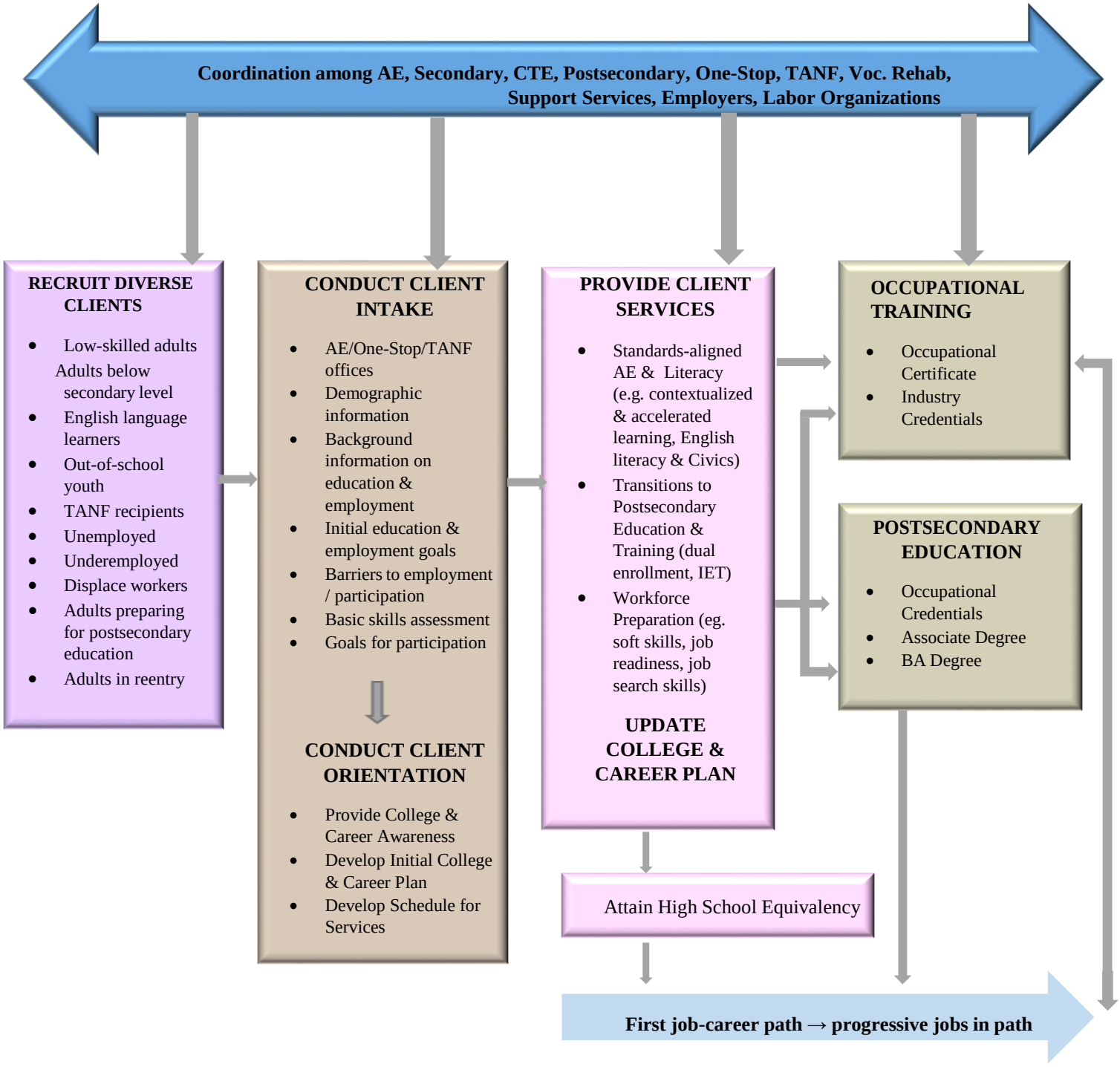
Figure 3.2: WIOA Vision of Services



The Career Pathways Planning Guide, created by the Manhattan Strategy Group (2016) also indicates that it is helpful to have a vision of the types and sequences of career pathways services that should be delivered by an adult education provider. The flowchart depicted in Figure 3.3 was created to help states and local programs assess the progress of adult education providers in moving towards a career pathways system that:

- enables the recruitment of diverse clients,
- the development of a comprehensive intake and an orientation process involving participants' creation of a career and education plan, and
- the delivery of instructional content which promotes multiple outcomes and leads to career pathways over time.

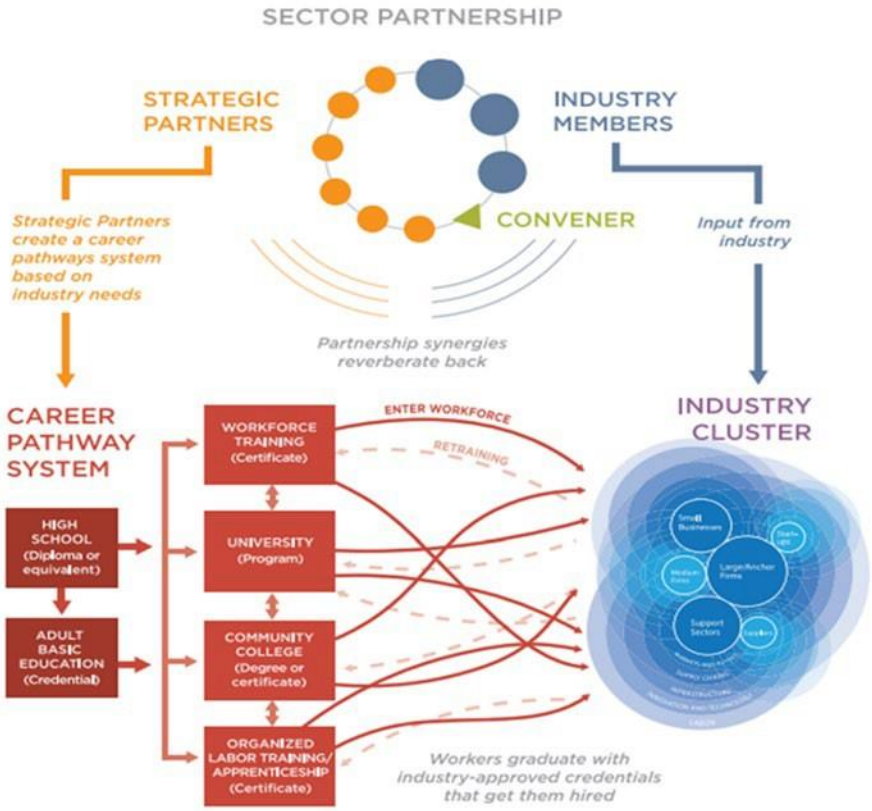
Figure 3.3: Illustrative Framework for Career Pathways Local Systems



Partnerships in Career Pathways

To clarify how a true Career Pathways system should work, the National Governor's Association developed the graphic below show the linkages which must occur between sector partnerships and a Career Pathways System. Notice the importance of Adult Education in this graphic.

Figure 3.4: Strength in Partnerships



An effective local career pathway system is built on partnerships among agencies and organizations whose efforts complement each other and strengthen outcomes for partners.

Partners are critical to implementing career pathways; they provide information, resources, and expertise that are required for a multi-service localcareer pathways system. Rarely do all of the needed resources reside in one local service provider's organization. Adult education providers will likely need access to additional expertise or staffing in implementing robust career pathways activities to obtain timely labor market information and carry out effective recruitment and intake procedures, quality instructional design and delivery, integrated education and work opportunities, and support services for learners

Career Pathways in Adult Education Programs

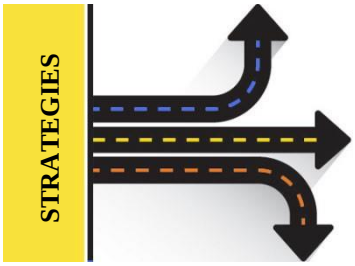
Under WIOA, adult education functions as an on-ramp to entry into and success in post-secondary education, job training, and careers. The AE on-ramp has a career pathways focus so that individuals are well prepared to meet the ever changing global, national, state, and regional economic needs. From high school to higher education reform, people are talking about career pathways. An unprecedented unified letter from 13 federal agencies, the White House National Economic Council and the Office of Management and Budget identifies the problem career pathways are meant to tackle: "Too often, our systems for preparing low-skilled youth and adults with marketable and in-demand skills can be complex and difficult to navigate for students, job seekers, and employers. Career pathways can offer an efficient and customer-centered approach to training and education by connecting the necessary adult basic education, occupational training, postsecondary education, career and academic advising, and supportive services for students to prepare for, obtain, and progress in a career." (https://www.acf.hhs.gov/sites/default/files/documents/ofa/doe_hhs_and_dol_issue_joint_letter_promoting_the_use_of_career_pathways.pdf)

Designing Intake Processes, Instruction, and Transition Services in a Career Pathways System

Intake processes, instruction, and transition services are the foundation of a career pathways system of services. Local partner agencies' and institutions' coordinated services can be critical in enabling clients to begin a pathway towards family-sustaining jobs. Because of this, it is crucial that adult education providers conduct comprehensive intake processes, deliver high-quality instruction that incorporates approaches associated with positive career pathways outcomes, and establish system for transitioning participants from adult education to further education, training, and employment. Federal and State guidelines are in place to help Wyoming's providers collect both NRS required data as well as data needed for a career pathways system. Most of this type of data and information is collected through the intake process and/or is addressed in a local provider's 'Career Services Course.'

A broad range of instructional strategies should be explored when considering how to reframe basic skills instruction within the context of career pathways. **Contextualized** instruction offers a promising approach. In a contextualized lesson, foundational academic skills that help clients build readiness for college and careers are integrated with career exploration, technical skill-building, and/or employability skills that help clients prepare for employment. The specific balance of the content areas varies, depending on the program. Contextualized instruction can increase client engagement and motivation to learn by relating instructional content to the specific context of clients' lives and career interests. Contextualized instruction is an approach that creates explicit connections between the teaching of foundational basic skills and technical disciplines. Career pathways can provide much-needed relevance for academic concepts that clients often find difficult to understandwithout a familiar or relatable context.

Effective strategies for designing the content for contextualized lessons include:



- Collaborating with content and industry experts to plan and develop curricula that combines underlying foundational basic skills instruction within the context ofoccupational skills and competencies;
- Integrating foundational basic skills content standards and technical standardswhen defining learning objectives; and
- Aligning course content to the defined learning objectives, striking the appropriate balance of each of the key content areas

Contextualized instruction often incorporates authentic materials from the workplace to further demonstrate the connection between learning objectives and careers. Multiple teaching methods and types of learning experiences are typically found in a classroom engaged in contextualized instruction. Cooperative learning groups, peer mentoring, and hands-on activities are common. Local employers and community college career-technical faculty are excellent partners to collaborate on the development of contextualized instruction that will prepare clients for postsecondary instruction and in-demand careers.

Transition Adult Education Learners to Postsecondary Education and Employment

Participants need a clear road map to move beyond basic education and a personal career pathways plan to navigate the education and training options available to them. Adult education providers should consider developing processes for transition planning that begin with participants' preparation of a career and college plan as part of their orientation to adultbasic education and continue until they are placed in their next educational or training program after adult education.

Activities that adult education staff can conduct to facilitate transition to next steps are:

- Revisit learner career and college plans as participants progress through foundational basic skills instruction,complete their high school equivalency credential, and consider a postsecondary program of study to pursue;
- Engage with partners in community colleges and other agencies to identifyresources that participants can access to obtain assistance in selecting an education or training program and the courses required for that program, applying for financial aid, preparing for college placement tests, and completing a college application;
- Engage with One-Stop partners to identify services that participants canobtain to prepare for employment; and
- Monitor participants' progress in accessing resources to prepare for postsecondary education/ employment and provide support and guidance as participants' transition to their next step.

Importance of Career Pathways? (Jeff Fantaine, 2015)

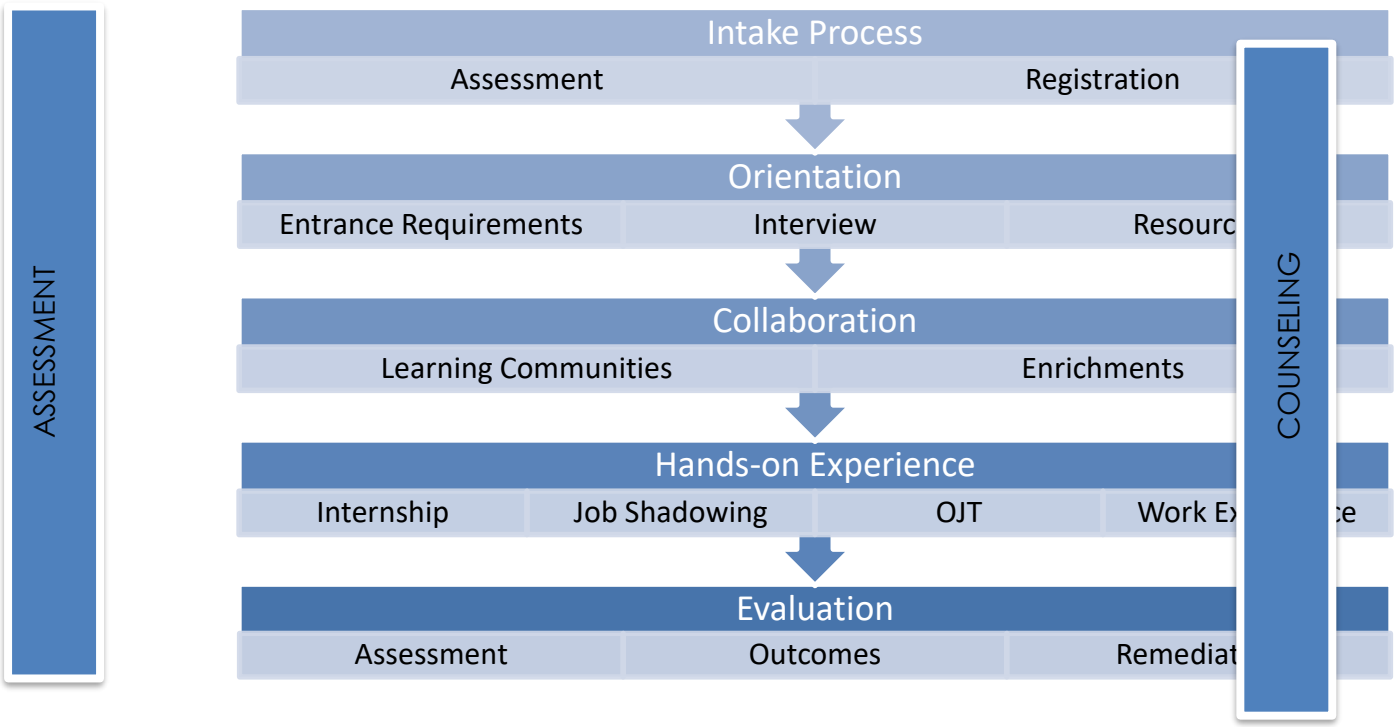
The idea behind career pathways is to build an education and training system where students effectively and efficiently acquire the knowledge, skills and certifications necessary to secure meaningful employment along a career trajectory and are able to manage life. A career pathways approach to providing services requires a focus on the development of academic, job-technical and social capital (employability) skills applied in the context of career and life goals.

The purpose of a career pathways effort is to strengthen and align the education and training system locally with the involvement of relevant stakeholders, so that it is seamless and provides participants with the knowledge, skills and certifications necessary to move along a career path.

An effective career pathways system requires:

- Formal partnerships among relevant stakeholders. Career pathways cannot be done alone.
- Providing accelerated and targeted services driven by local workforce needs.
- Infusing a career context into program services.
- Creating a career culture in the learning and training environment.
- Integrating career awareness and exploration opportunities.
- Guiding students through creation of education, career and life plans.
- Ongoing career advising.
- Contextualizing participatory learning using a competency-based model with standards.
- Offering exposure to career opportunities.
- Providing comprehensive support through transitions.

Figure 3.5: Adult Education Career Pathway Student Flowchart (Jeff Fantaine, 2015)

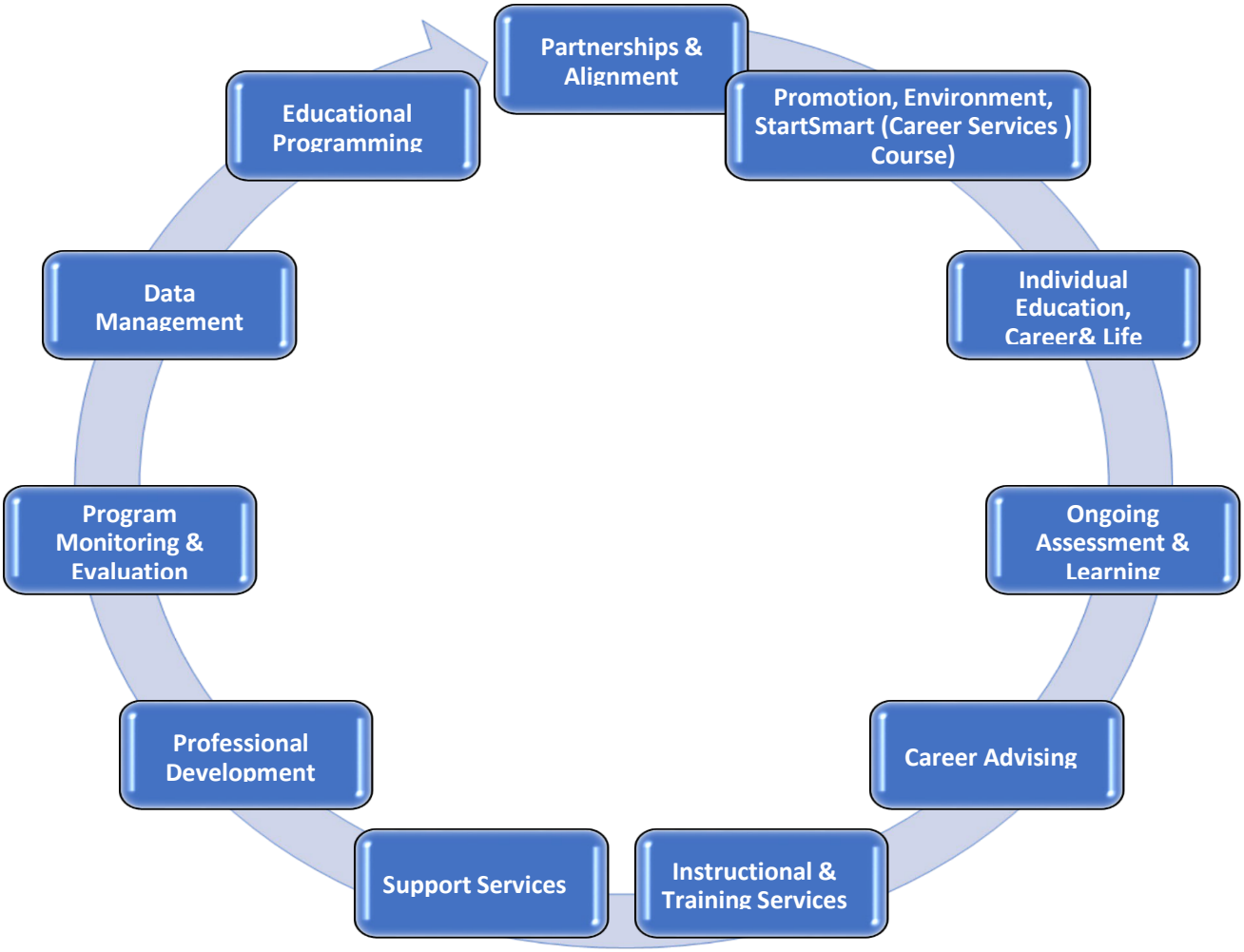


Career Pathways in Wyoming's Adult Education Programs

The Gap Analysis

Shortly after the passage of WIOA legislation, Wyoming's Adult Education program's completed training in Career Pathways and each program was certified as a State Career Pathways Center. The purpose of this training was to assist local providers with the development, implementation, and sustainability of career pathways services, specifically for small, rural program who typical serve lower-level students. One major component of this training required that local providers utilize the Career Pathways Planning tool to complete a Gap Analysis of the Essential Components to the CareerPathways system in Wyoming. This comprehensive tool formed the foundation in the transformation of adult education programs in Wyoming as local providers developed their career pathways system. The tool addresses eleven essential components that providers must utilize in the career pathways system. These are depicted in Figure 3.6 below.

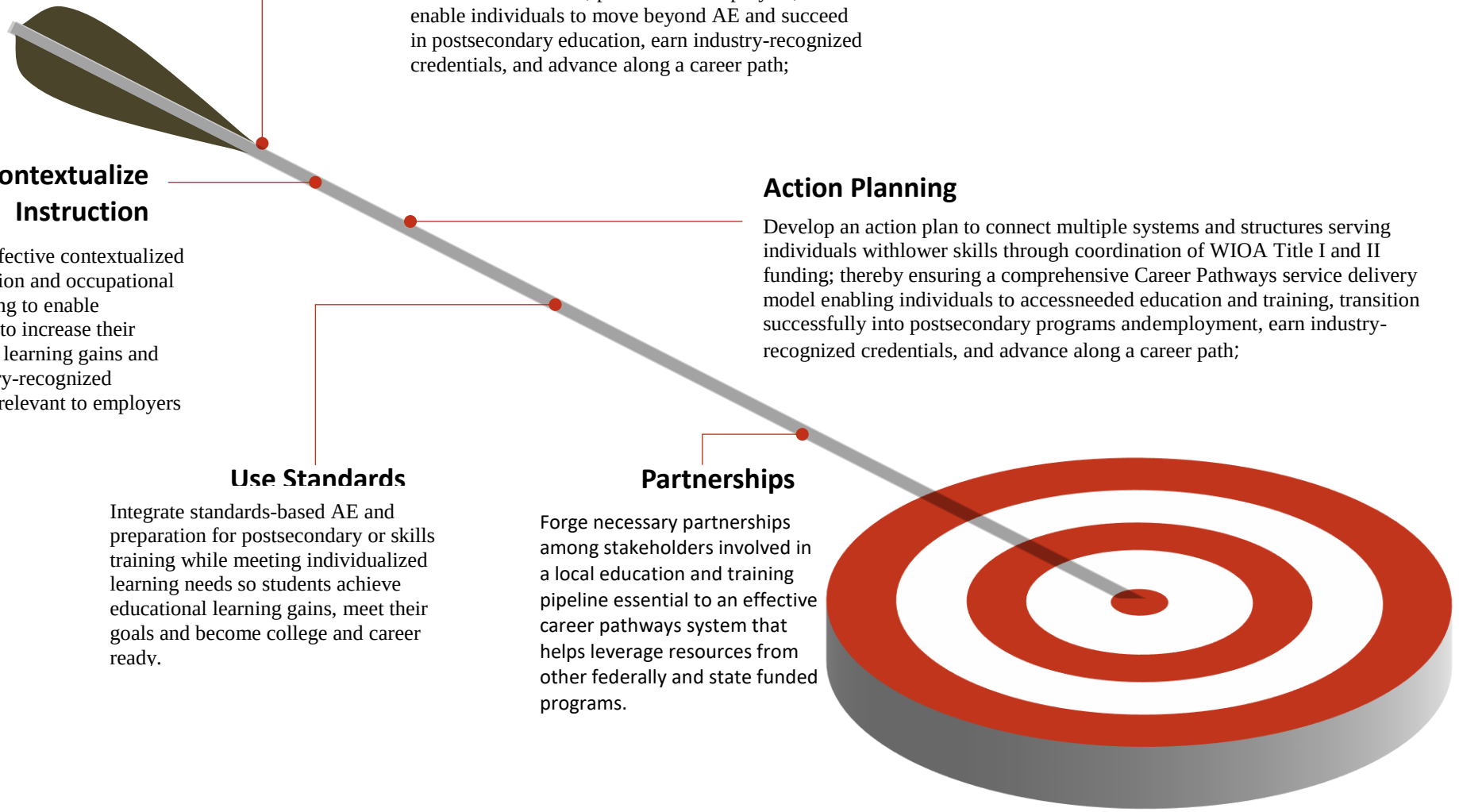
Figure 3.6: Essential Components of Wyoming's Career Pathways Initiative for Adult Education Providers



For each of these essential components, providers must identify processes currently in place for each component as well as where any 'gaps' may be. Providers are expected to address any 'gaps' each year so that comprehensive services can bedelivered to enrolled participants.

This planning system is designed to assess a program's current status in meeting Career Pathways related requirements under WIOA through a comprehensive gap analysis and articulate the steps a program will take to reach full compliance, if all required components are not currently in place.

NOTE: The goals of the Gap Analysis are to:



Strategic Planning Tool

Make use of the Career Pathways Plan as a strategic planning tool; document comprehensive Career Pathway approaches thatalign and bridge training, education, employment and support services at the local and state levels; partner with employers; and enable individuals to move beyond AE and succeed in postsecondary education, earn industry-recognized credentials, and advance along a career path;

Contextualize Instruction

Integrate effective contextualized AE instruction and occupational skills training to enable individuals to increase their educational learning gains and earn industry-recognized credentials relevant to employers

Action Planning

Develop an action plan to connect multiple systems and structures serving individuals withlower skills through coordination of WIOA Title I and II funding; thereby ensuring a comprehensive Career Pathways service delivery model enabling individuals to accessneeded education and training, transition successfully into postsecondary programs andemployment, earn industry-recognized credentials, and advance along a career path;

Use Standards

Integrate standards-based AE and preparation for postsecondary or skills training while meeting individualized learning needs so students achieve educational learning gains, meet their goals and become college and career ready.

Partnerships

Forge necessary partnerships among stakeholders involved in a local education and training pipeline essential to an effective career pathways system that helps leverage resources from other federally and state funded programs.

For several years, the Gap Analysis was a required component to each Adult Education reapplication process and was also included as a planning tool in the FY 20/21 competition. Local providers, particularly those with new directors who were not part of this training process, are encouraged to utilize the Gap Analysis planning tool for their own programs each year. A copy of the Gap Analysis can be found in Appendix #1.

II. Career Services

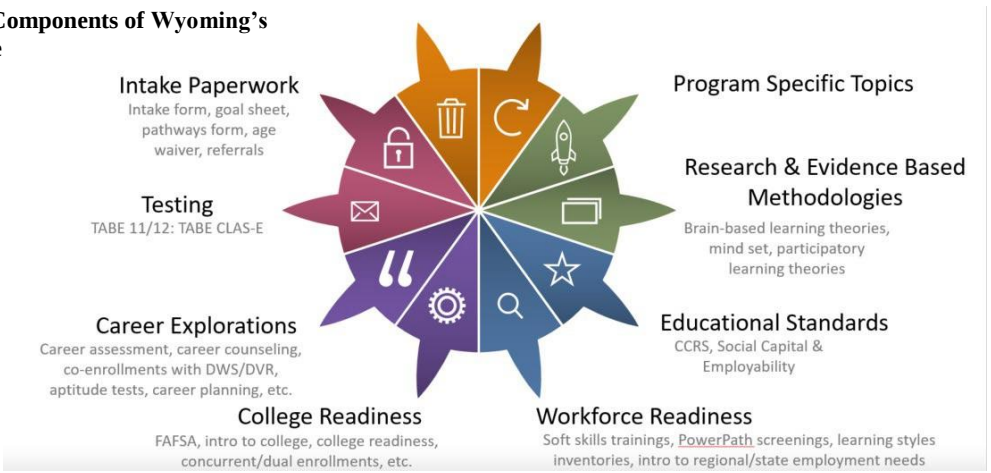
Essential Component #2 of the Gap Analysis requires that each provider in Wyoming offer a Start Smart course, which has now been renamed to 'Career Services'. Wyoming's Career Services course serves as not only an introduction and orientation tothe program, but also includes federal and state required components. Career Services are defined and discussed in Chapter 2, but are briefly reviewed here.

Career Services at the Local Level

Career Services at the local level follow federal regulations and are incorporated into WY Adult Education policy. This policy standardizes the Career Service components and hours to be allotted for each type of activity as shown in Figure 3.6.

All Wyoming AE programs have a Career Services Course which serves as the initial introduction and orientation to the program. How the course is delivered to students will depend upon how the program can incorporate the various parts into a local classroom model. Some programs deliver a course individually while others utilize a managed enrollment process. It really does not matter 'how' it is delivered, as long as all of the required components are integrated into the course and are provided to students.

Figure 3.7: Required Components of Wyoming's Career Service Course



Students must complete a Career Service course before enrollment into any AE program of study. A career service course may be completed online, through telephone communications, virtually, face-to-face, or through a combination of delivery modes and MUST include a valid assessment for pretest purposes within the first 12 hours. Instructors must be able to verify participant identity during all aspects of the Career Service Course. All Career Service hours must be recorded in LACES as regular 'contact hours'.

III. Career Awareness/Explorations

As students enter our programs in Wyoming, many have not identified career goals and require services that will help them explore career options matched to their interest areas and local labor market needs. Career explorations in Wyoming can vary from site to site, but all providers are required to include a **career assessment** and assistance in developing a career pathways track. Participants should also be provided with details about instructional program options that will help them achieve their goals for the careers they identify.

Through the career explorations component of the Career Services course, participants are afforded the opportunity to assess their interests and abilities, explore careers that align with their interest, and develop educational plans for achieving their goals. This holistic approach to career and college awareness motivates learners to participate in adulteducation and facilitates their short- and long-term planning for college and careers.

Career awareness should also be integrated into instruction through workplace scenarios and contextualized examples of how academic concepts are applied in specific careers. Incorporating vocabulary from a variety of occupations into instruction can increase basic career awareness across all levels of adult education programs to help generate participants'interest and motivate them to explore career pathways opportunities.

IV. Career Assessments

"Career pathways are essential in adult education because of their role in enhancing the workforce skills of adult learners thus aiding in the alleviation of poverty through increased earnings." (COABE 2018). Students who successfully embark upon and complete a career pathways track are much more employable. To this end, Wyoming's Adult Education centers have partnered with numerous agencies, businesses, postsecondary education/training centers, and community based organizations to ensure that Adult Education students are provided with the services needed to complete a career pathways track.

One of the beginning steps to developing a career pathways plan for any student is to take a career assessment. Career assessments are surveys or tests that attempt to give insight into what type of career would be best for an individual.

There are four major types of career assessments, personality tests, interest inventories, skills assessments, and value assessments.

- A *personality test* is a tool used to assess human personality. Personality tests can indicate whether an individual needs more training or experience. They can reveal the skills a person has that will make them a strong candidate for a particular job.
- *Interest inventories*, can help identify a career that matches an individual's interests. These assessments usually ask a series of questions about what a personal likes/dislikes. Then they match likes and dislikes to careers.
- A *skills assessment* evaluates an individual's skills; both technical and soft skills. These assessments are often used to gauge the abilities and skills a person has and are

typically designed to assess whether an individuals has the skill necessary to perform various and essential aspects of a job.

- *Value assessments* identify an individual's underlying work needs and motivations and can help to pinpoint jobs that are important to that individual.

Adult Education providers in Wyoming utilize a mixture of career assessment types, but each has the same purpose; to help the participant identify a possible career track! Wyoming places great importance upon these career assessments and it is for this reason that career assessments are a critical component to the Career Services course. Results of career assessments are used not only for the student's benefit, but also for the instructor as the identification of a career track can help guide instruction and provide for the development and use of contextualized instruction.

V. Career Clusters

Career clusters identify the knowledge and skills learners need as they follow a pathway toward their career goals. The knowledge and skills identified form a strong basis for learner success whether the learners are in high school, college, technical training or in the workplace. A career cluster also provide a means of exploring many occupational options. Each cluster is divided into different pathways. Pathways are grouped by the knowledge and skills required for occupations in these career fields. Each pathway provides instruction as a basis for success in an array of careers and educational pursuits. The U.S. Department of Education's Career Clusters provide a way for schools to organize instruction and student experience around **16 broad categories** (as depicted in Chart 3.1 below) that encompass virtually all occupations from entry through professional levels.

In Wyoming, Career assessment results are used to place students into one of the career clusters shown on the chart below. These results may become part of a student's permanent file and may be shared with the Wyoming Department of Workforce Services and/or Vocational Rehabilitation, once appropriate release forms are completed. Students are able to use individualized results to research careers in an identified pathway while teachers tailor instruction around a specific career pathway whenever possible.

Chart 3.1: Career Clusters

VI. Tying a Career Choice to Regional Economic Needs

It is very helpful to students to learn about regional economic needs for occupations, particularly for those occupationsidentified in a career assessment. Students need to know whether there is even a local or regional 'need' for a profession that they may be interested in pursuing. After completing the career exploration component to the Career Services course, instructors should introduce students to the career pathways model and provide information about career pathways to in-demand jobs for the State of Wyoming. (http://doe.state.wy.us/lmi/projections/2020/Short_term_Occs_2019-21.html) Many Adult Education programs have the Wyoming Department of Workforce Service (DWS) present this information to students as part of their Career Service course while other providers have students conduct this research on their ownState short-term job projections are available from DWS on their website. As of 2021, the Wyoming industries most in-need of workers fall into five distinct categories: health care, manufacturing, retail, hospitality & construction and the trades.

VII. Education and Training

Once a student has identified a career track, it becomes important that the student know where s/he can obtain the education and/or training needed to earn an industry recognized credential. Wyoming's

community colleges, the University of Wyoming, the State Office of Apprenticeship, and multiple training providers provide a wealth of credential opportunities. The charts found in *Appendix #2*, broken down by career clusters, reflect the types of credentials offered by Wyoming's Community Colleges. However, because College offerings can vary from year to year, Adult Education staff are encouraged to check the most recent updates through college websites.

Wyoming Workforce Development Council's Approved List of Eligible Training Providers

The Eligible Training Provider (ETP) list form the Wyoming Department of Workforce services also provides a list of recognized credentials that have been approved through the Wyoming Workforce Development Council, Wyoming's only Workforce Board. This list may be found at: http://www.wyomingworkforce.org/businesses/employment/etpl/

Career & Technical Education (CTE)

Career Technical Education is a program of study that prepares students for college and careers through a multi-year sequence of courses that integrates both core academics with technical skills within a career pathway. It is the practice of teaching specific career skills to students and is split into the 16 career clusters identified in Chart 3.1.

CTE differs from traditional and university-based education as it is focused on 'skills' and not on theory. Participants enrolled in a CTE program learn 'hands-on', practical applications because CTE careers require that workers have experience in the chosen field before they start working in the field.

Each of the career clusters for CTE is distinct, specializing in areas of expertise in high-demand occupations. As economic, regional and/or national demand changes, CTE tracks grow or diminish in popularity. CTE tracks also change with emerging technologies, best practices, and other advancement. To get a better understanding of each of the CTE's 16 career tracks a discussion is provided in this link.

It is a common misconception that CTE programs of study are only applicable to students in the K-12 system. Unfortunately, in Wyoming, Adult Education is often overlooked as one of the critical on-ramps to the education system. Our students also need access to career and technical education training programs so that they can develop required competencies and earn credentials needed for in-demand occupations. Whenever possible, Adult Education students should be encouraged, through concurrent postsecondary enrollments if possible, to begin a CTE program of study.

Appendix #1: The Gap Analysis

Career Pathways Planning Tool for Wyoming's Adult Education and Family Literacy Programs

WIOA Career Pathways Planning System:

Changes in the Career Pathways form now reflect WIOA requirements and other local needs.

Changes are noted in italics and underlined. (https://www.congress.gov/113/bills/hr803/BILLS-113hr803enr.pdf)

Title II of WIOA defines adult education (AE) to mean academic instruction and education services below the postsecondary level that increase an individual's ability to:

A. read, write, and speak in English and perform mathematics or other activities necessary for the attainment of a secondary school diploma or its recognized equivalent;
B. transition to postsecondary education and training; and
C. obtain employment.

To ensure Wyoming AE programs meet the federal definitions of AE and Career Pathways and continue to meet the rigor established through our Career Pathways certification training, all programs will annually submit an updated Career Pathways Plan. These Plans should be viewed and used as strategic planning documents which help you to assess needs, develop goals, determine resources, and evaluate progress. Updated plans must identify any changes from previously approved plans and demonstrate how the program is implementing WIOA requirements. Updated plans will be reviewed and approved annually to ensure that programs continue to meet the requirements of WIOA and maintain their eligibility for grant funds issued by the Wyoming Community College Commission AE program.

The Current Activities section under each Essential Component can be completed by cutting and pasting from your currently approved CareerPathways Plan.

Person Completing Plan: _____

Please Check:

Draft Plan ☐ Final Plan ☐

Wyoming Adult Education and Family Literacy

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #1: Partnerships and Alignment

Description

- Programs will *create formal partnership agreements* with family literacy programs, postsecondary institutions, WIOA core partners, employers, and local, community and state agencies. The *agreements* will include a list of partners, roles and responsibilities, services provided, duration and how resources are shared.
- *Programs will identify those services that align with the educational, training, and employment priorities of the Workforce Advisory Group.*
- Programs will have a *Workforce Advisory Group* with relevant stakeholder representation to advance Career Pathways efforts.
- Program services will align to postsecondary and advanced job training systems as well as local and regional workforce demands *and skill needs* without the need for remediation.

Examples of what to include:

- List key partners and describe existing partnerships (roles, responsibilities and what each partner contributes);
- Explain how existing partnerships will be strengthened and what new partnerships will be established;
- Explain how partnerships are formalized and revisited (provide copies of articulation agreements);
- Describe strategies for ensuring your program's services align to next steps of the education, training and career pipeline for your students;
- List stakeholders who comprise the local *Workforce Advisory Group* and describe how the group will operate;
- Identify how your program will address local workforce demands through Career Pathways.

Gap Analysis **Current Activities (to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #2: Promotion, Environment, Start Smart Course (new front end)

Description

- Comprehensive Career Pathways models impact every aspect of your program, including how the program is promoted/branded and the program environment/surroundings as well as the culture of the program.
- All aspects of the program should reflect college and career readiness and Career Pathways.
- Programs should provide services through a managed enrollment approach where feasible, but also have a strategy to accommodate students on an open enrollment basis.

Examples of what to include:

- Provide the program's mission and describe how it aligns to WIOA's purposes and how the target population/those served are who WIOA intends and are most in need;
- Describe how you will promote your program so local stakeholders are aware of Career Pathways services;
- Describe how you will create a Career Pathways environment and culture throughout your program;
- Explain how career awareness, assessment and exploration opportunities will be integrated into Start Smart Course (i.e., new front end) and drives learners toward education, career and life goals, and describe how students are involved throughout this process;
- Explain how family literacy will be involved throughout this component;
- Explain process for handling referrals from other agencies, and/or referrals made to other agencies based on intake information.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Wyoming Adult Education and Family Literacy

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #3: Individual Education, Career and Life Plans

Description

- Each student should have an individual education, career and life/family plan that he/she is involved in developing. Programs can modify what they are already using.

Examples of what to include:

- Include short-term and long-term education, career and life/family goals and objectives *in a manner that accelerates the student's educational and career advancement*;
- Include individualized strategies for reaching goals and objectives (including transition services);
- Incorporate skills and abilities from various types of assessments, inventories, screenings, interests and local workforce needs;
- Include how the student will use the plan and when it will be revisited/updated;
- *Include how the learning plans show evidence of the coordination and integration of education and workforce knowledge and skills based on educational needs and career and life goals;*
- Include any necessary support services enhancing the probability of success.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan -action steps to implement planned new activities	**Timeline** -full implementation by

Wyoming Adult Education and Family Literacy

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #4: Ongoing Assessment and Learning

Description

- Programs will identify assessments most appropriate for students and demonstrate initial and ongoing assessment throughout delivery of services, as well as how assessment (of all types) will drive program services.

Examples of what to include:

- Identify formal and informal assessments (all types) to be administered, i.e., TABE, college placement, Career Cluster Inventory, learning styles inventories, PowerPath Screening, career interest inventories and job skills assessments, etc.;
- Describe how appropriate assessments will be based on the needs, goals and progress of the student, how students will use this information to drive their learning (and staff), when assessments will be given and what determines this;
- Explain how learning will be celebrated with students.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #5: Career Advising

Description

- Career advising in AE is providing assistance to students on academic, career and life/family options.
- Advisors help students develop strategies and skills in exploring academic and career options, as well as develop and implement a plan for academic, career and life/family success.
- The education, career and life/family plan should show evidence of ongoing advising and regular review/update with students. Students should understand how to use their plan to guide their education, career and life choices.
- All programs should offer advising either through partnerships, use of volunteers, or as part of their staffing structure.

Examples of what to include:

- Describe how advising services will be offered;
- Describe how advising services will help students achieve academic, career and life/family success;
- Describe how the education, career and life/family plan will be used in conjunction with advising services.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #6: Instructional and Training Services

Description

- Curricula and instructional practices of the AE program must be rigorous, appropriate and research based (Title II, Subtitle C Sec. 231(e)(6)) and be aligned to the College and Career Readiness Standards (CCRS), where applicable.
- Contextualized instruction is short-term, targeted instruction to contextualize skills for specific academic, career and life/family purposes.
- *Curricula and instruction should align to next steps along student's pathway, including: employment, economic self-sufficiency, ability to become full partners in the educational development of their children, and sustainable improvements in the economic opportunities for their family.*
- Instruction within a career context addresses learners' needs for content knowledge, educational and academic skills, knowledge of workplace behaviors, employability skills and career awareness simultaneously saving learners the time and expense of completing extensive education in isolation from career preparation.

Examples of what to include:

- Describe how your program provides instructional services that align to the CCRS, move students along a Career Pathway and prepare them for college and career success;
- Describe how instruction integrates educational skills and job training in a contextualized manner and ensures students meet education, career and life/family goals;
- Explain how provided career services are based on students' needs and local labor market demands;
- Describe how employers and other partners are involved in the design and delivery of services;
- Describe qualifications of instructional and training staff;
- Describe how program accommodates students with special needs, provides sufficient intensity and duration as well as flexible hours to ensure access and learner gains.
- Describe use of research-based instruction and best practices as well as the integration of technology.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #7: Support Services

Description

- Support services improve persistence and student success, *especially for students with barriers*, as they progress through education and training programs and transition into employment.
- *Describe efforts for marketing program services and student recruitment.*

Examples of what to include:

- Describe what support services are provided (include memoranda of understanding with related staff/agencies/volunteers capable of providing these services) -
  - Employment services through career centers;
  - Transportation;
  - Childcare;
  - Financial literacy;
  - Family literacy
  - Community linkages (i.e., substance abuse counseling, mental health svstem services, housing);
  - Career services, mentoring, internships, job shadowing, career speaker series, apprenticeships, etc.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #8: Professional Development (PD)

(Title II, Subtitle B, Sec 223, (a)(1)(B)(C) and Title II Subtitle C, Sec 231 (e)(9))

Description

- All AE staff will develop and complete an annual PD plan based on needs determined through self-assessment, local program data and recommendations of local program administrator, and will include CEU requirements.

Examples of what to include:

- List what PD needs for staff were identified through a PD assessment. This should include academic as well as career services.
- Describe what specific PD the program will access throughout the year to address PD needs, i.e., How to Provide Contextualized Instruction through Jobs for the Future, Integrating Career Awareness through World Education, attend National Family Literacy Annual Conference, etc.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Please indicate up to three priorities resulting from the PD planning process:

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Gap Analysis and Plan

Essential Component #9: Program Monitoring and Evaluation (Title II, Subtitle C (Sec. 231)

Description

- Ongoing internal review of LACES student data to ensure accuracy in reporting and inform program improvement.
- Ensure copies of certifications earned by instructional and administrative staff as well as documentation showing teachers are certified or have experience teaching in the subject areas they teach are on file with the program director and available for program monitoring purposes.
- Describe the program staff evaluation process. Include the "Observation of Standards" rubric in this evaluation.
- Submit grant report(s) as required..
- On-time submission of reports
- Annual review of Career Pathways Plan updates.
- Ongoing state check-ins and Career Pathways Plan progress reports.
- Ongoing review of financial data to ensure appropriate use of funds.
- Describe process used for overall evaluation of the administration of the local program.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Wyoming Adult Education and Family Literacy

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #10: Data Management

Description

- Program services will be guided by student achievement and persistence data, current labor market, and employment data to ensure programming meets identified local needs. Data must be recorded on participants who obtain high school equivalency completion, have obtained or retained employment or are in an education or training program leading to a recognized postsecondary credential within one year after exit from program. (more guidance coming)
- Describe how data is gathered, entered into LACES, and audited locally for accuracy and frequency of such audits.
- Explain how program data as well as workforce and labor market data are used to guide instruction, improve program services and improve student and program outcomes.
- Describe how data is used to inform professional development of staff and quantify outcomes.

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Wyoming Adult Education and Family Literacy

Creating Pathways for Education, Career and Life Success

Gap Analysis and Plan

Essential Component #11: Educational Programming (Title II, Sec. 202 and 203)

Description

- Programs will provide evidence of the provision of at least three of the following educational programs and how they align with WIOA requirements of transitioning to postsecondary and employment :

1. Basic literacy instruction or instruction in English as a Second Language;
2. High school equivalency instruction;
3. College transition courses;
4. Digital literacy instruction;
5. Adult workforce training and retraining; (including workplace activities offered in collaboration with an employer or employee organization or combinations of basic academic skills, critical thinking skills, digital literacy skills, and self-management skills, including competencies in utilizing resources, using information, working with others, understanding systems, and obtaining skills necessary for successful transition into and completion of postsecondary education or training or employment);
6. Adult Career and Technical Education; and
7. Family Literacy – Adult Education instruction

Gap Analysis **Current Activities** **(to be sustained):**	
Planned New Activities (to meet WIOA and other local requirements):	

Plan - action steps to implement planned new activities	**Timeline** -full implementation by

Appendix #2: Postsecondary Providers of Credentials Available in Wyoming

Business, Manage-ment & Technology

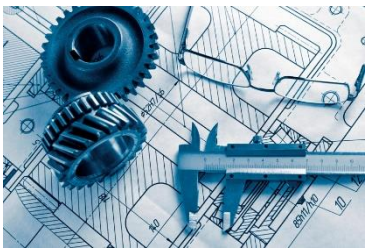
Casper College	Certificate: Accounting
Casper College	AAS/AB/Certificate Accounting & Bookkeeping
Casper College	AAS Bookkeeper
Central Wyoming College	AS - Accounting
Central Wyoming College	AAS: Accounting-Career
Central Wyoming College	AS - Accounting
Eastern Wyoming College	AS - Accounting
Laramie County Community College	AAS - Accounting
Laramie County Community College	AS - Accounting
Laramie County Community College	AAS - Business, Accounting Services
Northern Wyoming Community College District	Certificate: Accounting
Northern Wyoming Community College District	AS - Accounting
Northern Wyoming Community College District	AS - Accounting/Business
Northwest College	AS: Accounting
Western Wyoming College	Certificate: Accounting
Western Wyoming College	AS - Accounting/Business
Casper College	AB Business Administration
Casper College	AB: Pre-Law (Business)
Casper College	Associate of Applied Science, Leadership & Org Management
Casper College	AS/Certificate Office Management
Casper College	Associate of Applied Science in Management
Central Wyoming College	AS: Business Administration
Central Wyoming College	AAS: Business Management
Central Wyoming College	AS: Organization Management & Leadership
Eastern Wyoming College	AS: Business Administration
Eastern Wyoming College	AAS: Business Administration
Eastern Wyoming College	AS: Business Administration

Laramie County Community College	AAS - Business, Small Business Management
Laramie County Community College	AAS - Business Management
Laramie County Community College	AS: Business Administration
Laramie County Community College	AS Business & Finance
Laramie County Community College	AAS Business, Financial Services
Laramie County Community College	AAS Business, Small Business Management
Laramie County Community College	AAS Business, Supply Chain Concentration
Northern Wyoming Community College District	AA. Business Administration
Northern Wyoming Community College District	AS: Business
Northwest College	AS: Business Administration
Northwest College	AS: Business
Western Wyoming College	AS: Business Administration
Western Wyoming College	AAS: Business Management
Western Wyoming College	Certificate: Supervision & Leadership
Casper College	AFA Graphic Design
Casper College	AAS/Certificate Web Design
Casper College	AAS/Certificate Web Design & Development
Casper College	Associate of Science Degree in Computer Security
Casper College	AS: Computer Science
Casper College	AS Computer Science: Business Concentration
Casper College	Associate of Applied Science Degree in Cyber Security
Casper College	Associate of Science in Cyber Security
Casper College	Certificate: Electronics Technology
Casper College	AAS/Certificate Software Support Specialist
Casper College	Architectural Graphics & Design Certificate
Casper College	Associate of Science in Geographic Information Systems
Central Wyoming College	AS/Certificate: Computer Technology
Central Wyoming College	AS: Computer Science
Central Wyoming College	EHS-Environmental GIS Tech, Cert II
Central Wyoming College	AAS: Software Support Specialist
Eastern Wyoming College	COMPUTER APPLICATIONS (CERT LESS THAN 1 YR)
Eastern Wyoming College	CNET.CD - Network Technician
Laramie County Community College	CD - CIS Web Design
Laramie County Community College	AAS - Cybersecurity
Laramie County Community College	CD - CIS Microsoft Systems and Networks
Laramie County Community College	Computer Science, A.S.
Laramie County Community College	AAS. Computer Information Systems
Laramie County Community College	Computer Support Specialist Certificate

Laramie County Community College	Cybersecurity Fundamentals Diploma
Laramie County Community College	Cybersecurity Professional Diploma
Laramie County Community College	Datacenter Technician Diploma
Laramie County Community College	AS Computer Science: Business Concentration
Laramie County Community College	Systems Administrator Diploma
Northern Wyoming Community College District	AAS: Web Development
Northern Wyoming Community College District	AAS.BUSINESS INFORMATION SYSTEMS, DIGITAL MEDIA
Northern Wyoming Community College District	AAS.BUSINESS INFORMATION SYSTEMS, APPLICATION SOFTWARE SPEC
Northern Wyoming Community College District	Computer Networking Administration AAS
Northern Wyoming Community College District	AS: Computer Science
Northern Wyoming Community College District	Cyber Security Certificate
Northern Wyoming Community College District	Certificate: IT Support Technician
Northwest College	Web Development AAS
Northwest College	Computer Web Design AAS
Northwest College	AA/AAS: Graphic Design
Northwest College	Computer Networking Administration AAS
Northwest College	Computer Science, A.S.
Northwest College	Cyber Security Certificate
Northwest College	Certificate: Robotics Technology
Western Wyoming College	AAS/Certificate: Application Software Specialist
Western Wyoming College	AAS: Business Information Systems
Western Wyoming College	AS: Computer Science
Western Wyoming College	Computer Science Endorsement Preparation
Western Wyoming College	Certificate: Geographical Information Systems (GIS)
Western Wyoming College	Social Media Certificate
Western Wyoming College	AAS: Business Information Systems: Digital Media
Western Wyoming College	Certificate: Digital Design Technologies
Western Wyoming College	Certificate: Web Site Development
Casper College	AS/Certificate Retail Management & Merchandising
Casper College	Associate of Science Degree in Marketing
Northern Wyoming Community College District	AS.MARKETING
Casper College	AAS Entrepreneurship
Central Wyoming College	AAS/Certificate: Entrepreneurship
Eastern Wyoming College	Entrepreneurship Certificate
Laramie County Community College	CD - Entrepreneurship

Central Wyoming College	AA: Administrative Assistant
Northwest College	Administrative Assistant Certificate
Laramie County Community College	Office Applications Specialist Diploma
Northern Wyoming Community College District	Certificate: Administrative Assistant
Western Wyoming College	Certificate: Administrative Assistant
Casper College	AS Economics
Eastern Wyoming College	AS Economics
Casper College	AS/Certificate: Statistics
Eastern Wyoming College	AS. Statistics

Industrial & Engineering Technology



Casper College	Associate of Applied Science in Automotive Technology
Casper College	Associate of Applied Science in Auto Body Repair Tech
Casper College	Associate of Applied Science in Diesel Power
Casper College	AAS/Certificate Diesel Power Technology
Central Wyoming College	Auto Technology-General Option, AAS
Central Wyoming College	Auto Technology-Power Sports Option, AAS
Central Wyoming College	Auto Technology-Power Sports Option, Cert I
Central Wyoming College	Auto Technology-General Option, Cert II
Laramie County Community College	AAS - Diesel Technology
Laramie County Community College	Diesel Technology Certificate
Laramie County Community College	CD - Automotive Body Repair
Laramie County Community College	CD - Automotive Technology, Engine Management/Drivability
Laramie County Community College	CD Automotive Technology Under Car/HVAC
Northern Wyoming Community College District	AAS.DIESEL & HEAVY EQUIPMENT TECHNOLOGY
Northern Wyoming Community College District	AAS.DIESEL & MEDIUM/HEAVY TRUCK TECHNOLOGY
Northern Wyoming Community College District	AAS.ELECTRICAL & INSTRUMENTATION TECHNOLOGY
Northern Wyoming Community College District	AUTOMOTIVE TECHNOLOGY CERTIFICATE
Northern Wyoming Community College District	Diesel Technology Certificate
Northwest College	Diesel Technology Certificate

Western Wyoming College	AAS.DIESEL & HEAVY EQUIPMENT TECHNOLOGY
Western Wyoming College	AAS.DIESEL & MEDIUM/HEAVY TRUCK TECHNOLOGY
Western Wyoming College	AAS.ELECTRICAL & INSTRUMENTATION TECHNOLOGY
Western Wyoming College	AS/Certificate: Automotive Technology
Western Wyoming College	Certificate: Diesel Technology
Western Wyoming College	Certificate: Alternative Fuel Vehicle Technology
Western Wyoming College	AAS/Certificate: Power sports Technology
Casper College	AAS/Certificate: Fire Science Technology
Central Wyoming College	Fire Science, AAS
Laramie County Community College	AAS Fire Science Technology
Casper College	Mechanical Graphics and Design Technology Certificate
Casper College	Certificate: Mechanical Graphics & Design
Casper College	Machine Tool Technology Certificate
Eastern Wyoming College	Machine Tool Technology Certificate
Northern Wyoming Community College District	AAS/Certificate: Machine Tool Technology
Northwest College	Machine Tool Technology AAS
Northwest College	Machine Tool Technology Certificate
Western Wyoming College	AAS/Certificate: Machine Tool Technology
Western Wyoming College	Certificate: Maintenance Tool Technology
Western Wyoming College	Certificate for Industry: Maintenance Mechanic
Casper College	AAS/Certificate Welding Technology
Central Wyoming College	Welding, AAS
Central Wyoming College	Welding, Cert I/Cert II
Eastern Wyoming College	WELDING AND JOINING TECHNOLOGY (AAS)
Eastern Wyoming College	Plate Certificate
Eastern Wyoming College	Specialist Certificate
Eastern Wyoming College	Welding & Joining Technology Certificate
Laramie County Community College	CD - Welding Technology, Advanced Pipe Welding
Laramie County Community College	Welding Technology: Combination Welding
Laramie County Community College	Welding Technology, C.S.C.
Laramie County Community College	Advanced Welding, S.C.
Laramie County Community College	Gas Metal Arc Welding (gmaw), S.C.
Laramie County Community College	Welding Technology, A.A.S.
Laramie County Community College	Gas Tungsten Arc Welding (gtaw), S.C.
Northern Wyoming Community College District	Welding Technology AAS

Northern Wyoming Community College District	AAS.WELDING TECH INDUSTRIAL PLANT OPTION
Northern Wyoming Community College District	AAS.WELDING TECHNOLOGY
Northwest College	Certificate: Advanced Welding
Northwest College	Certificate: Gas Metal Arc Welding
Northwest College	Certificate: Gas Tungsten Arc Welding
Northwest College	AAS/Certificate Welding Technology
Western Wyoming College	AAS/Certificate: Welding Technology-Fabrication Shop
Western Wyoming College	AAS/Certificate: Welding Technology-Industrial Plan
Western Wyoming College	Certificate: Industrial Maintenance Technology Mechanics, Welding Option
Western Wyoming College	AAS/Certificate: Welding Technology: Mine Maintenance
Casper College	AS/AAS: Engineering
Casper College	AAS/Certificate: Engineering Technology & Design
Central Wyoming College	Engineering, AS
Laramie County Community College	AS, Engineering
Laramie County Community College	AAS - Engineering Technology
Laramie County Community College	AS - Engineering Science
Northern Wyoming Community College District	AS.ENGINEERING, MECHANICAL
Northern Wyoming Community College District	Engineering Technology AAS
Northern Wyoming Community College District	AS: Engineering
Northern Wyoming Community College District	AAS: Surveying Technology
Northwest College	AS: Engineering
Western Wyoming College	AS: Engineering, EE Specialization
Western Wyoming College	AS: Engineering, Mechanical Specialization
Western Wyoming College	DIGITAL DESIGN TECHNOLOGIES CERTIFICATE
Western Wyoming College	AS: Pre-Engineering
Central Wyoming College	STEM, AS
Casper College	Architectural Graphics & Design Certificate
Casper College	AS Construction Management
Casper College	AAS/Certificate Construction Technology
Central Wyoming College	Construction Technology, Cert II
Laramie County Community College	AAS - Building Technologies
Northwest College	Carpentry Apprentice Certificate
Northern Wyoming Community College District	Carpentry Apprentice Certificate

Northern Wyoming Community College District	AAS/Certificate: Construction Technology
Northwest College	AAS/Certificate; Drafting Technology
Casper College	Electrical Apprenticeship Certificate
Casper College	Certificate: Industrial Electronics Technology
Central Wyoming College	Electrical Apprenticeship, Cert II
Laramie County Community College	Electrical Technology Diploma
Northern Wyoming Community College District	Industrial Electricity AAS
Northern Wyoming Community College District	Industrial Electricity Certificate
Northern Wyoming Community College District	AS: Industrial Technology
Northern Wyoming Community College District	Electrical Apprenticeship, Cert II
Northwest College	Industrial Electricity AAS
Northwest College	Industrial Electricity Certificate
Western Wyoming College	AAS: Electrical & Instrumentation Technology
Western Wyoming College	Certificate: Electrical Apprenticeship
Central Wyoming College	Geospatial Information Science & Tech, Cert II
Laramie County Community College	Plumbing Technology Diploma
Laramie County Community College	AAS - Heating, Ventilation, AC/Refrigeration
Laramie County Community College	CD - Heating, Ventilation and Air Condit/Refrig Tech Basic
Laramie County Community College	CD - Heating, Ventilation and Air Conditioning/Refrig Advan
Northern Wyoming Community College District	HVAC Apprenticeship
Casper College	AS Aviation
Laramie County Community College	Aeronautics, A.A.S.
Northwest College	Aeronautics, A.A.S.
Casper College	Utility Locator Certificate
Laramie County Community College	CD - Industrial Systems Technology
Laramie County Community College	CD - Industrial Maintenance
Northern Wyoming Community College District	AAS.INDUSTRIAL HEALTH & SAFETY
Western Wyoming College	AAS: Industrial Maintenance Technology
Western Wyoming College	Certificate: Industrial Maintenance Technology Mechanics, Hydraulics Option

Casper College	AS Technical Education
Casper College	AAS Technical Studies
Laramie County Community College	CD - Process Technology
Northwest College	AAS: Technical Studies
Northern Wyoming Community College District	AAS.MINING MAINTENANCE TECHNOLOGY
Western Wyoming College	AAS/Certificate; mining Maintenance Technology
Western Wyoming College	Certificate: Diesel Technology: Mining Industry
Western Wyoming College	Certificate: Electrical Mine Maintenance
Western Wyoming College	Certificate: Surface Maintenance Mechanics
Western Wyoming College	Certificate: Underground Maintenance Mechanics
Northern Wyoming Community College District	AAS.OIL & GAS PRODUCTION TECHNOLOGY
Northern Wyoming Community College District	AAS.NATURAL GAS COMPRESSION TECHNOLOGY
Western Wyoming College	AAS.OIL & GAS PRODUCTION TECHNOLOGY
Western Wyoming College	Certificate: Oil & Gas Production Operator
Western Wyoming College	Certificate: Natural Gas Compression Technology
Western Wyoming College	AAS/Certificate: Plant Operations
Western Wyoming College	Certificate: Power Plant Maintenance Mechanics
Western Wyoming College	ELECTRICAL/INSTRUMENTATION/CONTROL TECHNOLOGY CERTIFICATE
Western Wyoming College	ELECTRICAL APPRENTICESHIP CERTIFICATE
Casper College	Associate of Applied Science in Renewable Energy Tech
Laramie County Community College	AAS Wind Energy
Central Wyoming College	AAS: Environmental Health & Safety: Environmental Technician
Eastern Wyoming College	Heavy Equipment Operator
Eastern Wyoming College	Novice CDL Training
Casper College	AS Mathematics-Secondary education
Central Wyoming College	AS: Mathematics
Eastern Wyoming College	AA. Math/AS Math
Laramie County Community College	AS: Mathematics
Northwest College	AS: Mathematics
Northern Wyoming Community College District	AS: Mathematics
Western Wyoming College	AS: Mathematics

Casper College	AS: Chemistry
Laramie County Community College	AS Chemistry Concentration(BA Track)-Natural Science
Laramie County Community College	AS Chemistry Concentration(BS Track)-Natural Science
Northwest College	AS: Chemistry
Western Wyoming College	AS: Chemistry
Casper College	AS: Physics
Laramie County Community College	AS Physics Concentration-Natural Science
Northwest College	AS: Physics
Central Wyoming College	AA: Science

Human Services

Casper College	Assistive Technology Certificate
Casper College	Associate of Science Degree in Technical Education
Casper College	Associate of Applied Science in Technical Studies
Casper College	AA/AAS: Criminal Justice
Casper College	AS: Forensic Science
Casper College	AA/Certificate Paralegal Studies
Casper College	AA: Political Science
Central Wyoming College	Criminal Justice, AAS
Central Wyoming College	AA: Pre-Legal
Eastern Wyoming College	CRIMINAL JUSTICE (AA)
Eastern Wyoming College	CJLE.AA - Criminal Justice-Law Enforcement
Eastern Wyoming College	CRIMINAL JUSTICE (AAS)
Eastern Wyoming College	Criminal Justice: Corrections Certificate
Eastern Wyoming College	Criminal Justice Corrections Distance Learning Certificate
Laramie County Community College	AA - Criminal Justice, Law Enforcement
Laramie County Community College	AA - Criminal Justice, Law Enforcement
Laramie County Community College	AA Criminal Justice: Corrections/Pre Law
Laramie County Community College	Criminal Justice, A.A.
Laramie County Community College	Certificate - Paralegal
Laramie County Community College	AAS Paralegal
Northern Wyoming Community College District	AA.CRIMINAL JUSTICE

Northwest College	AA/AAS/Certificate: Criminal Justice
Northwest College	AA: Conservation Law Enforcement
Northwest College	AA: Political Science
Western Wyoming College	AA: Political Science
Western Wyoming College	AA.CRIMINAL JUSTICE
Western Wyoming College	POLICE I CERTIFICATE
Casper College	AA Early Childhood Education
Casper College	Associate of Arts in Elementary Education
Casper College	Associate of Science in Elementary Education
Casper College	AA Social Studies-Secondary Education
Casper College	AFA Art Education
Central Wyoming College	AA: Education: Elementary, Secondary
Central Wyoming College	AA: Early Childhood Education
Eastern Wyoming College	EDUCATION-CHILD DEVELOPMENT DISTANCE LEARNING (CERT 1 YR)
Eastern Wyoming College	EDUCATION-ELEMENTARY (AA)
Eastern Wyoming College	EDUCATION-SECONDARY AGRICULTURE OPTION (AA)
Eastern Wyoming College	EDUCATION-SECONDARY (AA)
Eastern Wyoming College	EDUCATION-SECONDARY PHYSICAL EDUCATION OPTION (AA)
Laramie County Community College	Elementary Education, A.A.
Laramie County Community College	AA - Early Childhood Education
Laramie County Community College	AA Education-Elementary Education
Laramie County Community College	AA Education
Laramie County Community College	AS - Exercise Science, Physical Education Teacher Ed (PETE)
Northern Wyoming Community College District	AS.SECONDARY EDUCATION
Northern Wyoming Community College District	AS.ELEMENTARY & EARLY CHILDHOOD EDUCATION
Northern Wyoming Community College District	Early Childhood Education AAS
Northern Wyoming Community College District	Early Childhood Education Certificate
Northwest College	Early Childhood Education AAS
Northwest College	Early Childhood Education Certificate
Northwest College	Elementary Education, A.A.
Northwest College	AA/AS: Secondary Education
Western Wyoming College	AA/AS: Elementary & Early Childhood Education
Western Wyoming College	AA: Secondary Education: English
Western Wyoming College	AS: Secondary Education: Mathematics
Western Wyoming College	AS: Secondary Education: Physical Education

Western Wyoming College	AS: Secondary Education: Science
Western Wyoming College	AA: Secondary Education: Social Studies
Western Wyoming College	AA: Secondary Education: Spanish
Casper College	Certificate: Personal Trainer Education
Casper College	AS: Physical Education
Casper College	Coaching Certificate
Casper College	A.S.: Athletic Training
Central Wyoming College	Certificate: Challenge Course Facilitation
Eastern Wyoming College	AA Physical Education Health & Recreation
Laramie County Community College	Exercise Science-Personal Trainer Diploma
Laramie county Community College	Coaching Certificate
Laramie County Community College	Athletic Training, A.S.
Laramie County Community College	AS Exercise Science
Laramie County Community College	AS Physical Education Teacher Education Concentration
Laramie County Community College	AS Exercise Science-Sport Management Concentration
Northern Wyoming Community College District	Personal Trainer Education Certificate
Northern Wyoming Community College District	AS: Physical Education
Northern Wyoming Community College District	Certificate: Athletic Coaching
Northern Wyoming Community College District	AS: Athletic Training
Northern Wyoming Community College District	AS: Exercise Science
Northwest College	Personal Trainer Education Certificate
Northwest College	Certificate: Coach-Assistant
Northwest College	Certificate: Coach-Head
Northwest College	Athletic Training, A.S.
Western Wyoming College	AS: Exercise Science
Western Wyoming College	Certificate: Fitness Leadership
Central Wyoming College	AAS: Culinary Arts
Northwest College	AAS: Culinary Arts
Northern Wyoming Community College District	AAS: Culinary Arts
Casper College	AS Outdoor Recreation & Tourism Management
Casper College	AAS: Hospitality & Tourism Management
Central Wyoming College	AAS: Hotel Restaurant Management
Northwest College	AAS: Hospitality Management

Northern Wyoming Community College District	AAS: Hospitality Management
Central Wyoming College	Hair Technician, Cert I
Central Wyoming College	Cosmetology, AAS
Central Wyoming College	Cosmetology Instructor, Cert II
Eastern Wyoming College	COSMETOLOGY-HAIR TECHNICIAN (CERT 1 YR)
Eastern Wyoming College	AAS, Cosmetology
Eastern Wyoming College	Esthetics Certificate
Eastern Wyoming College	Hair Technician Certificate
Eastern Wyoming College	Nail Technician Certificate
Central Wyoming College	AAS: Barbering No Chemicals
Central Wyoming College	AS: Barbering Stylist
Eastern Wyoming College	Barber Stylist Technician Certificate
Eastern Wyoming College	Barbering Technician Certificate
Central Wyoming College	AA: Humanities
Eastern Wyoming College	AA. Human Services
Casper College	AA Liberal Arts
Casper College	AA/AS General Studies
Central Wyoming College	AA: Interdisciplinary Studies
Eastern Wyoming College	AA. Interdisciplinary Studies Distance Learning
Eastern Wyoming College	AA. Interdisciplinary Studies
Laramie County Community College	AA Interdisciplinary Liberal Arts
Northern Wyoming Community College District	AA/AS General Studies
Northwest College	AA/AS General Studies
Western Wyoming College	AA/AS Directed Interdisciplinary Studies
Casper College	AA: Social Work
Casper College	AA: Sociology
Central Wyoming College	AA: Social Sciences
Eastern Wyoming College	AA. Social Science
Laramie County Community College	AA Social Sciences
Northern Wyoming Community College District	AA: Social Sciences

Northwest College	AA: Social Sciences
Northwest College	AA: Sociology
Western Wyoming College	AA: Social Sciences
Western Wyoming College	AA: Social Work
Western Wyoming College	AA: Sociology
Casper College	AA: History
Laramie County Community College	AA History
Northern Wyoming Community College District	AA: History
Northwest College	AA: History
Western Wyoming College	AA: History
Casper College	AA: World Languages
Casper College	AA American Sign Language Studies
Laramie County Community College	AA Spanish: Education Concentration
Laramie County Community College	AA Spanish: Liberal Arts Concentration
Northwest College	AA: Spanish
Western Wyoming College	Certificate: English as A Second Language
Western Wyoming College	AA: Spanish
Casper College	Certificate: Cognitive Retraining
Casper College	AA: International Studies
Casper College	AA: Anthropology
Central Wyoming College	AA: Anthropology
Northwest College	AA: Anthropology
Northwest College	Certificate: Archaeological Technician
Northwest College	AS: Archaeology Technology
Western Wyoming College	AA: Anthropology
Casper College	AA/Certificate; Women's & Gender Studies
Central Wyoming College	AA: American Indian Studies

Natural Resources Agriculture

Casper College	Associate of Applied Science in Agri-Business
Casper College	Associate of Science in Agriculture Communications
Casper College	AS Agriculture
Casper College	AAS/AS Animal Science
Casper College	AS: Range Management
Central Wyoming College	Agriculture - Range Management Option, AS
Central Wyoming College	Ag/Range Management, AS
Central Wyoming College	Agriculture - Animal Science Option, AS
Central Wyoming College	AA: Agriculture: Mean Science & Food Technology Option
Central Wyoming College	AAS: Farm & Ranch Management
Eastern Wyoming College	AGBUS.AS - Agricultural Business
Eastern Wyoming College	AS Agriculture Business & Sciences-Agro ecology/Agronomy Option
Eastern Wyoming College	AS Agriculture Business & Sciences-Animal Science Option
Eastern Wyoming College	AS Agriculture Business & Sciences-Communications Option
Eastern Wyoming College	AS Agriculture Business & Sciences-Equine Science Option
Eastern Wyoming College	AS Agriculture Business & Sciences-General Agriculture Option
Eastern Wyoming College	Agriculture-Rangeland Ecology & Watershed Management
Eastern Wyoming College	Agriculture-Farm & Ranch Management
Eastern Wyoming College	Agriculture-Precision Agriculture
Eastern Wyoming College	AGRICULTURE BUS & SCI - ANIMAL SCIENCE OPTION (AS)
Eastern Wyoming College	Agriculture-Beef Production Certificate
Eastern Wyoming College	Agriculture-Precision Agriculture Certificate
Laramie County Community College	AS - Agriculture - Rangeland Ecology and Management Concern
Laramie County Community College	Agriculture - Range Management, A.S.
Laramie County Community College	Animal Science, A.S.
Laramie County Community College	Agriculture Business, A.S.
Laramie County Community College	Agribusiness Technology, A.S.
Laramie County Community College	Agriculture - Production, C.S.C.
Laramie County Community College	Agriculture - Production, A.A.S.

Laramie County Community College	AS - Agriculture
Laramie County Community College	AS - Agriculture - Agro ecology Concentration
Laramie County Community College	AAS - Technical Agriculture Operations
Northern Wyoming Community College District	AS: Agriculture
Northern Wyoming Community College District	AS: Agricultural Business
Northern Wyoming Community College District	Animal Science AS
Northern Wyoming Community College District	AS: Rangeland Management
Northern Wyoming Community College District	AS: Agricultural Science Education
Northwest College	Agriculture - Range Management, A.S.
Northwest College	Animal Science AS
Northwest College	Agriculture Business, A.S.
Northwest College	Agriculture - Production, A.A.S.
Northwest College	AS: Agriculture Education
Northwest College	AAS: Farm & Ranch Management
Casper College	Associate of Science in Wildlife Management
Casper College	Associate of Science in Wildlife & Fisheries Biology & Mgt
Casper College	Equine Assisted Therapy
Central Wyoming College	Equine Management, AAS
Central Wyoming College	Equine Science, AS
Eastern Wyoming College	AGRICULTURE BUS & SCI - EQUINE SCIENCE OPTION (AS)
Laramie County Community College	AS Equine Science
Laramie County Community College	Equine Science-Training
Laramie County Community College	AS - Equine Business Mgmt
Laramie County Community College	CD - Equine Training Management Concentration
Laramie County Community College	Equine Business Management, A.A.S.
Laramie County Community College	Equine Riding and Training With Emphasis on Riding, C.S.C.
Laramie County Community College	Equine Riding and Training With Emphasis on Training, A.A.S.
Laramie County Community College	Equine Riding and Training With Emphasis on Training, C.S.C.
Northern Wyoming Community College District	Certificate: Farrier Science
Northwest College	Equine Business Management, A.A.S.
Northwest College	A.A.S./Certificate: Equine Riding and Training With Emphasis on Training,
Northwest College	Certificate: Equine Care & Basic Riding
Northwest College	AS: Agro ecology

Central Wyoming College	AA: Outdoor Education & Leadership
Central Wyoming College	Certificate I & II: Outdoor Recreation
Northwest College	AS: Outdoor Education & Recreation Leadership
Northwest College	AAS: Outdoor Recreation Leadership
Eastern Wyoming College	GUNSMITHING (AAS)
Northwest College	AS: Horticulture Science
Northern Wyoming Community College District	AS: Horticulture & Sports Turf Management
Eastern Wyoming College	Aquaculture Technician Certificate
Casper College	AS Wildlife & Fisheries Biology and Management
Eastern Wyoming College	AS. Wildlife & Fisheries Biology Management
Laramie County Community College	AS Wildlife Biology Concentration-Natural Science
Laramie County Community College	AS Natural Science
Western Wyoming College	AS: Natural Resources
Western Wyoming College	AS: Natural Sciences
Casper College	AS: Biology
Eastern Wyoming College	AS Biology
Laramie County Community College	AS Biology Concentration-Natural Science
Laramie County Community College	AS Human Biology Concentration-Natural Science
Laramie County Community College	AS Molecular Biology Concentration-Natural Science
Northern Wyoming Community College District	AS: Biology
Northwest College	AS: Biology
Northwest College	AS: Natural Resource Biology
Western Wyoming College	AS: Biological Sciences-General
Western Wyoming College	AS: Biological Sciences-Organic
Laramie County Community College	AS Zoology Concentration-Natural Science
Central Wyoming College	AS: Expedition Science
Casper College	AS: Environmental Science
Casper College	AS: Geology
Western Wyoming College	AS: Geology
Northern Wyoming Community College District	AS: General Science

Arts & Communi-cation

Casper College	AA Theatre Technology
Casper College	AA Theatre Performance
Laramie County Community College	AA Theater
Northern Wyoming Community College District	AA. Theatre & Dance
Western Wyoming College	AA.TECHNICAL THEATRE
Casper College	Associate of Fine Arts Degree in Graphic Design
Laramie County Community College	Graphic Design, A.A.S.
Northwest College	Graphic Design, A.A.S.
Casper College	Associate of Fine Arts in Photography
Central Wyoming College	Photography, AAS
Central Wyoming College	Film, AA
Laramie County Community College	Photographic and Digital Preservation Specialist, S.C.
Laramie County Community College	Basic Photographic Imaging, S.C.
Northwest College	Certificate: Photographic & Digital Preservation Specialist
Northwest College	AAS: Photographic Communications
Casper College	AA Art
Casper College	AFA Fine Arts
Central Wyoming College	Certificate: Theatre & Film
Central Wyoming College	AA: Art
Central Wyoming College	Three-Dimensional Art, Cert II
Central Wyoming College	AA: Visual & Performing Arts
Eastern Wyoming College	Art, A.A.
Laramie County Community College	AA - Multimedia
Laramie County Community College	Art, A.A.
Northern Wyoming Community College District	Certificate: Arts Administration
Northern Wyoming Community College District	AA: Arts

Northwest College	Art, A.A.
Western Wyoming College	AA: Art Foundation
Casper College	Communication (Human Communication/Journalism/Multimedia/Public Relations)
Central Wyoming College	AA: Communication
Central Wyoming College	AA: New Media
Eastern Wyoming College	AA. Communication
Laramie County Community College	AA Mass Media
Laramie County Community College	AA Mass Media: Multimedia Concentration
Northwest College	AA: Communication
Western Wyoming College	AA: Communication
Casper College	AA English (Literature/Writing/Secondary Education)
Central Wyoming College	AA: English
Eastern Wyoming College	AA: English
Laramie County Community College	AA: English
Northern Wyoming Community College District	AA: English
Northwest College	AA: English Studies
Western Wyoming College	AA: English
Western Wyoming College	Certificate: Creative Writing
Casper College	AA Music
Casper College	AFA Music Education
Casper College	AFA Music Performance
Central Wyoming College	AA: Music
Laramie County Community College	AA Music
Northwest College	AA: Music
Northwest College	AAS: Music Technology
Northern Wyoming Community College District	AA: Music
Northern Wyoming Community College District	Certificate: Music Technology
Western Wyoming College	AA: Music
Western Wyoming College	AA: Musical Theatre
Casper College	AA Dance Performance

Western Wyoming College	AA: Dance, Entertainment Industry
Western Wyoming College	AAS: Dance Entrepreneurship
Casper College	AA Museum/Gallery Studies
Northwest College	Certificate: Audio Technician

Health Services

Casper College	AS/Certificate Addiction Studies
Central Wyoming College	Human Services-Addictions Option, AAS
Laramie County Community College	AA - Human Services, Addictionology
Northwest College	Addictions Practitioner Certificate
Northern Wyoming Community College District	Certificate: Addictions Practitioner
Northern Wyoming Community College District	AA/Certificate: Human Services
Casper College	Associate of Science Degree in Health Sciences
Casper College	Associate of Science Degree in Health Sciences
Central Wyoming College	Certificate, Meta Major: Health Science
Eastern Wyoming College	PREPROFESSIONAL ALLIED HEALTH (AS)
Laramie County Community College	AAS Health Information Technology Management
Laramie County Community College	AS Health Science
Laramie County Community College	Allied Health, A.S.
Northern Wyoming Community College District	AS Health Science
Northwest College	Allied Health, A.S.
Casper College	A.D.N./Certificate: Nursing
Central Wyoming College	A.D.N: Nursing
Eastern Wyoming College	AAS - Nursing
Eastern Wyoming College	PREPROFESSIONAL NURSING (AS)
Eastern Wyoming College	Nursing Assistant
Eastern Wyoming College	Certified Nursing Assistant II

Laramie County Community College	ADN - Nursing
Laramie County Community College	CERT - Nursing
Laramie County Community College	Nursing Assistant, S.C.
Northern Wyoming Community College District	AAS.NURSING
Northern Wyoming Community College District	Practical Nursing Certificate
Northwest College	Practical Nursing Certificate
Northwest College	Nursing Assistant, S.C.
Northwest College	A.D.N: Nursing
Western Wyoming College	ADN.NURSING
Western Wyoming College	Certificate: Practical Nursing
Casper College	Associate of Science Degree in Respiratory Therapy
Casper College	Associate of Science in Pre-Occupational Therapy
Casper College	Associate of Science, Occupational Therapy Assistant
Casper College	AS: Pre-Physical Therapy
Laramie County Community College	AAS Physical Therapist Assistant
Laramie County Community College	AS Physiology Concentration-Natural Science
Northwest College	AS: Pre-Occupational Therapy
Northwest College	AS: Pre-Physical Therapy
Casper College	AS: Pre-Optometry
Northwest College	AS: Pre-Optometry
Casper College	Associate of Science in Radiography
Casper College	Certificate: Mammography
Casper College	Magnetic Resonance Imaging Certificate
Laramie County Community College	AAS Radiography (X-ray)
Laramie County Community College	AAS Sonography
Northern Wyoming Community College District	AS.PRE-RADIOLOGY
Western Wyoming College	AS.PRE-RADIOLOGY
Casper College	Associate of Science Medical Laboratory Technician
Casper College	Certificate: Phlebotomy Technician Training
Central Wyoming College	Certificate: Phlebotomy
Laramie County Community College	AAS - Surgical Technology
Laramie County Community College	CD - Surgical Technology, Central Sterile Processing

Casper College	AS: Pre-Pharmacy
Casper College	AS/Certificate: Pharmacy Technology
Eastern Wyoming College	AS. Pre-Professional Pharmacy
Laramie County Community College	AS: Pre-Pharmacy
Northwest College	AS: Pre-Pharmacy
Western Wyoming College	AS: Pre-Pharmacy
Northern Wyoming Community College District	AAS/Certificate: Massage Therapy
Northwest College	AAS/Certificate: Massage Therapy
Casper College	AS: Paramedic Technology
Casper College	Certificate: Community Emergency Medical Services (EMS)
Laramie County Community College	CD - Emergency Medical Services, Paramedic
Laramie County Community College	AAS/Certificate: Emergency Medical Services
Laramie County Community College	Emergency Medical Services Diploma
Northern Wyoming Community College District	AAS.EMERGENCY MEDICAL SERVICES
Northwest College	AAS: Paramedic
Western Wyoming College	AAS.EMERGENCY MEDICAL SERVICES
Western Wyoming College	Certificate: Emergency Management
Western Wyoming College	AS: Emergency Medical Services-Para medicine
Casper College	AS: Pre-Veterinary
Eastern Wyoming College	PREPROFESSIONAL VETERINARY MEDICINE (AS)
Eastern Wyoming College	Veterinary Aid Certificate
Eastern Wyoming College	AAS. Veterinary Technology
Northern Wyoming Community College District	AS.PRE-VETERINARY
Northwest College	AAS: Veterinary Assistant
Western Wyoming College	AS.PRE-VETERINARY
Central Wyoming College	Medical Office Support, Cert II
Central Wyoming College	Certificate; Medical Assistant I
Eastern Wyoming College	Medication Assistant, Certified
Laramie County Community College	CRED - Health Information Technology, Medical Claims Coding
Laramie County Community College	Medical Assistant, S.C.
Laramie County Community College	Medical Office Essentials Diploma

Laramie County Community College	Medical Claims Coding Associate: Certificate
Northern Wyoming Community College District	AAS.MEDICAL ADMINISTRATIVE ASSISTANT
Northwest College	Certificate; Medical Assistant
Western Wyoming College	Certificate: Medical Administrative Assistant
Casper College	AS: Pre-Dentistry
Central Wyoming College	Dental Assistant, Cert I
Central Wyoming College	Dental Assistant, Cert II
Eastern Wyoming College	AS. Pre professional Dentistry
Laramie County Community College	AAS Dental Hygiene
Northern Wyoming Community College District	AAS Dental Hygiene
Northern Wyoming Community College District	AS.PRE-DENTISTRY
Western Wyoming College	Pre dental Hygiene: Transfer to NWCCD
Casper College	AS: Pre-Medicine
Eastern Wyoming College	AS Pre professional Medicine
Northern Wyoming Community College District	AS Pre professional
Northwest College	AS: Pre-Professional Sciences
Western Wyoming College	AS: Pre-Medical Sciences
Casper College	AS: Psychology
Central Wyoming College	AA: Psychology
Laramie County Community College	AA/AS Psychology
Laramie County Community College	AA Psychology: Social Work Concentration
Northern Wyoming Community College District	AS: Psychology
Northwest College	AA: Psychology
Western Wyoming College	AA: Psychology
Laramie County Community College	AAS Speech - Language Pathology Assistant
Casper College	AS/Certificate Kinesiology & Health Promotion
Casper College	Certificate: Foundations of Inter professional Health Care

Casper College	Certificate: Gerontology
Casper College	AS: Nutrition
Central Wyoming College	Certificate: Patient Care Technician

A GUIDE TO UNDERSTANDING

CAREER AND TECHNICAL EDUCATION

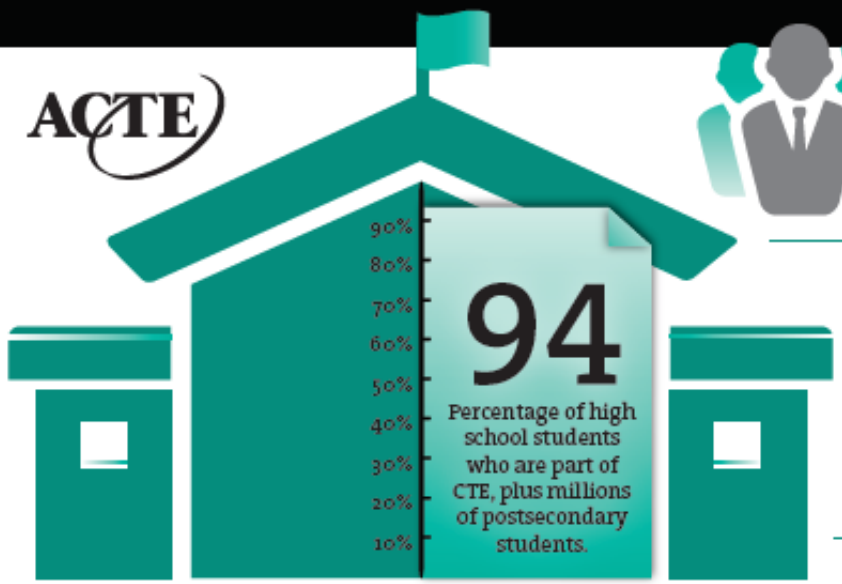
Association for Career and Technical Education
ACTE

The Association for Career and Technical Education
1410 King Street • Alexandria, VA 22314
Phone: 800-826-9972

www.acteonline.org
Connecting Education and Careers

What is Career and Technical Education?

ACTE



Fulfills employer needs that are **High**: skill, wage, demand

Includes high schools, career centers, community and technical colleges, four-year universities and more.

Integrates with academics in a rigorous and relevant curriculum.

Career Clusters®

- Hospitality & Tourism
- Science, Technology, Engineering & Mathematics
- Law, Public Safety & Security
- Marketing, Sales & Service
- Information Technology
- Agriculture, Food & Natural Resources
- Human Services
- Business, Management & Administration
- Transportation, Distribution & Logistics
- Manufacturing
- Government & Public Administration
- Architecture & Construction
- Finance
- Health Science
- Arts, A/V Technology & Communications
- Education & Training

Educates students for a range of career options through 16 Career Clusters® and 79+ pathways.

Features high school and postsecondary **partnerships**, enabling clear **pathways** to certifications and degrees.

Prepares students to be college- and career-ready by providing **core academic skills, employability skills and technical, job-specific skills.**

Association for Career and Technical Education
1410 King Street
Alexandria, VA 22314
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Connecting Education and Careers

Revised May 2014

CTSO, MEA, ACTE, ABCDEFG—What Do They All Mean?

With so many organizations, entities and groups, it is a daunting task learning who is who and what is what in the world of career and technical education (CTE). While initially geared toward the business community, this reference is also useful for new CTE instructors, news media professionals, policymakers and others who are tasked with understanding the CTE world. As a living document, the intent is to continually update this reference to keep it relevant.

What Is CTE?

There are literally hundreds of definitions of CTE. The Association for Career and Technical Education (ACTE) has taken all these definitions and condensed them into quick facts that will help define CTE.

- CTE prepares both youths and adults for a wide range of careers and further educational opportunities. These careers may require varying levels of education—including industry-recognized certifications, postsecondary certificates, and two- and four-year degrees.
- Almost 12 million students participated in secondary and postsecondary CTE programs during the 2011-12 school year, as reported by the Office of Career, Technical, and Adult Education.
- According to the National Center for Education Statistics, almost all high school students earn credit in CTE, and more than half earn 3+ credits.
- The average high school graduation rate for students concentrating in CTE programs is substantially higher than the average national freshman graduation rate.A person with a CTE-related associate degree or credential will earn on average between $4,000 and $19,000 more a year than a person with a humanities associate degree.CTE is at the forefront of preparing students to be college- and career-ready. CTE equips students with:
    - *Core academic skills* and the ability to apply those skills to concrete situations in order to function in the workplace and in routine daily activities.
    - *Employability skills* (such as critical thinking and responsibility) that are essential in any career area.
    - *Job-specific technical skills* related to a specific career pathway.

STEM Is CTE

In the past several years, students have lacked interest in science, technology, engineering and mathematics (STEM), yet the job opportunities are in high demand.

The issue brief *CTE's Role in STEM* addresses such concerns as the dearth of professionals, lack of basic science and math skills, and demographics. CTE provides students with opportunities by offering programs that strengthen the STEM understanding and introduce career pathways. Through programs of study at the secondary level, students can explore their options and then decide on a career pathway that best suits their STEM interest. CTE students can then take the knowledge and skills they have learned to postsecondary education and into a high-skill, high-paying job opportunity.

The CTE classroom is the best STEM laboratory available because it provides real-world, hands-on learning, as well as enhances student engagement and learning.

Statistics

- 50 percent of all STEM jobs are open to workers with less than a bachelor's degree.
- 30 percent of today's STEM-intensive jobs are in blue-collar fields.

CTE Is Science—61 percent of CTE students interested in a science career report that their CTE courses equip them with skills for the workforce.

CTE Is Technology—50 percent of STEM jobs are in manufacturing, health care and construction, while another 12 percent of STEM jobs are in installation, maintenance and repair.

CTE Is Engineering—18 percent job growth is projected for environmental engineering technicians by 2022. These jobs typically require an associate degree and pay more than $45,000 per year.

CTE Is Mathematics—45 percent of CTE students interested in a math career report that their CTE courses help them attain higher math and/or science skills.

CTE Structure

How CTE is delivered varies by state and even by district. Within CTE, occupations and career specialties are often grouped into Career Clusters®. There are 16 at the national level. Not all states use all the clusters and some have additional ones. The current national Career Clusters are:

- Agriculture, Food & Natural Resources
- Architecture & Construction
- Arts, Audio/Video Technology & Communications
- Business Management & Administration
- Education & Training
- Finance
- Government & Public Administration
- Health Science
- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering & Mathematics
- Transportation, Distribution & Logistics

Further specialization is achieved through comprehensive programs of study, which align academic and technical content in a coordinated, non-duplicative sequence of secondary and postsecondary courses, and lead to an industry-recognized credential or certificate at the post-secondary level or an associate or baccalaureate degree. At the local level, CTE is delivered at the middle school, high school, adult and postsecondary levels. It may be located in a:

- *Comprehensive high school*—school that has both academic and CTE courses; some comprehensive high schools are designed as CTE magnet schools.
- *CTE center/technical school*—a separate school or center within a district or among districts where students are bussed for their CTE courses.
- *Community/technical college*—for postsecondary instruction.
- *Four-year college/university*—for postsecondary instruction and teacher preparation.
- *Adult education/employment center*—for training for the adult population to assist in entering the workplace or upgrading skills.
- *Correctional facility*—to provide skills/knowledge to inmates.

As an additional resource on how CTE is specifically structured in each state, ACTE has created, and continues to maintain, individual state profiles. These profiles are designed to provide clarity and context to the complex and diverse CTE systems that exist today. For more information, visit www.acteonline.org/stateprofiles.

CTE Funding

CTE programs are funded primarily by state and local resources, as is the case with most education programs. At the federal level, the Perkins Act also provides funding to states, local school districts and postsecondary institutions for program improvement and innovation.

Carl D. Perkins Career and Technical Education Act

The Perkins Act was most recently reauthorized in August 2006. The purpose of Perkins is to provide individuals with the academic and technical skills needed to succeed in a knowledge- and skills-based economy. Perkins supports CTE that prepares its students both for postsecondary education and the careers of their choice. Federal resources help ensure that CTE programs are academically rigorous and up-to-date with the needs of business and industry. The federal contribution to CTE, just over $1 billion annually, supports innovation and expands access to quality programs. Federal funds provide the principal source for innovation and program improvement, and they help to drive state support through a "maintenance-of-effort" provision in the federal law.

Perkins Basic State Grant funds are provided to states that, in turn, allocate funds by formula to secondary school districts and postsecondary institutions. States have control over the split of funds between secondary and postsecondary levels. After this decision is made, states must distribute at least 85 percent of the Basic State Grant funds to local programs using either the needs-based formula included in the law or an alternate formula that targets resources to disadvantaged schools and students.

States may reserve up to 10 percent for leadership activities and five percent (or $250,000, whichever is greater) for administrative activities.

State and Local Funding

State and local funding support the CTE infrastructure and pay teachers' salaries and other operating expenses.

Workforce Innovation and Opportunity Act (WIOA) Congress passed the Workforce Investment Act (WIA) Workforce Innovation and Opportunity Act in 2014.It replaced the Workforce Investment Act (WIA) in an effort to better align and strengthen the country's job-training system. The enactment of WIOA, which went into effect on July 1, 2015, provides new opportunities for the workforce system and career and technical education to work together. Whether a state creates a "Combined Plan" that includes WIOA and the State Plan for Perkins, or a state writes a "Unified Plan," the state should consider how these programs can best work together to prepare individuals for careers that meet employer skill needs.

WIOA requires states and local areas to develop career pathways – a combination of education, training, career counseling, and support services that align with the skill needs of industries, through partnerships with secondary and postsecondary CTE. By working together, local boards and CTE can provide complementary services; for example, WIOA can help provide wrap-around support services for low-income postsecondary CTE students. Local workforce boards must engage employers to ensure that workforce investment activities meet the needs of businesses and to facilitate effective employer utilization of the local workforce development system. WIOA emphasizes the creation and use of industry-led sector partnerships to serve these and other purposes. CTE also engages employers in order to ensure that CTE programs prepare students with skills demanded by employers. Workforce boards and CTE leaders can work together, including through the use of sector partnerships, to prevent duplication and efficiently engage employers in a systemic fashion..

Key Terms

21st Century Skills/Employability Skills/Soft Skills—Skills, other than technical knowledge, needed to succeed in the workplace. Some examples include critical thinking, teamwork, problem solving and goal setting.

Academic Integration—The blending of academic and CTE curriculum. An example would be the Math-in-CTE program from the National Research Center for Career and Technical Education.

Apprenticeship—A system of training whereby workers learn their skilled trade on the job in a structured and supervised environment. The U.S. Department of Labor administers the Registered Apprenticeship Program, which aims to connect job seekers with employers. Regional offices support this activity.

Articulation Agreement—A formal link between at least two educational entities (i.e., high school and community college) designed to make a smooth student transition between entities.

Career Clusters®—A framework for organizing curriculum around broad career categories, or Career Clusters, and more specific career pathways. There are 16 identified national Career Clusters.

Career Academies—Small learning communities that are focused on a career theme and integrate rigorous academics.

Career Pathway—As described in a joint letter from the U.S. Departments of Education, Labor, and Health and Human Services, career pathways are "connected education and training strategies and support services that enable individuals to secure industry relevant certification and obtain employment within an occupational area and to advance to higher levels of future education and employment in that area."

Certification—Certifications indicate mastery of or competency in specific knowledge, skills or processes that can be measured against a set of accepted standards. They are not tied to a specific educational program, but are typically awarded through assessment and validation of skills in cooperation with a business, trade association or other industry group.

CTE Concentrator—As defined by OCTAE, a secondary CTE concentrator is a secondary student who has earned three or more credits in a single CTE program area, or two credits in a single CTE program area for those program areas where two credit sequences at the secondary level are recognized by the state and/or its local eligible recipients.

A postsecondary CTE concentrator is a postsecondary/adult student who completes at least 12 credits within a single program area sequence, or fewer than 12 credits for those programs that terminate in an industry-recognized credential, a certificate or a degree in less than 12 credits.

Dual Credit—A program or class where participants earn credit in more than one area. For example, a culinary class that counts as a math class or a high school class that is eligible for college credit.

Externship—A program where teachers/instructors spend time in the business environment. This helps teachers/instructors understand the workforce needs of the business community and what changes need to occur in the classroom to reflect these needs.

Industry Advisory Council (IAC)—It is required by the Perkins Act that CTE programs have IACs that meet at least once a year. Ideally, IACs help ensure that the CTE curriculum is up-to-date and that what is being taught in the classroom adequately prepares students for the workplace.

Industry-recognized Credentials—An industry-recognized credential is sought or accepted by employers within the industry or sector involved as a recognized, preferred or required credential for recruitment, screening, hiring, retention or advancement purposes. Where appropriate, the credential is endorsed by a nationally recognized trade association or organization representing a significant part of the industry or sector.

Internship—An opportunity that allows students to receive hands-on knowledge and training while working for a business.

Programs of Study (POS)—Federally defined in the Perkins Act of 2006 as programs that:

- Incorporate secondary education and postsecondary education elements.
- Include coherent and rigorous content aligned with challenging academic standards and relevant career and technical content in a coordinated, non-duplicative progression of courses that align secondary education with postsecondary education to adequately prepare students to succeed in postsecondary education.
- May include the opportunity for secondary education students to participate in dual or concurrent enrollment programs or other ways to acquire postsecondary education credits.
- Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree.

State Director—The person(s) at the state level who is responsible for secondary, postsecondary and adult CTE.

Work-based Learning—Programs and opportunities that allow students to see and understand how classroom instruction connects to the world of work.

Workforce Investment Board (WIB)—WIBs are regional entities that were created to implement WIA. The WIB's main role is to direct federal, state and local funding to workforce development programs. WIBs oversee the One-Stop career centers, where job seekers can get employment information; find out about career development training opportunities; and connect to various programs in their area. Services vary by state and WIB.

Affiliated Organizations

Throughout this document, you will learn about many associations dedicated to the students and educators involved in CTE. There are, however, a number of other organizations, companies and entities that are within the CTE community but don't fall into those categories.

Government Agencies

Bureau of Labor Statistics[1]—The government entity under the U.S. Department of Labor that is responsible for measuring labor market activity.

Employment and Training Administration (ETA)[2]—The agency within the U.S. Department of Labor that administers federal government job training and worker dislocation programs, federal grants to states for public employment service programs and unemployment insurance benefits. These services are primarily provided through state and local workforce development systems.

Office of Career, Technical, and Adult Education (OCTAE)[3]—OCTAE administers and coordinates programs that are related to adult education and literacy, CTE and community colleges. OCTAE's CTE initiatives are designed to administer state formula and discretionary grant programs under the Perkins Act; provide assistance to states to improve program quality, implementation and accountability; and establish national initiatives that help states implement rigorous CTE programs.

National Center for Innovation in Career and Technical Education (NCICTE)[4]—NCICTE performs scientifically based research and evaluation to expand the understanding, increase the effectiveness and improve the delivery of CTE. It is funded by OCTAE.

Industry Groups

National Automotive Technicians Education Foundation (NATEF)[5]—NATEF was founded to evaluate technician

training programs against standards developed by the automotive industry, as well as recommend qualifying programs for NATEF accreditation.

National Center for Construction Education and Research (NCCER)[6]—NCCER was "created to develop industry-driven standardized craft-training programs with portable credentials and help address the critical workforce shortage facing the construction industry."

National Council for Agricultural Education[7]—The council provides leadership and coordination to shape the future of school-based agricultural education. Its board of directors is made up of representatives from organizations and associations focused on agriculture education and CTE.

Curriculum/Testing Providers

ACT[8]—ACT is an independent, not-for-profit organization that provides a broad array of assessment, research, information and program management solutions in the areas of education and workforce development.

MBA Research & Curriculum Center (MBA*Research*)[9]—MBA*Research* is organized as a consortium of 37 state education departments and other organizations to support educators in the preparation of students for careers in business and marketing. It develops programs, strategies and curricula.

NOCTI[10]—NOCTI is a provider of occupational competency assessment products and services to secondary and postsecondary educational institutions in the United States and around the world. A non-profit corporation, NOCTI is governed by a consortium of states consisting of representatives from each state and U.S. territory.

Project Lead The Way (PLTW)[11]—PLTW provides rigorous and innovative STEM education curricular programs used in middle and high schools. More specifically, PLTW has programs and curriculum in engineering and biomedical sciences.

Southern Regional Education Board (SREB)[12]—SREB is a non-profit, non-partisan organization that works with 16 member states to improve public preK–12 and higher education. Founded by the region's governors and legislators in 1948, SREB was America's first interstate compact for education.

In 1987, SREB established High Schools That Work (HSTW). HSTW uses research-proven strategies to help states transform their public high schools into places where all students learn at high levels. Member schools implement 10 key practices for changing what is expected of students, what they are taught and how they are taught.

Other

National Technical Honor Society (NTHS)[13]—NTHS is a chapter-based organization focused on honoring student achievement and leadership, promoting educational excellence, awarding scholarships and enhancing career opportunities for its membership.

Career and Technical Student Organizations (CTSO)

More than 2 million students belong to and participate in CTSOs, according to a 2015 Achieve-NASDCTEc publication, which are designed to provide leadership development, motivation and recognition for students. The U.S. Department of Education recognizes the following CTSOs and similar organizations:

Business Professionals of America (BPA)[14]—BPA has a history as a student organization that contributes to the preparation of a world-class workforce through the advancement of leadership and citizenship, as well as academic and technological skills for students at the secondary and postsecondary levels. Through co-curricular programs and services, members of BPA compete in demonstrations of their business technology skills, develop their professional and leadership skills, network with one another and professionals across the nation, and get involved in the betterment of their community through good-works projects.

DECA[15]—DECA, a national association of marketing, finance, hospitality and management education students, provides teachers and members with educational and leadership development activities to merge with the education classroom instructional program.

Family, Career and Community Leaders of America (FCCLA)[16]—FCCLA makes a difference in families, careers and communities by addressing important personal, work and societal issues through family and consumer sciences education. Involvement in FCCLA offers members the opportunity to expand their leadership potential and

develop skills for life—planning, goal setting, problem solving, decision making and interpersonal communication—that are necessary in the home and workplace.

Future Business Leaders of America—Phi Beta Lambda (FBLA-BPL)[17]—FBLA-PBL is a dynamic organization of young people preparing for success as leaders in the country's businesses, government and communities.

Future Educators Association (FEA)/Educators Rising[18]—FEA is an organization that provides students interested in education-related careers with activities and materials that help them explore the teaching profession. FEA helps students develop the skills and strong leadership traits that are found in high-quality educators, it and significantly contributes to the development of the next generation of great educators.

HOSA-Future Health Professionals[19]—HOSA's two-fold mission is to promote career opportunities in the health-care industry and to enhance the delivery of quality health care to all people.

National FFA Organization[20]—FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education.

National Postsecondary Agricultural Student Organization (PAS)[21]—PAS is an organization associated with agriculture/agribusiness and natural resources in approved postsecondary institutions offering baccalaureate degrees, associate degrees, diplomas and/or certificates.

National Young Farmer Educational Association (NYFEA)[22]—NYFEA is the official adult student organization for agricultural education with the goal of being America's association for educating agricultural leaders. The association features leadership training, agricultural career education and community service opportunities.

SkillsUSA[23]—SkillsUSA is a national organization serving high school and college students and professional members who are enrolled in technical, skilled and service occupations, including health occupations.

Technology Student Association (TSA)[24]—TSA is the only student organization devoted exclusively to the needs of students interested in STEM who are presently enrolled in, or have completed, technology education courses.

National Coordinating Council for Career and Technical Student Organizations (NCC-CTSO)[25]—NCC-CTSO is a council comprised of representatives from each CTSO, ACTE, the U.S. Department of Education and the National Association of State Directors of Career Technical Education Consortium (NASDCTEc).

Professional Associations for CTE Instructors

There are numerous opportunities for career and technical educators to participate in a professional association. In addition to union organizations like the National Education Association and the American Federation of Teachers, there are additional professional associations for every trade or area taught within CTE. Here is a list, although not comprehensive, of many of those associations.

American Association for Agricultural Education (AAAE)[26]—AAAE is dedicated to studying, applying and promoting the teaching and learning processes in agriculture. It is an individual membership organization.

American Association of Family and Consumer Sciences (AAFCS)[27]—AAFCS is a professional individual membership association for individuals with a baccalaureate degree or higher, professional-level certification or professional-level licensure in family and consumer sciences.

Association for Career and Technical Education (ACTE)[28]—ACTE is an individual membership organization dedicated to the advancement of education that prepares youth and adults for successful careers. ACTE is committed to enhancing the job performance and satisfaction of its members; to increasing public awareness and appreciation for CTE programs; and to ensuring growth in local, state and federal funding for these programs by communicating and working with legislators and government leaders. ACTE is supported by a network of state-affiliated associations.

Association for Career and Technical Education Research (ACTER)[29]—ACTER is the premier professional organization for researchers, faculty, graduate students, administrators, policymakers and all others with global interests in workforce education research, education, issues and policy. It is an individual membership organization.

Association for Skilled and Technical Sciences (ASTS)[30]—ASTS is an individual membership organization for all instructors, administrators, teacher educators, industry representatives and others interested in the skilled trades. It was created when the National Association for Trade and Industry Educators (NATIE) and the National Association of State Supervisors for Trade and Industrial Education (NASSTIE) merged in 2006.

Career and Technical Education Equity Council (CTEEC)[31]—The purposes of CTEEC are to promote and support CTE, to support equitable and full participation of all students and employees in technical education, to encourage professional growth and development of its members, and to support the goals/objectives of the Administration Division of ACTE. It is an individual membership organization that requires ACTE membership.

Epsilon Pi Tau[32]—As an academic and professional honors group for technology programs in higher education, workforce development programs and professionals in practice, Epsilon Pi Tau provides honor and distinction to members, institutions, programs and individuals throughout the world.

International Vocational Education and Training Association (IVETA)[33]—IVETA is an organization and network of vocational educators, vocational skills training organizations, business and industrial firms, and other individuals and groups interested or involved in vocational education and training worldwide. IVETA is dedicated to the advancement and improvement of high-quality vocational education and training wherever it exists and is needed. It is an individual membership organization.

Marketing Education Association (MEA)[34]—MEA exists to foster the growth and development of marketing education, encourage and support the professional development of marketing educators, encourage understanding of and support for marketing education, and maintain an efficient and effective association. It is an individual membership association.

National Association of Agricultural Educators (NAAE)[35]—NAAE is a federation of state agricultural educators associations. Currently, NAAE is focusing on three areas: advocacy for agricultural education, professional development for agricultural educators, and recruitment and retention of current agriculture educators.

National Association of Secondary School Principals (NASSP)[36]—NASSP is an individual membership organization of principals and aspiring school leaders at the middle and secondary school levels.

National Association of State Administrators of Family and Consumer Sciences (NASAFACS)[37]—The vision of NASAFACS is to empower individuals and families to manage the challenges of living and working in a diverse global society. Its unique focus is on family, work and their interrelationship. It is an individual membership organization that is an affiliate of ACTE.

National Association of State Directors of Career Technical Education Consortium (NASDCTEc)[38]—NASDCTEc represents the state and territory heads of secondary, postsecondary and adult CTE across the nation. NASDCTEc, through leadership, advocacy and partnerships, aims to support an innovative CTE system that prepares individuals to succeed in education and their careers, and poises the United States to flourish in a global, dynamic economy. In cooperation with the National Career Technical Foundation (NCTEF), NASDCTEc provides leadership and support for the National Career Clusters® Framework.

National Association of Supervisors of Agricultural Education (NASAE)[39]—NASAE is a professional organization established to provide members with information essential for planning and conducting quality agricultural education programs. It is an individual membership organization.

National Association of Supervisors of Business Education (NASBE)[40]—NASBE is an organization of business education supervisors who are direct employees of a state, region or local education agency, and has as its purpose furthering the cause of business education and the welfare of the field and professional members. It is an individual membership organization.

National Association of Teachers Educators for Family and Consumer Sciences (NATEFACS)[41]—NATEFACS is a national organization of teacher educators whose purpose is to improve and strengthen teacher education in family and consumer sciences. It is an individual membership organization.

National Association Teachers of Family and Consumer Sciences (NATFACS)[42]—NATFACS is an individual membership organization that provides for group expression and group action dealing with problems of national importance to family and consumer sciences.

National Business Education Association (NBEA)[43]—NBEA is devoted exclusively to serving individuals and groups engaged in instruction, administration, research and dissemination of information for and about business.

NBEA is devoted to the recognition that business education competencies are essential for all individuals in today's fast-changing society. It is an individual membership organization.

National Career Academy Coalition (NCAC)[44]—NCAC provides technical assistance, training and support to career academies. NCAC also evaluates career academies based on the National Standards of Practice.

National Career Pathways Network (NCPN)[45]—NCPN is an individual membership organization for educators and employers involved in the advancement of career pathways and related education reform initiatives.

National Consortium for Health Science Education (NCHSE)[46]—NCHSE is a membership organization comprised of those who support the mission, purpose and goals of the consortium. Representation on the current board of directors is a contingency of local education agencies, state education agencies, postsecondary education representatives, professional associations, health-care partners, publishing companies and others who create health science education curriculum and products.

National Council of Local Administrators (NCLA)[47]—The purpose of NCLA is to provide leadership and advocacy in the promotion and development of CTE in the secondary and postsecondary school systems of the United States and its territories. NCLA is an individual membership organization that requires ACTE membership.

Additional CTE Facts/Talking Points

CTE Increases Student Achievement:

- A ratio of one CTE class for every two academic classes minimizes the risk of students dropping out of high school. (Plank et al. (2005). *Dropping Out of High School and the Place of Career and Technical Education*)
- The more students participate in CTSO activities, the higher their academic motivation, academic engagement, grades, career self-efficacy and college aspirations. (Alfeld et al. (2007). *Looking Inside the Black Box: The Value Added by Career and Technical Student Organizations to Students' High School Experience*)
- CTE students are significantly more likely than their non-CTE counterparts to report that they developed problem-solving, project-completion, research, math, college application, work-related, communication, time-management and critical-thinking skills during high school. (Lekes et al. (2007). *Career and Technical Education Pathway Programs, Academic Performance, and the Transition to College and Career*)
- Postsecondary CTE concentrators achieve significantly higher earnings than those who majored in academic fields, particularly those employed in an industry related to their program of study. (Jacobson and Mokher, *Florida Study of Career and Technical Education*, 2014, as cited in the 2014 National Assessment of CTE Final Report)

CTE Meets Individual and Community Economic Needs:

More than 75 percent of manufacturers report a moderate to severe skills shortage, resulting in an increase in overtime costs and an annual loss of 11 percent of earnings. CTE plays a vital role in helping American businesses close this gap by building a competitive workforce for the 21st century. (Accenture and The Manufacturing Institute, *Out of Inventory: Skills Shortage Threatens Growth for U.S. Manufacturing*, 2014)

Middle-skill jobs, jobs that require education and training beyond high school but less than a bachelor's degree, are a significant part of the economy. Of the 55 million job openings created by 2020, 30 percent will require some college or a two-year associate degree. (Carnevale et al., *Recovery: Job Growth and Education Requirements Through 2020*, Georgetown University Center on Education and the Workforce, 2013)

Communities across the nation benefit from CTE. In Washington, for every dollar spent on secondary CTE students, taxpayers will receive $9 in revenues and benefits. In Connecticut, every public dollar invested in community colleges returns $16.40 over the course of students' careers. Los Angeles County's economy receives roughly $9.1 billion annually from the Los Angeles Community College District. (Washington State Workforce Training and Education Coordinating Board, *2014 Workforce Training Results*; Robison and Christophersen, *The Economic Contribution of Connecticut's Community Colleges* and *Economic Contribution of the Los Angeles Community College District*, 2008)

CTE Resources to Share

- **Sector Sheets** describe CTE's role in growing the qualified workforce for vital industry sectors. Share these advocacy tools with industry, education leaders, policymakers and the public to demonstrate how CTE supports specific industries and prepares students for career success.
- **Microdocs**—through these compelling and inspirational stories, students will encounter peers who once shared their fears about finding the right educational pathway but found the opportunity to thrive through their CTE programs. Microdocumentaries will help students understand that CTE has expanded to include rigorous programs of study in traditional fields, as well as new and emerging career paths. These microdocumentaries will also describe how CTE prepares young people for high-tech STEM careers.
- ***Your First Year in CTE: 10 Things to Know***—Many CTE teachers enter education through an alternate path, usually without a traditional education degree, making a career change to enter the classroom. Not only do CTE teachers need to maintain currency within their technical field, but they must also become quickly familiar with teaching pedagogy while simultaneously working in a new environment. A strong support system is essential, and knowing where to turn for resources is equally as important. ACTE and NOCTI have released *Your First Year in CTE: 10 Things to Know*. Providing many hands-on examples and resources for use in teaching within the CTE classroom, this book is an excellent resource for both new and veteran CTE teachers to "survive" and "thrive" in the CTE classroom!

Resources:

1. www.bls.gov
2. www.doleta.gov
3. www2.ed.gov/about/offices/list/ovae/index.html
4. ctecenter.ed.gov
5. www.natef.org
6. www.nccer.org
7. www.ffa.org/thecouncil/
8. www.act.org
9. www.mbaresearch.org/
10. www.nocti.org
11. www.pltw.org/index.html
12. www.sreb.org
13. www.nths.org
15. www.deca.org
16. www.fcclainc.org
17. www.fbla-pbl.org
18. www.educatorsrising.org
19. www.hosa.org
20. www.ffa.org
21. www.nationalpas.org
22. www.nyfea.org
23. www.skillsusa.org
24. www.tsaweb.org
25. www.ctsos.org
26. www.aaaeonline.org
27. www.aafcs.org
28. www.acteonline.org
29. www.public.iastate.edu/~laanan/actermain/home.shtml
30. www.astsonline.org
31. www.cteec.org
32. www.epsilonpitau.org
33. www.iveta.org
34. www.nationalmea.com
35. www.naae.org
36. www.nassp.org
37. www.nasafacs.org
38. www.careertech.org
39. www.ffa.org/ffa2015/Pages/NASAE-home.aspx
40. www.nasbe.us
41. www.natefacs.org
42. www.natfacs.org
43. www.nbea.org
44. www.ncacinc.com
45. www.ncpn.info/
46. www.healthscienceconsortium.org
47. www.ncla-cte.org

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Building a Strong Middle Class Through Career Pathways Programs

Case Studies of Germany, Singapore, and Switzerland

Center for American Progress

Building a Strong Middle Class Through Career Pathways Programs

Case Studies of Germany, Singapore, and Switzerland

By Laura Jimenez May 2020

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Introduction and summary

When the COVID-19 pandemic erupted, it dismantled daily routines, the economy, and the health care system nearly overnight. Tens of thousands of Americans remain hospitalized or have lost their lives, while millions more have lost their jobs.[1] Moreover, a disproportionate rate of people of color—especially Black, Latinx, and Native American individuals—are represented in the numbers of infected, dead, and unemployed.[2] These statistics lay bare the teetering existence of millions who live on the margins and cannot weather even one financial disruption, who lack access to health care, and who work in a service sector in which jobs have vanished.[3] The response to the pandemic shows the dire need for a workforce trained in STEM fields to conduct research, care for the sick, and develop a vaccine for COVID-19 and future diseases. It has also made abundantly clear the need to train more of the entry-level workforce to take jobs in sectors that can sustain inevitable economic downturns.

The time could not be more crucial for a conversation about how to build and sustain career pathways that achieve these aims; such systems connect high-quality K-12 education with career training that leads to good jobs. As such, career pathways build a resilient middle class. While this report does not focus on the impacts of the current pandemic, it is important to acknowledge the significant disruptions that it is causing to the workforce as well as the ways in which it has widened disparities among young workers.

Even prior to the COVID-19 pandemic, today's young workers faced an economic crisis. American workers between the ages of 20 and 24 were unemployed at a rate of 6 percent—nearly twice the 3.3 percent unemployment rate for the total U.S. workforce.[4] And things were much worse for young Black workers, who were unemployed at a rate of 10 percent. The unemployment rate of young Hispanic or Latinx workers, meanwhile, stood at 6.1 percent—on par with all young workers but still double the national rate. Enter the sudden shuttering of the economy in March 2020: As a result, the national employment rate has increased to 14.7 percent, and for young workers, it has soared from 8.2 percent in January to 27.4 percent in April.[5] These data also show that unemployment rates for women and people of color are much higher than the national rate.

There are a number of possible causes of these disparities. As highlighted in a recent Center for American Progress report, "A Design for Workforce Equity," workers of color and women have historically received lower-quality training, had insufficient social connections to the labor market, and experienced lower wages and employment status due to prejudices against these groups.[6] All of these factors cause workers of color and women to face a lack of mobility in the labor market as well as a lack of equally shared outcomes, compared with their white male peers. Yet data for young workers suggest that academic unpreparedness also carries consequences in the workforce.

The statistics on academic preparedness are concerning, especially for Black and Hispanic students.[7] These students have less access to STEM courses in high school than white students, and when they do have access, they pass these courses at much lower rates. Black and Hispanic students also drop out of high school at higher rates than white students.[8] Even if they stay in school and enroll in college, they place into remedial courses at higher rates, where they must learn basic math and reading skills before proceeding to courses that count toward a degree.[9] Black and Hispanic students experience these poor outcomes in part because they more often attend schools with less funding, have greater rates of inexperienced and out-of-field teachers, and attend schools with low-quality curricula.[10]

Such a poor academic foundation leads these students to be underprepared for careers. Furthermore, guidance counselors that serve schools with primarily Black, Hispanic, and low-income students have higher caseloads, meaning that students may not receive the attention they deserve when planning for their futures. All things considered, it is no wonder that these students are often led to aspire to careers that are at greater risk for automation.[11] Indeed, adults of color are more often trapped in low-wage, low-quality jobs than white adults.[12]

The Organization for Economic Cooperation and Development (OECD) offers a framework to differentiate between high- and low-quality jobs.[13] It focuses on earnings quality, or the relationship between wages and living standards; labor market security, which relates to probability of job loss and its impacts; and the quality of the working environment, which includes access to resources for work completion, job safety, and other noneconomic factors. According to OECD, high-quality jobs offer wages that contribute to a good standard of living, promote labor market security, and provide workers with sufficient access to necessary resources.

Yet the plethora of low-wage, low-quality jobs available in the United States carry grave consequences for workers by perpetuating the growing wealth gap. The average income gap between the richest- and lowest-income households is currently at a 50-year high. As a result, for the first time in U.S. history, the current generation of students are not expected to earn more than their parents.[14]

Meanwhile, a shortage of workers is pushing wages higher in skilled trades. These jobs do not require a college degree but do require some training after high school. Approximately 30 million American jobs pay an average of $55,000 a year but do not require a bachelor's degree; yet while a number of career and technical education (CTE) programs train students for these high-skill, high-demand, high-wage jobs, there are not enough of these courses and programs to reach every high school student.[15]

Defining career and technical education

Career and technical education, or CTE, refers to federally supported courses and programs taught at high schools or community colleges to help students develop the skills and knowledge for specific occupational fields—such as agriculture, business, finance, communications, computer science, engineering, health, and others.[16] The federal Carl D. Perkins Career and Technical Education Act, which provided important funding for this form of education starting in 1984, requires that local CTE programs adhere to the "programs of study" requirements. These include alignment of K-12 and higher education elements; coordination and nonduplication of academic and career-related coursework; opportunities for high school students to receive college credit, where appropriate; and opportunities for attainment of industry-recognized credentials or college degrees.[17]

Simply expanding career and technical education is not enough. Deservedly, CTE has a poor reputation, as Black and Latinx students as well as students from low-income families have disproportionately been assigned to programs that lead to low-wage jobs with limited opportunities for advancement. What is more, participation in CTE declined from 1990 to 2009.[18]

One key solution is to ensure that there are meaningful pathways from high school to further training that leads to a high-quality job, as well as a supply of workers who have mastered the skills necessary to succeed in—and who have access to lifelong learning opportunities to stay current in—their trades. This will require a rethinking of how education is funded and governed in America, one that coincides with labor market trends and addresses not only the skills of incoming workers but also the quality of jobs that they enter.

Fortunately, there are lessons to be learned from the vocational education training (VET) systems in Germany, Singapore, and Switzerland. These countries enjoy strong academic outcomes, low youth unemployment rates, and high worker productivity and standards of living. While not without flaws, the vocational education programs in these countries are strong because they are aligned with local economic needs and are the pathway of choice for the majority of students.

This report:

- Provides a brief history of career and technical education in the United States
- Presents a vision for a revamped CTE system according to a five-part framework that is based on components of high-quality systems
- Culls lessons learned from the high-quality VET programs of Germany, Singapore, and Switzerland
- Makes recommendations for federal and state governments, labor unions, and employers to implement high-quality CTE programs

Brief history of career and technical education in America

The first federal investment in career and technical education began in 1917 with the passage of the Smith-Hughes National Vocational Education Act. Since then, federal investments have continued and grown, diverging into two main components: career and technical education—previously known as "vocational education"—and workforce development.[19] CTE is administered by the U.S. Department of Education and focuses primarily on secondary school-aged students, while workforce development programs are administered by the U.S. Department of Labor and primarily focus on younger and older adults.

In the early 20th century, the United States began to place the influx of immigrants arriving to the country into schools according to perceived ability. Students were prepared for one of three tracks: college, the general workforce, or specific vocational training trades such as plumbing and secretarial work. The tracks for the general workforce and specific trades were less academically demanding than the college track.[20] Yet despite this tracking, by the 1970s, the United States led the world in college degree attainment. It has since fallen to the middle of the pack among OECD countries.[21] CAP has previously argued that simply halving the attainment gap between white students, who currently rank fourth globally, and Black and Latinx students—28th and 35th, respectively—would make the United States the fifth most educated country in the world.[22]

Researchers point out that placing students in tracks creates and maintains harmful social stratification, which worsens income inequality and discrimination.[23] Current career education and workforce development programs aim to end this stratification by providing more students and workers access to the middle class through high-quality jobs.

The Carl D. Perkins Career and Technical Education program is the main national funding mechanism for high school and college career training programs. Today, this program provides technical and work-based learning opportunities across 16 career clusters, including health care, manufacturing, finance, business, and more.[24] Meanwhile, the Workforce Innovation and Opportunity Act (WIOA) provides workforce training and employment services to adults and youth through its six core programs: WIOA Adult,

WIOA Dislocated Worker, WIOA Youth, Adult Education and Literacy, the Wagner-Peyser Employment Service, and Vocational Rehabilitation.[25] Taken together, these programs emphasize students' and workers' attainment of academic, lifelong, and technical skills in order to prepare them to fill high-demand, high-wage, and high-skill jobs.

However, despite the efforts of modern-day CTE and workforce programs to eliminate the low-quality vocational programs of the past and propel students and workers into high-quality jobs, career education still exists on the margins: It is not yet a widely known or highly sought-after pathway to jobs and career advancement.[26] And while the quality of today's CTE programs has markedly improved over programs of the past, overall participation in CTE has declined for the past several decades due to the increased number of academic courses required for high school graduation, declining CTE funding overall, and the push to attend college.[27]

To increase participation in CTE programs and make them celebrated pathways to high-quality employment, the United States should consider the following five components of strong career education systems.

Five critical components of a strong career education system

The VET systems studied in this report have five components in common. According to CAP analysis, they (1) are aligned with local and national workforce needs; (2) require mastery of academics, lifelong learning, and technical skills through integrated learning; (3) use authentic assessments to evaluate student learning and mastery; (4) offer paid apprenticeships; and (5) lead to employer-valued certifications that also allow for on-ramps to further training within or outside of the occupation.

These five components are not the only recommended characteristics of a high-quality career education system; but because they are part of many high-performing systems, they are the focus of this report.[28] Importantly, without meaningful and articulated roles and responsibilities that allow the United States' K-12, higher education, and workforce systems to jointly administer and expand the country's CTE system, achieving the ideal program will be impossible.

1. Align student learning with local and national workforce needs

The John J. Heldrich Center for Workforce Development at Rutgers University defines aligning student training with local and national workforce needs as "activities and related outcomes with the goal of ensuring that higher education institutions graduate the correct numbers of graduates with the necessary skills for the job market in a way that supports students' career goals and is consistent with institutional mission and economic conditions."[29] In other words, alignment refers to a close match between what students study, the competencies and skills they build, and the work that they perform at a job.

Research finds that one barrier to achieving alignment is a lack of consensus on which general competencies and specific skills match job requirements.[30] However, a number of skilled industrial, construction, and service trades have defined the specialized and general skills, knowledge, and abilities that prepare workers for entry-level jobs.[31]

Skilled industrial trades include jobs such as mechanics, machinists, and programmers, while skilled construction trades include jobs such as electricians, plumbers, and carpenters. Skilled service trades, meanwhile, include jobs such as nurses, therapists, and service technicians. What sets these skilled service trades apart is that specific certification and licensure by a government agency is often required to enter the profession.

The question for U.S. policymakers and CTE program administrators, then, is the extent to which specialized skills and competencies matter in jobs outside the skilled trades and how much this specialization matters in addition to generalized skills.

2. Require mastery of academics, lifelong learning, and technical skills through integrated learning

While there are many defined and clearly articulated specialized trades, many jobs lack the same kind of specification. As a result, the bachelor's degree has become the default certification for most jobs that require a higher education.[32] Such training emphasizes academic learning in lieu of training for a particular career or general workplace skills that apply to all occupations and levels of seniority in employment. While academic mastery is critical for providing a solid foundation, with the rate at which skill requirements are changing, adaptability and lifelong learning skills may matter most for workers. Many employers agree with this sentiment: Surveys of U.S. employers show that they rank written communication, problem-solving, teamwork, initiative, and analytical abilities as the most desired skills in prospective employees.[33]

Defining "integrated learning"

Integrated learning refers to the practice of combining text-based learning with applied learning that occurs inside and outside of the classroom, such as through projects or work-based learning experiences. Integrated learning helps students make connections across subjects, from the classroom to real life.[34]

Notably, these are the types of abilities, skills, and competencies that cross sectors and job types. They are also equally valuable to entry-level workers and to those looking to advance in their careers. Moreover, these skills can all be taught and developed in the classroom and through work-based learning experiences. Such practice is referred to as integrated learning.

Workers recognize the importance of honing their skills. A 2016 Pew Research Center poll of U.S. adults in the workforce found that the majority of workers believe that they must continue to update their skills through training in order to keep up with changes on the job throughout their careers.[35]

These findings emphasize America's need for a coordinated system of ongoing training that speaks to the needs of both entry-level workers and workers more advanced in their careers.

3. Use authentic assessments to evaluate student learning and mastery

Authentic assessments of student learning and mastery would closely mimic on-the-job tasks and be of high quality. Experts define high-quality, authentic assessments in career and technical education by six criteria:[36]

1. Assessments should be appropriately scaled for rigor and relevance, matching the academic and technical intensity expected for entry-level workers.
2. Assessments should measure what students know and can do as well as their behaviors and dispositions toward the work environment. While technical and general skills are important, how students approach the work environment must also be understood.
3. Given the different formats that assessments will take, assessments' scoring rubrics should effectively capture a range of student mastery and should rarely be exclusively paper- and pencil-based.
4. Assessments should be graded in ways that promote skill improvement over time. Rather than pass/no pass grading schemes, grading should provide feedback that allows students to grow in their skills and abilities.
5. Assessments should be conducted throughout students' learning experiences, rather than administered at a single point in time.

Authentic, performance-based assessments would allow students an opportunity to demonstrate their skills in dynamic, interactive ways.

4. Offer paid apprenticeships

Paid apprenticeships offer on-the-job training alongside classroom instruction. These programs significantly benefit workers; participants in paid apprenticeships in the United States earn on average $60,000 annually, just above the U.S. national median household income.[37] However, research shows representation gaps for women and people of color in paid apprenticeships.[38] These workers also earn lower wages in apprenticeships.

Women and people of color face barriers to entry into apprenticeships that white male workers do not. For example, they often lack reliable transportation and child care.[39] To support the participation of these groups, high-quality, paid apprenticeships could offer child care and transportation benefits. Paid apprenticeships must be made more accessible for people across the country.

5. Lead students to employer-valued certifications that also allow for further training and certification

The term "certificate" is sometimes used synonymously with "degree," "diploma," or "license." However, these things are not the same, and they each carry different opportunities within the workplace. Degrees usually refer to an academic education and include associate, bachelor's, master's, and doctorate levels. Diplomas and certificates, meanwhile, usually relate to specific occupations or careers and take about two years to earn; in addition, certificates—and even degrees—can be required in skilled trades such as nursing. Licenses do not usually refer to a specific course of study but are more likely to be required for authorization to practice in certain industries, such as teaching. Employers do not value all of these certification types equally, especially certificates.

Nearly 1 million certificates are conferred to students in the United States every year, but research shows that very few jobs actually require a certificate.[40] Research also shows poor outcomes for students—especially low-income students—who obtain certificates.[41] Slightly more than half of students studying for a certificate ever receive it, and when they do, only slightly more than one-third of students receive wages above those of the average high school graduate.[42]

Therefore, certificates may not lead to enhanced wages in good jobs. Understanding what employers value will require meaningful, ongoing engagement with them to design certificate programs that are validated in the labor market and associated with good jobs. Such jobs would allow workers to earn enough in wages to live and pay back any student loans used to acquire the certificates.

Surveys of long-standing vocational education programs in Europe reveal eight characteristics of high-quality certificates:[43]

1. Standardization of final exams across all certificate programs
2. Verification and approval of final exam assignments by a group of assessors
3. Variation in examination methods
4. Authenticity of assessments
5. Verification of grading by independent committees
6. Use of grading scales
7. Grading by multiple assessors
8. Substantiated rationale for grading

Moreover, those getting a certificate in a particular occupation should also receive credit that can be applied toward additional certificates, diplomas, or degrees. Certificates should not preclude learners from continuing on their desired career pathways.

Examples from Germany, Singapore, and Switzerland

A high-quality career education program that confers valued certificates that carry weight in the labor market will take coordinated and sustained effort from the K-12 system, the higher education system, and the labor market. Germany, Singapore, and Switzerland provide useful examples of career education programs that do just that. Their strong career education—or vocational education training—programs offer lessons that the United States should consider.

Overview of the German, Singaporean, and Swiss VET systems

The German postsecondary training system, which includes VET, is comprised of three types of training programs. The first is full-time vocational schools, which are required for certain vocations, such as those in health care. The second is dual VET programs, where participants can choose from more than 300 programs and act as both students and employees, or apprentices. Vocational schools and VET programs train about two-thirds of all students and typically last about two to three years. Finally, the third type of training program is traditional colleges, which last anywhere from three to five years.[44]

Singapore's entire education system, including its VET system, is highly meritocratic. Student scores on exams determine what type of training they receive—academic or vocational—and what types of programs they are eligible to pursue. After taking a general exam at age 16 or 17, approximately 25 percent of Singaporean students enroll in junior college, which is the primary route to the university system. About 40 percent enroll at one of five polytechnic schools, and another 25 percent enroll at the Institute of Technical Education (ITE). Therefore, in total, about 65 percent of all students enroll in some form of vocational education training. ITE students can return for further training at one of the country's polytechnic schools, and students in polytechnics can also pursue an academic degree.[45]

In Switzerland, compulsory education ends at ninth grade, so by the age of 14, students must know what postsecondary training and occupational path they want to pursue. Students, then, have three options: a federal VET certificate program that takes two years to complete; a federal VET diploma that takes three to four years to complete; or an academic school. These three programs are what is called the "upper secondary level," after which students can pursue further training in what is called the "tertiary level." There are also two options for vocational training and two for academic training. Approximately 70 percent of students pursue the vocational route while only about 25 percent of students pursue the academic route.[46]

How these countries fulfill the five characteristics needed for strong VET

1. Align student learning with local and national workforce needs

Germany, Singapore, and Switzerland all provide formal and sustained roles for employers in the design and implementation of national career education programs. In all three countries, the availability of paid apprenticeships reflects labor market needs, and companies recruit new hires from their pool of apprentices.

Each country employs different strategies to further the pathway from training to the labor market. Germany, for example, researches various topics, including the connection between training and employment; modernization and quality assurance of the training system; the availability of lifelong learning; training diversity; and ways to scale the German model elsewhere in the world.[47]

Singapore, meanwhile, requires its career program faculty to take a teaching sabbatical in order to engage in externships in corporate firms, thus ensuring that teacher skills are constantly upgraded as technology and workplace practices change.[48] Employers help design students' vocational training programs, assessments, and set certification standards, as well as provide training programs with up-to-date equipment. Switzerland also tasks employers with determining training content and with identifying which new occupational programs must be developed, revised, or closed.[49]

2. Require mastery of academics, lifelong learning, and technical skills through integrated learning

All three countries place a strong emphasis on academics and lifelong learning skills. Germany's training system applies the concepts of lifelong learning to every aspect of its system, from the curricula to the assessments and apprenticeships. It does so through the development and application of its German Qualification Framework for lifelong learning.[50]

Singapore, meanwhile, emphasizes lifelong learning skills for students and teachers alike.[51] In 1997, the Ministry of Education reviewed the country's compulsory education curriculum and identified ways to reduce required coursework in order to make room for both student projects and student choice in course selection. Teachers have reflection time for professional development built into their schedules, and there is a direct feedback loop from the ministry to the schools so that the systems inform each other. Singapore is consistently a top performer on international academic tests such as the Program for International Student Assessment (PISA). Contributing to these outstanding results is the country's practice of identifying students who are struggling at critical benchmarks, including in third grade—the final year for students to master reading—and high school. In Singapore, even the bottom 25 percent of performers outrank most country's overall averages.[52]

Switzerland's students, like Singapore's, perform well above average on the PISA.[53] In addition to academic excellence, Switzerland's VET program also focuses on lifelong learning skills. For example, students must develop formal presentation skills both in the classroom and in workplace settings. In fact, the Swiss system holds itself accountable for ensuring that students learn all of the desired skills and abilities through its skills maps, which articulate where in the system students learn the skills and abilities—be it the classroom, a technical training site, or the workplace.[54]

3. Use authentic assessments to evaluate student learning and mastery

Assessing students' skills and mastery of academic and technical topics is a complex endeavor. Germany invests in assessment research and uses simulation in school-based settings to understand a student's approach to real-life situations.[55] It uses the results of such assessments to improve training curricula and facilities and to improve the measurement instruments themselves.

Singapore's strategy for authentic assessments is based on its "authentic learning" approach.[56] Unlike with the dual models of Germany and Switzerland, students in Singapore receive integrated academic and career training at real work sites rather than off-site training programs. This ensures tight integration of academics and work-based learning.

Switzerland's assessments of training programs are based on projects that students complete during their time in the program. These projects are based on objectives negotiated by the student and assessor at the beginning of the program.[57] Students receive a learning report at the end of each semester that documents their progress, vocational interests, and motivations.

4. Offer paid apprenticeships

All three countries pay student apprentices a wage while they are learning.[58] This type of support is possible due to the employer-government partnerships in overseeing and operating the national vocational programs. Employers pay apprentices a wage, which often increases if those apprentices become employees. These models work because employers pay to maintain their vocational programs—not only through apprentice wages but also equipment, the provision of training sites and materials, and mentorship by their employees.

5. Lead to employer-valued certifications that allow on-ramps to further training

In all three countries, the standards and certificates associated with the VET programs are standardized across the country. This means that certificates are nationally recognized and accepted. In Germany and Switzerland, for example, certificates are conferred by third parties, including chambers of industry, chambers of commerce, and unions.[59] In Singapore, technical institutes confer certificates.[60] And in all three countries, students are required to have certificates to enter nationally recognized occupations.

There are no comparable data comparing pay for certificate holders with average annual or minimum wages in each country. However, with average annual salaries of approximately $54,516 and $122,935 (U.S. dollars), respectively, Germany and Switzerland eclipsed U.S. workers' average salary of $48,672 in 2019. Singapore, meanwhile, is on par with the United States in terms of the average salary, at $48,048.[61]

Germany's system allows students to enter one of three training programs following compulsory education: a full-time occupational program, a dual training program that combines academic and technical education, and higher education—the more academic route.[62]

Students in Singapore and Switzerland have a wide array of options, not only in occupations but also in the types of training they pursue and how far they go.[63] Students can stop at two-year certificates or pursue advanced certification requiring additional years of study. They can also return to receive more training after spending time in the workforce. These options are merit-based, so students must achieve minimum scores on assessments to qualify for training programs. However, students who do not meet minimum scores receive additional counseling, and both countries have second-chance programs where students receive additional training before being assessed again.

Challenges in the German, Singaporean, and Swiss VET systems

Though strong, these VET systems are not without their challenges. Germany, for example, has major problems for which it must find solutions. The first is ensuring that all students have high-quality training options. In 2015, less than half of Germany's students with the lowest possible qualifications received a spot in a dual training program; the remainder did not receive anything.[64] And 8 percent of training positions went unfilled because there were no suitable candidates.[65] These gaps can be partially explained by the large influx of immigrants into Germany, whose primary barrier to entering VET programs is a lack of fluency in the German language. States are therefore offering language courses; however, this has not completely closed the gap.

Germany also has a severe teacher shortage across its compulsory, vocational, and academic training systems.[66] The country is looking for solutions, such as alternative teacher certification programs to increase the number of teachers available. In addition, more German students are choosing the academic program over the dual training program. In 2016, there were 80,000 fewer apprenticeships than there were in 2017, as well as 155,000 fewer applicants.[67]

Like Germany, Singapore is facing several barriers to ensuring that vulnerable student populations can access its education system. Singapore has seen an influx of immigrants in recent years, and integrating them into the workforce and education system has proven to be challenging.[68] Singapore has adopted policies requiring employers to pay fees to train foreign workers and making employers responsible for ensuring that these workers follow Singaporean employment rules. The children of immigrants, meanwhile, face the challenge of learning English—Singapore's main language of instruction.

The country also faces the challenge of ensuring that its education system fosters creativity in its students. When the government interviewed business leaders in 2012, they expressed worries that Singaporeans do not invent new technology, but rather perfect technologies and systems invented elsewhere.[69] Singapore's education system is fiercely meritocratic, often providing advantaged students—those with additional resources outside of school to improve their academic prowess—entry into elite institutions. It also weighs academic achievement more heavily than other skills and abilities, which may limit the ability to be more creative and invent technologies. In short, Singapore's brand of meritocracy can leave behind students from low-income communities, students with disabilities, and students who are new to the country.

Finally, the Swiss VET system is also facing a number of issues. In a 2005 report, the Swiss Coordination Centre for Research in Education highlighted concerns that pertain to gender, nationality, and socioeconomic status, including high student dropout rates among women, less funding for postsecondary VET programs than for academic programs, low workforce participation among women, and early tracking of migrant students, especially into lower-quality educational pathways.[70] The report raises the question of what these issues mean for equity, suggesting that the Swiss federal government adopt an equity lens through which to view its policies and create strategically guided steps to improve.

Key foundations of strong VET programs

Despite these challenges, there are considerable lessons to learn from the vocational education programs in Germany, Singapore, and Switzerland. Among them are three key foundational components that guide how each country approaches its education system; this context has a direct impact on the countries' economies and standards of living.

First, each country has adopted a long-term outlook for education reform. The public education system is the backbone of their economies and standards of living. As a result, they invest in their VET systems as part of a broader economic strategy that promotes the well-being of their citizens; moreover, each country plans reforms over decades in order to meet the changing needs of their economy. For example, Germany closely regulates its training programs to ensure that they are sensitive to labor market needs. Singapore intentionally aligned the establishment and improvement of its VET system to fit the needs of the economy. And Switzerland has adjusted its policies to reflect increasing enrollment in its VET system.

Second, each country addresses the quality of its compulsory education system so that it adequately prepares students for rigorous VET programs. Germany, Singapore, and Switzerland each ensure nationwide use of high-quality curricula, rigorous academic standards, and national tests to ensure the portability of compulsory education and certifications across state and regional lines.[71] The emphasis that these countries place on investing in improving education quality relates to their desire to be competitive in a global market based on the quality of their work. To be competitive, they must have the highest-quality workforce.

Third, each country gives an equal role to employers and labor unions in design- ing the VET system and providing some aspect of VET education. They believe in a tripartite governance model to bring high-quality vocational education to scale. In all three countries, employers host apprentices and pay them, and labor unions or other employer-related third parties determine training content or certify student skills by administering assessments and conferring certificates. This model allows each aspect—government, employers, and third-party organizations such as unions—to play roles suited to their expertise. It also ensures that labor unions play a role in ensuring that the incoming workforce is thoroughly trained on industry standards.

How strong vocational education would benefit America

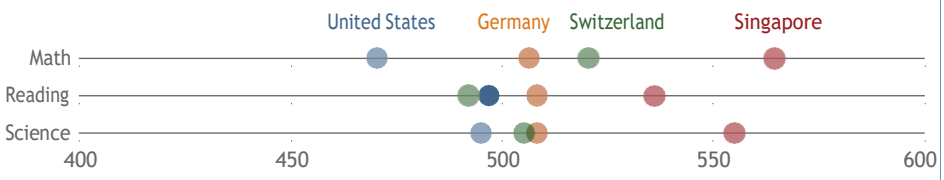
The OECD assesses member countries in its Better Life Index on a host of quality factors, including housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance.[72] In a combined ranking of all these indicators, the United States falls in the middle of the pack. This is not where it needs to or should be. Getting back to the top must not be a piecemeal effort, but rather a coordinated, long-term strategy that centers providing high-quality education for every student.

Table 1 compares the United States to Germany, Singapore, and Switzerland on education and employment indicators. Each of the comparison countries have better academic outcomes than the United States. Their students outperform U.S. students on the biannual PISA, an exam that tests 15-year-olds in reading, math, and science. On this assessment, the United States consistently performs in the middle of the pack.

FIGURE 1

The United States lags behind Germany, Singapore and Switzerland on key education and economic metrics

Average PISA* scores by country, 2015



* Program for International Student Assessment

Note: All PISA scores except for that of Switzerland in reading are statistically significant compared with U.S. average scores.

Sources: National Center for Education Statistics, "Program for International Student Assessment," available at https://nces.ed.gov/surveys/pisa/pisa2015/pisa2015highlights_2.asp (last accessed February 2020); Trading Economics, "Youth Unemployment Rate," available at https://tradingeconomics.com/country-list/youth-unemployment-rate (last accessed February 2020).

Interestingly, the countries with the longest-standing vocational education programs have drastically lower rates of youth unemployment than the United States, which has a rate of 8.2 percent. For comparison, Germany and Switzerland sit at 5.8 percent and 2.4 percent, respectively.

Recommendations for implementation

Any significant or meaningful reform of career education at the national level in the United States will require a vision, as well as sufficient funding from federal, state, and local government to make that vision come to life. What follows are recommendations for each level of government, labor unions or other third-party employer organizations, and employers to develop a high-quality career education program that comprises the strongest components of the programs highlighted in this report.

Federal and state governments play a key role in five areas: (1) developing a national and state vision for career education, (2) providing funding, (3) ensuring equity, (4) ensuring portability of credentials, and (5) ensuring a match between availability of training programs and labor market needs.

1. Developing a national and state vision for career education

A vision for career education in the United States should ensure that all students participate in meaningful pathways to good jobs that allow them to be productive citizens. The benefits to society are plenty: higher standards of living, higher tax revenues, higher worker productivity, higher-quality goods, and a national identity as a great place to learn and live.

High school graduate profiles

Defining what students should know and be able to do across multiple dimensions is critical in determining what resources and supports students will need to get there. Some states are doing just that through "graduate profiles," which provide data across dimensions such as content knowledge, universal workplace skills, civic responsibility, and career preparation.[73] The advantage of graduate profiles is that they help states define high school graduation requirements that expand beyond just course completion, the main metric for most state requirements.[74] Virginia is an example of a state with a graduate profile in place, and Kansas, Michigan, and South Carolina are looking to follow suit.[75]

2. Providing funding

Currently, the federal government spends about $4 billion annually on high school and postsecondary career education and adult workforce programs.[76] States contribute funding for these programs, but national data on how much they spend are not available. The high-quality systems documented in this report are expensive, which is why the tripartite governance and funding models work to bring these systems to scale. High-quality apprenticeships must be paid for, in significant part, by employers, who must see the value of allocating resources to the young workforce in order to continue investing.

Funding can also come from the private sector. For example, Siemens, a global manufacturing company, runs apprenticeships in Brazil, Canada, Europe, India, and South Africa. In 2014, the company expanded its apprenticeship to Charlotte, North Carolina.[77] It covers three trades: machinists, mechatronics electricians, and mechatronics technicians. Apprentices are paid; they spend 1,600 hours in the classroom and 6,400 hours in the factory over the course of a four-year program that results in a state journeyman's certificate, an associate degree in machining or mechatronics from a local community college, and placement in full-time positions as available. Siemens estimates that it spends $131,000 on each apprentice but finds that the rate of return on that investment is 8 percent compared with hiring an entry-level worker who did not graduate from the apprenticeship program.

3. Ensuring equity

Federal and state governments have a responsibility to ensure that career education policies benefit all students and do not disadvantage those who have fewer resources. To do so, federal and state governments need to develop career education policies with equity at the center. Current data on CTE programs in the United States suggest that not all students have access to high-quality programs and that some programs, such as skilled trades, lack gender and racial/ethnic equity.[78]

CTE program quality, access, and achievement are three areas in which the United States should expand what data are tracked and reported. Data on the quality of CTE programs should include, but are not limited to, the relevance to local labor economy needs; the resources schools have for their programs, such as computers and other equipment; and the extent to which programs lead to attainment of certificates valued by employers. Data on access to programs and student achievement must be more extensive than what is currently mandated. They must include,

for example, participation and performance rates by specific CTE programs, courses, and concentration statuses—students who take two or more CTE programs in the same field are considered "CTE concentrators." These data must also track postsecondary participation and performance for students who pursue further training, as well as their employment and wage outcomes. CAP's recent report on workforce equity recommends tracking and reporting holistic data on employment quality in order to interrupt inequitable outcomes in the workforce.[79] These data should be disaggregated by race/ethnicity, gender, socioeconomic status, ability status, and English learner status.

Kentucky produces an annual Career and Technical Education Feedback Report to track important data, detailing a series of outcomes for CTE students in each region of the state, including college enrollment, college GPA, college credit attainment, and full-time study status.[80] In addition, the report includes regional employment rates and employment rates by occupational sector. While these data are not disaggregated by student groups, they represent a start toward more meaningful outcome data for CTE students.

4. Ensuring portability of credentials

Credentials have the most currency when employers use them to make personnel decisions and certifications are accepted nationwide. To get there, certificates must meet standards of quality agreed upon by employers. Federal and state governments, in partnership with employers and labor unions or third-party employer organizations, should audit credentials to identify those that carry value and establish a process to phase out those that do not.

Alabama is one state taking the quality of credentials issue head-on. The state's adult labor market participation rate is among the lowest in the country.[81] To address this, the Governor's Office of Education and Workforce Transformation aims to produce 500,000 credentialed workers by 2025.[82] In order for these credentials to be recognized by employers in the state—and thus have value for workers—the governor established the Alabama Committee on Credentialing and Career Pathways, a public-private entity devoted to credential quality and transparency, using labor market information to align education and training programs with economic demand. To pay for this effort, the state braided funding from the federal Every Student Succeeds Act, the Carl D. Perkins Career and Technical Education Act, and the Workforce Innovation and Opportunity Act, all of which are intentionally designed to create better alignment between education and the workforce by training students for in-demand careers.

5. Matching availability of training programs and labor market needs

Ensuring that available training matches labor market needs will require the number and type of career education training programs to reflect current and future labor market needs. This is not a separate question from credentials of value, but rather should be considered simultaneously. Alabama's approach exemplifies this.

Labor unions and other third-party employer organizations have a critical role to play in training and certifying student skills and abilities. A persistent problem facing career education in the United States is determining where students should receive occupation-specific training, given the lack of employer-led apprenticeships. Currently, many students receive this training in classrooms and through some work-based learning experiences. The United States needs to rethink its delivery of occupational training if it is to be scalable. While labor unions in the United States have long participated in the training of the adult workforce by administering apprenticeship programs in skilled trades, the problem of scale quickly arises, as these are not available in every city or county.[83] The U.S. Department of Labor sets standards of quality for apprenticeships through its Registered Apprenticeship Program, and this framework could be used to determine the quality of apprenticeship programs nationwide.[84]

One example comes from a partnership that arose between the culinary and bartenders unions in Las Vegas and major hotels and casinos on the Las Vegas strip, arising from a need to create a "reliable, trained" workforce.[85] The academy trains approximately 1,600 people annually, a majority of whom are Latinx or Black. The training is free, and the training institute is now a recognized postsecondary institution in the state. Trainees are first in line for job openings.

Employers should also host, mentor, and pay apprentices. In Germany, Singapore, and Switzerland, this practice is required. Employers in these countries say that the investment is worthwhile and see improvement in their bottom lines. Studies in the United States support this sentiment, as apprenticeships show a 50 percent return on investment and lower employee turnover rates.[86]

U.S. employers interested in developing internships can apply to the federal Department of Labor to create a registered apprenticeship. These apprenticeships must offer wages, work-based and classroom learning, mentorship, and an industry-recognized credential. In exchange, employers receive from the department technical assistance, the potential for tax credits, national recognition of certificates and quality standards, and incentives for veterans who can receive an additional monthly stipend to supplement wages.[87]

Conclusion

The United States' future economic growth and the stability of its middle class require high-quality pathways from high school to further training and a good job, as well as a supply of workers who have mastered academic and lifelong learning skills. Achieving this goal will require a rethinking of how education is funded and governed in America. This must coincide with labor market trends and address not only the skills of incoming workers but also the quality of jobs that they enter.

Fortunately, there are lessons to be learned from the examples provided by the vocational education training systems in Germany, Singapore, and Switzerland. While not without their flaws, these systems are high quality because they are aligned with local economic needs and are the pathway of choice for the majority of students in these countries.

If the United States applies lessons learned from Germany, Singapore, and Switzerland, it can regain its reputation as the educational and economic leader of the world.

About the author

Laura Jimenez is the director of standards and accountability at the Center for American Progress.

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CAREER PATHWAYS TOOLKIT:

A GUIDE FOR SYSTEM DEVELOPMENT

Contract #
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Preface

ABOUT THE CAREER PATHWAYS TOOLKIT

The primary audience for this Toolkit is staff who work at the state level representing one of the core partners required to develop a Workforce Innovation and Opportunity Act (WIOA) Unified Plan. The core partners include the State Workforce Agency, the State Adult Education Agency, and the State Vocational Rehabilitation Agency overseeing Title I, II, III and IV of WIOA. In addition to the core partners, there are other important partners engaged in this work that may be included so that the state can develop a more comprehensive combined plan. The additional partners are listed in Element One of this Toolkit. State agencies that have oversight over WIOA core partners as well as other critical agencies may wish to participate on the State's career pathways leadership team.

In addition, given the increased role of the State Workforce Development Board in the development of an overall strategy for career pathways, state workforce staff may find this Toolkit useful in supporting the work of the State Board. Under WIOA, State Boards are responsible for aligning core partners and developing and improving the workforce system through the creation of career pathways. As such, they are responsible for convening stakeholders and core partners to contribute to the development of the state plan. The policies and strategies of the state leadership team regarding career pathways must be consistent with the Unified/Combined State Plan required in WIOA. Local areas implementing career pathways may also find this Toolkit helpful.

This revised Toolkit continues the spirit of the original Career Pathways Toolkit: to provide the workforce system with a framework, resources, and tools for states and local partners to develop, implement, and sustain career pathways systems and programs. This revised Toolkit acknowledges many of the U.S. Department of Labor's (USDOL) strategic investments to create and sustain a demand-driven employment and training system as part of a larger national effort. It incorporates the Career One-Stop competency model as a building block for creating career pathway programs and references the Career One-Stop credentials Toolkit as an easy way to search existing industry-recognized credentials. This version also maintains the original framework but reflects substantial gains in knowledge and experience as well as reflects the system's new guiding legislation, WIOA.

In addition to this Toolkit, the Department plans to release a companion workbook that includes additional tools and resources to assist states and local partners in the work of developing, implementing, and sustaining career pathways systems and programs, sector strategies, and Registered Apprenticeship.

Lastly, there are additional Federal resources that will be assets to state staff developing a unified state approach to career pathways. The Employment and Training Administration (ETA) is releasing two Toolkits this year, both of which will have relevance for the audience of this Toolkit. These new Toolkits focus on sector strategies and Registered Apprenticeship and will help states with the work of aligning these important required aspects of WIOA.

Section One: Six Key Elements of Career Pathways

This Toolkit features Six Key Elements of Career Pathways that help to guide state and local teams through the essential components necessary for developing a comprehensive career pathways system. The components under each element are not sequential and may occur in any order. Likewise, multiple partners can engage in the components simultaneously to carry out the mission of the career pathways system. The first section of this Toolkit provides an overview of these elements and the overall framework for their implementation. The six elements are:

1. Build cross-agency partnerships and clarify roles
2. Identify industry sectors and engage employers
3. Design education and training programs
4. Identify funding needs and sources
5. Align policies and programs
6. Measure system change and performance

Included in this overview are examples of "Promising Practices" from many communities throughout the nation that help contextualize the Six Key Elements and demonstrate how different communities have implemented key components of career pathways systems. Additionally, each section includes "Career Pathways FYIs" highlighting useful information about career pathways and "How Tos" to guide your team in carrying out activities within each element. At the end of each chapter is a "Tool Box" that lists team tools, publications, and resources available to facilitate implementation of the key components of each element.

Section Two: Team Tools/How To Guide for Facilitators

The second section of the Toolkit presents the tools developed to assist leadership teams in building and sustaining their career pathways systems. USDOL's Career Pathways Initiative grantees between 2010 and 2011 developed the tools to support their career pathways systems. The updates to the tools section are the result of a group of Champions who operate programs at the state and/or local level and provided examples of useful tools to their operations. Organized as a "how to" guide for facilitators, this section describes each tool's purpose and gives instructions for how to use it. You may download each tool via links in the text.

Section Three: Resources

The final section of the Toolkit is a collection of additional resources that may be useful to a team in developing a career pathway system. This section includes a glossary of terms, a list of resources and links that facilitators and leadership teams have found valuable in supporting their career pathways systems development, and a bibliography of sources referenced and reviewed in the development of the Toolkit.

Introduction

Our Nation's future is dependent upon an educated, skilled workforce. Improving the skills, knowledge, and credentials of American workers is critical to economic stability, growth, and global competitiveness. The Organization for Economic Co-Operation and Development's (OECD) Survey of Adult Skills, released in October 2013, confirmed what employers have often noted: far too many adults lack the skills or credentials required for in-demand jobs. The OECD's analysis of the U.S. data, available in the report, *Time for the U.S. to Reskill* [1], found that 36 million U.S. adults have low skills, two-thirds of which are employed. By many accounts, the economic environment is ripe for employment expansion, yet employers continue to have difficulty finding the skilled workers. Of those Americans who lack the skills required for in-demand occupations, many do not know how or where to access the information, training, and credentials needed for these family supporting jobs.

WIOA, signed into law on July 22, 2014, provides an extraordinary opportunity to improve job and career options for our Nation's workers and job seekers through an integrated, job-driven, public workforce system that links diverse talent to businesses. It supports the development of strong, vibrant regional economies where businesses thrive and people want to live and work. This revitalized workforce system includes three critical hallmarks of excellence:

- The needs of business and workers drive workforce solutions;
- American Job Centers provide excellent customer service to jobseekers and employers and focus on continuous improvement; and
- The workforce system supports strong regional economies and plays an active role in community and workforce development.

In addition, WIOA requires states and localities to collaborate with adult education, postsecondary education, and other partners—to establish career pathways systems that make it easier for all Americans to attain the skills and credentials needed for jobs in their regional economy.

Also on July 22, 2014, Vice President Biden issued the *Ready to Work: Job-Driven Training and American Opportunity* report that lays out a vision for measuring the effectiveness of job-training programs and announcing an array of actions to achieve the skilling of America's workforce. The *Ready to Work Report* outlines strategies and program components that have shown promise in helping individuals persist in education and training and to attain credentials necessary for obtaining in-demand jobs.

The message from the new law and the job-driven vision is clear—the workforce, human service, and educational systems must be in alignment through cross-agency planning, share common performance measures that inform data-driven decision making, and develop strategies for sector partnerships and career pathway systems and programs at the Federal, state, and local levels.

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Career Pathway Systems and Programs

What are career pathways? Career pathways are the new way of doing business, and they operate at two levels—a systems level and an individual program level. At the systems level, career pathways development is a broad approach for serving populations that may experience significant barriers to employment and can substantively alter the way the workforce system delivers its services and its relationship with partner organizations and stakeholders. Career pathway programs offer a clear sequence, or pathway, of education coursework and/or training credentials aligned with employer-validated work readiness standards and competencies. This Toolkit predominantly focuses on building career pathway systems although there are also some tools included that support career pathways program development.

Career pathway systems offer an effective approach to the development of a skilled workforce by increasing the number of workers in the U.S. who gain industry-recognized and academic credentials necessary to work in jobs that are in-demand. To align educational offerings with business needs, career pathways systems engage business in the development of educational programs up front. Career pathways systems transform the role of employers from a customer to a partner and a co-leader and co-investor in the development of the workforce. Employers have a high stake in the development of career pathways that lead to an increase in their pipeline of qualified workers. Additionally, career pathways systems offer a more efficient and customer-centered approach to workforce development because they structure intentional connections among employers, adult basic education, support service providers, occupational training, and postsecondary education programs and design the systems to meet the needs of learners and employers.

Career pathway programs make it easier for people to earn industry-recognized credentials through avenues that are more relevant; to provide opportunities for more flexible education and training; and to attain market identifiable skills that can transfer into work. These comprehensive education and training programs are suited to meet the needs of working learners and non-traditional students. Career pathways programs are designed to serve a diverse group of learners to include; adults, youth, dislocated workers, veterans, individuals with a disability, public assistance recipients, new immigrants, English language learners, and justice-involved individuals. Up until now, career pathways systems and programs have been defined in multiple ways. WIOA now codifies the essential elements of career pathways into law.

CAREER PATHWAYS FYI: WIOA Career Pathways Definition

The term "career pathway" means a combination of rigorous and high-quality education, training, and other services that—

(A) aligns with the skill needs of industries in the economy of the State or regional economy involved;

(B) prepares an individual to be successful in any of a full range of secondary of postsecondary education options, including apprenticeships registered under the Act of August 16, 1937;

(C) includes counseling to support an individual in achieving the individual's education and career goals;

(D) includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster;

(E) organizes education, training, and other services to meet the particular needs of an individual in a manner that accelerates the educational and career advancement of the individual to the extent practicable;

(F) enables an individual to attain a secondary school diploma or its recognized equivalent, and at least one recognized postsecondary credential; and

(G) helps an individual enter or advance within a specific occupation or occupational cluster.

Career pathways systems and programs include components that mirror promising practices from the workforce and education arenas at the Federal, State and local levels, and the public and private sectors are investing significant resources in building the evidence base for this work. Evidence based research takes time, as longitudinal data is necessary to measure an individual's progress and retention along a career pathway. The Federal government and many states are implementing initiatives to consistently collect and improve upon the quality of their data and are establishing longitudinal data systems across agencies to evaluate the systems they have built.

Federal Investments

The past several years have seen unprecedented collaboration at the Federal level between the U.S. Departments of Labor, Education, and Health and Human Services. The Departments have made important investments to help expand career pathways across the country. The Departments have expressed their shared commitment for career pathway strategies as an effective way of helping youth and adults to acquire marketable skills and industry recognized credentials; developed a common career pathways framework to guide states and local leaders in developing and sustaining career pathways systems; and have hosted three National dialogues to engage individuals across the country on implementation.

While WIOA solidified the definition of career pathways this year, the Departments have continued to encourage states to align their state resources to support integrated service delivery across Federal and state funding streams. Many states have participated with the Federal agencies in undertaking this important work and are well positioned to implement the requirements in the new law for establishing career pathways.

In fact, the new law was the impetus for updating the Toolkit, and it provided an opportunity to engage state champions and leading workforce and educational organizations that have expertise in career pathway development. During the spring of 2015, the Departments asked for help in reviewing a draft Toolkit to ensure it included essential information to engage all the key partners. In addition, the Toolkit reflects input from over 140 respondents as a result of a Request for Information on career pathways that the three Federal agencies issued in 2014. The Department issued a joint Request for Information to solicit information and recommendations about career pathways systems from stakeholders in the public and private sectors that resulted in a final report summarizing facilitators and barriers to career pathways development and implementation as well as promising practices.

Input from all of the stakeholders validated the original Six Key Elements and made suggestions on revisions to the Toolkit by incorporating the latest relevant innovations, creative approaches, and best practices that have emerged since the original publication.

Impact of WIOA on State Agencies

WIOA has a far-reaching impact on state agencies. Career pathways are prominent in the new law as a required function of the state and local workforce development boards and is an important component of the State Workforce Plan. The State Plan ensures that all state agencies play a role in the development of a vision for a career pathways state system, as well as how the state system interplays with regional and local career pathways and career pathways plans.

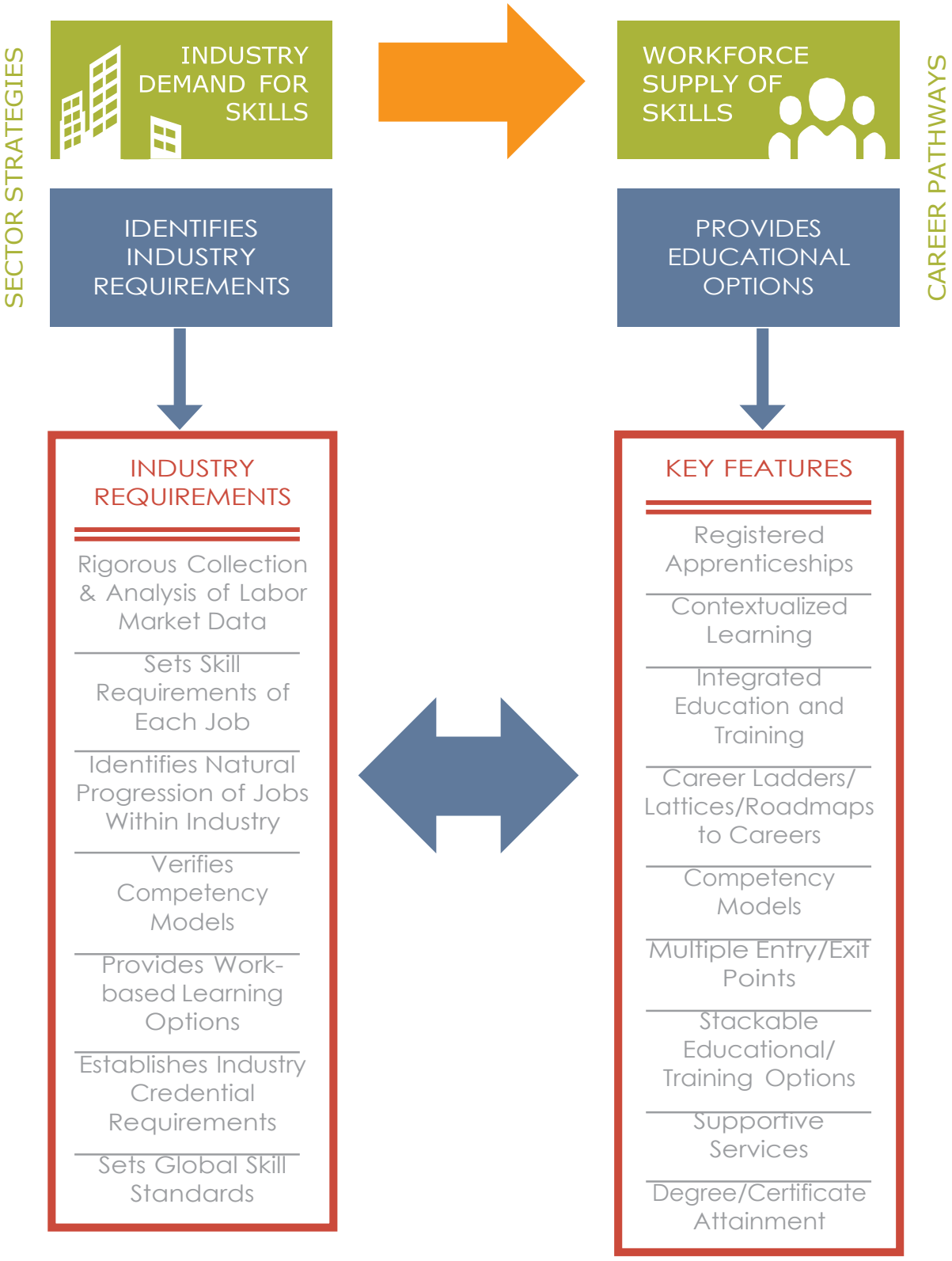
The Unified State Plan also provides an opportunity to lay out state and regional/local strategies for achieving the state's vision. The collective thoughts of all stakeholder agencies should be harnessed to develop statewide strategies for building career pathways that align the education and workforce systems with the in-demand needs of employers. Career pathways are often developed within an industry sector and developed as part of a larger sector strategy. As defined in ETA's Sector Strategy Implementation Framework, a sector strategy[2] is a partnership of multiple employers within a critical industry that brings together education, economic development, workforce systems, and community organizations to identify and collaboratively meet the workforce needs of that industry within a regional labor market. The graphic on the next page highlights how the approaches align and work towards complementary workforce development goals.

With the implementation of WIOA and the job-driven agenda, as well as the continued work on career pathways, sector strategies, and Registered Apprenticeship, USDOL is very excited about the opportunity to strengthen and expand partnerships and align systems at the state and local levels.

These partnerships will ensure that America's workers have the skills they need to obtain good jobs, and that employers have the workers they need to remain competitive and to prosper.

[2] This definition is provided in the ETA Sector Strategies Technical Assistance Initiative's Sector Strategy Implementation Framework.

Complementary Approaches to Workforce Development



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ELEMENT ONE

BUILD CROSS-AGENCY PARTNERSHIPS AND CLARIFY ROLES

A cross-agency leadership team clarifies the roles and responsibilities of each partner and gains high level support from political leaders for an integrated career pathways system.

Key Element Components:

- Engage cross-agency partners and employers.
- Establish a shared vision, mission, and set of goals.
- Define the roles and responsibilities of all partners.
- Develop a work plan and/or Memorandum of Understanding for the partnership.

The establishment of a comprehensive career pathways system requires strong leadership at the state and local levels as well as meaningful employer engagement. The leadership team, as defined in this Toolkit, refers to a cross-agency team at the state level established to design, implement, and continuously improve upon the state's career pathways system. The leadership team may be the State's Workforce Development Board, a sub-committee of the State Board, or an entity that exists for administering state career pathways systems. Regardless of its origin, the policies and strategies of the state leadership team regarding career pathways must be consistent with the state plan required in WIOA signed on July 22, 2014.

WIOA requires the Governor to establish a State Workforce Development Board to assist the Governor in carrying out critical functions of the State's Workforce Development system. Included in this mandate is the requirement to establish strategies to support the use of career pathways for the purpose of providing individuals, including low-skilled adults, youth, and individuals with barriers to employment (including individuals with disabilities) with workforce development activities, education, and supportive services to enter or retain employment.

CAREER PATHWAYS FYI: WIOA Functions of State Workforce Development Board

State board shall assist the Governor in—

(1) developing, implementing and modifying the state plan;

(2) reviewing statewide policies or programs and aligning workforce development programs that supports a comprehensive and streamlined workforce development system;

(3) developing continuous improvement strategies for:

- (A) identifying and removing barriers to better coordinate, align, and avoid duplication of services;
- (B) supporting the use of career pathways;
- (C) conducting effective outreach and providing access for individuals and employers;
- (D) establishing industry or sector partnerships related to in-demand industry sectors and occupations;
- (E) encouraging the identification of regions for workforce planning;
- (F) providing assistance to local boards to support the delivery of services; and
- (G) providing staff training and awareness across programs;

(4) establishing a comprehensive system of state performance accountability measures;

(5) identifying and disseminating information on best practices;

(6) developing and reviewing statewide policies affecting the coordinated provisions of services through the state's one-stop system;

(7) developing strategies for technological improvements to facilitate accessto, and improve the quality of services provided through the one-stop delivery system;

(8) aligning technology and data systems across one-stop partner programs;

(9) developing allocation formulas for the distribution of funds for adults and youth;

(10) preparing annual reports;

(11) developing statewide workforce and labor market information system; and

(12) developing other policies to enhance the performance of the workforce development system.

The State Workforce Development Board has a strong role in convening a broad base of stakeholders to provide input on the state's workforce development system. WIOA requires the Governor in partnership with the State Workforce Development Board to submit a four year unified plan. The state's unified plan requires cross agency partnerships of four core programs: title IB youth, adult, and dislocated worker activities; title II adult education and literacy activities; sections 1 -13 of Wagner Peyser Act relating to employment services; and Title I of the Rehabilitation Act of 1973.

WIOA encourages the participation of additional employment and training programs to develop a combined plan that includes the core programs and one or more programs in order to develop a more comprehensive education and workforce system. The combined plan may include programs such as secondary education, postsecondary education, veterans, recently laid-off workers, youth and adults lacking work place skills, individuals with disabilities, justice-involved individuals, English language learners, new Americans, and incumbent workers.

Whether the state submits a unified or combined plan, the cross-agency partnership works to align systems and provides education and training options that focus on the skill demands of regional and local economies. Collaboratively, the partners establish a vision, mission, goals, and strategies that promote the implementation of career pathways systems and programs that ultimately lead to an individual obtaining employment at a family sustaining wage. Successful partnerships make it possible to leverage resources in order to expand upon the services available to all learners.

At the Federal level, agencies are working together to break down silos, create solutions, share successes, and help each other improve outcomes for individuals they serve. Since 2011, USDOL/ETA; Health and Human Services/ Administration for Children and Families (USHHS/ACF); and Department of Education/ Office of Career Technical and Adult Education (USED/OCTAE) have jointly promoted the widespread adoption of career pathways. Federal agencies have worked together on ways to align resources and build capacity among a wide range of stakeholders to ensure that adults and youth have opportunities to gain industry-recognized credentials and skills that allow them to secure employment and advance along a career ladder.

The agencies issued a joint letter in April 2012 defining career pathways as a "series of connected education and training strategies and supportive services that enable individuals to secure industry-relevant certification and obtain employment within an occupational area and to advance to higher levels of future education and employment."

CAREER PATHWAYS FYI: Joint Letter from U.S. Departments of Education, Health and Human Services, and Labor

This letter highlights the joint commitment of the U.S. Departments of Education, Health and Human Services, and Labor to promote the use of career pathways approaches as a promising strategy to help adults acquire marketable skills and industry-recognized credentials through better alignment of education, training and employment, and human and social services among public agencies and with employers. The Departments encourage states to align state resources to support integrated service delivery across Federal and state funding streams and to ensure that interested partners and agencies – whether focused on education, workforce development, or human and social services – are aware of this joint commitment for improved collaboration and coordination across programs and funding sources. This letter is available at: http://wdr.doleta.gov/directives/attach/TEN/ten_36_11_att.pdf

The same interagency team has hosted three National Dialogues on Career Pathways. In April 2014, they also issued a joint Request for Information for recommendations about career pathways from stakeholders in the public and private sectors. A diverse group of 141 respondents completed the questionnaire and provided information about existing career pathways systems. The National summary report covers the broad cross-section of stakeholders' responses and describes the roles and responsibilities of career pathways partners. The respondents also describe how they are handling funding, outcome measures, employer engagement, and scaling programs, and provide a list of best practices. With the passage of WIOA, the Departments are seizing the opportunity to drive joint efforts to build the necessary capacity to implement WIOA successfully. In addition, OCTAE seeks to take advantage of the possibility of a newly reauthorized Carl D. Perkins Vocational and Technical Education Act (Perkins Act) and to maximize its previous investments in career pathways.

Other examples of Federal collaborations include:

- The Departments of Labor and Commerce are working together to better align job training into economic development and to make the business case for Registered Apprenticeship to employers.
- The Departments of Labor and Agriculture are collaborating to identify promising practices between the Supplemental Nutrition Assistance Program (SNAP) Employment and Training program and the broader workforce system.
- The Department of Housing and Urban Development (HUD) teamed up with USDOL to provide guidance and tools for partnerships between public housing authorities and employer-led Workforce Development Boards to generate more job opportunities for HUD-assisted residents.
- Ten Federal Agencies are working together to help individuals with disabilities qualify for an array of summer internships offered under the Workforce Recruitment Program (WRP). WRP is managed by USDOL's Office of Disability Employment Policy. WRP is a recruitment and referral program that connects Federal and private sector employers nationwide with highly motivated college students and recent graduates with disabilities who are eager to prove their abilities in the workplace.
- USDOL and the Social Security Administration are promoting the importance of state and local workforce agencies as critical players in addressing career needs of disability beneficiaries through the Ticket to Work Program. As of March 31, 2015, approximately 139 workforce agencies are Employment Networks under Ticket to Work earning flexible revenues over $11,786,510 and career services and employment to 6,673 American Job Center (AJC) customers with disabilities.

At the state level, partnerships have also evolved across the country. State level partners can build and maintain career pathways systems that support the development of career pathways programs, adopt a shared vision and strategy, and commit their agencies or organizations to carrying out specific roles and responsibilities. In addition, partnerships can help states develop a plan and work towards braided funding.

COMPONENT 1.1: Engage Cross-Agency Partners and Employers.

Comprehensive career pathways systems require participation at many different levels. The state leadership team represents a diverse group of state and local public agencies, private and non-profit organizations, and employers representing different sectors in the economy to guide the process of developing the career pathways system. They model interagency collaboration, integrate sector strategy principles, craft and implement common goals, and develop a shared vision of how career pathways can benefit the local community and its citizens. The leadership team may embrace the opportunity provided by WIOA to convene a broad stakeholder group, adopt a shared vision, and embed the concepts into their own strategies and policies to support a comprehensive career pathways system. The leadership team may engage additional partner representatives to form an operations team responsible for designing, implementing, and operating the career pathways education and training programs. Other partners become stakeholders that support the career pathways work. As career pathways systems continually develop and change, partners may move back and forth among the roles as needed.

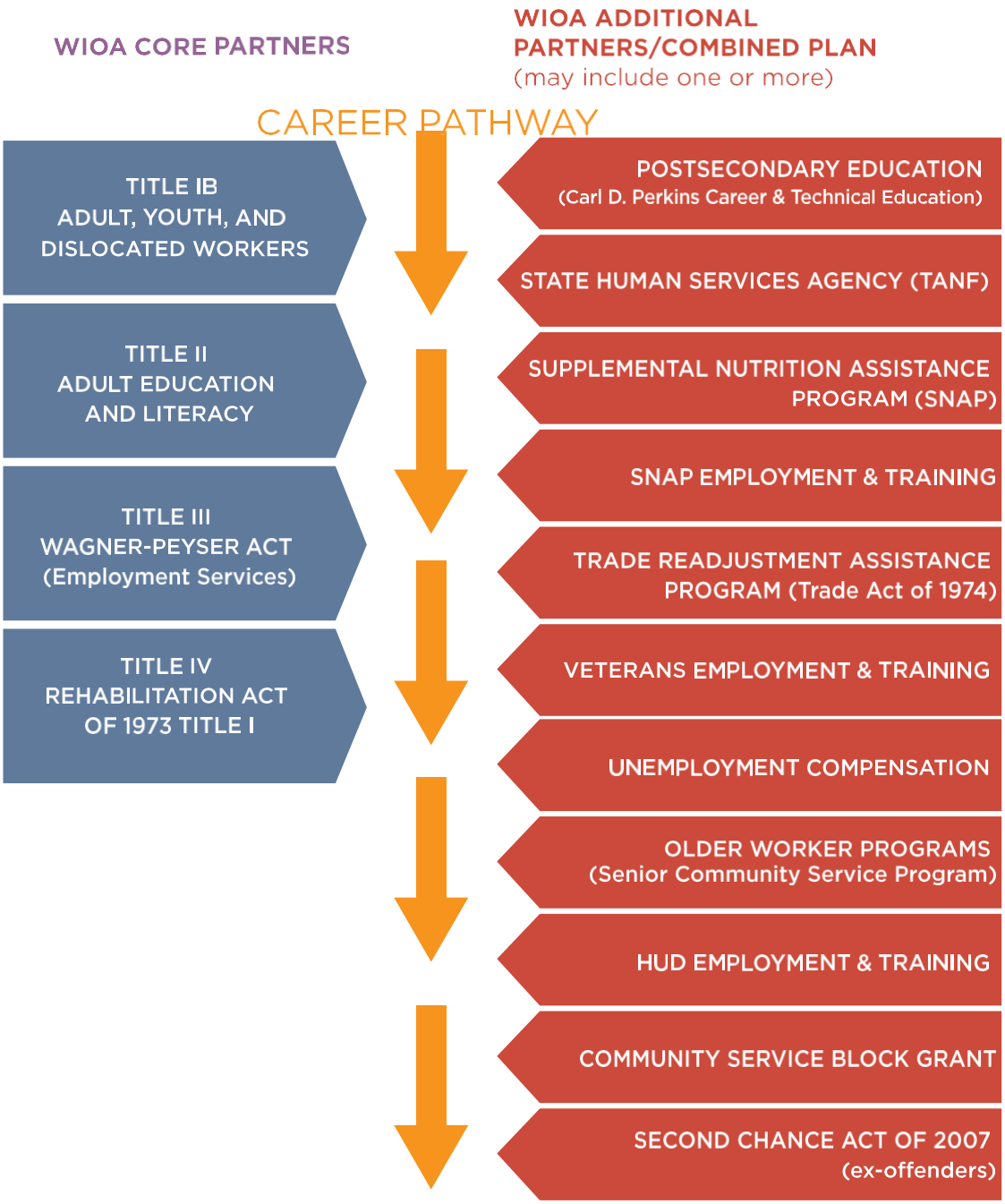
Early on in the development of a career pathways system, the team will want to decide which person and/or agency will take the lead in coordinating the leadership group activities and assigned tasks involved in carrying out the initiative.

Leadership Matters

For career pathways systems to be successful, senior state, and local leaders, including state and local elected officials, support the leadership team by actively endorsing and championing the initiative through their actions, funding, and legislation. It is very helpful for the Governor and State Workforce Development Board to provide leadership to promote and/or steer the partnerships that are necessary to build and sustain a state level career pathways system. The passage of WIOA strengthens this requirement and puts the responsibility on convening a broad base of stakeholders with the Governor and the State Workforce Development Board.

WIOA Core Partners/Unified Plan Development

WIOA core partners are explicitly delineated in the Act and are representatives of Federal programs operating at the state and/or local levels. The state level representatives on the cross-agency leadership team should include at a minimum the WIOA core partners who must be involved in creating the Unified State Plan related to the career pathways system. The Unified Plan shall lay out a four year strategy for the core programs. The State Plan may include additional partners that can assist in identifying the resources that can contribute to blended funding of a career pathways system, and the state may include one or more of these partners and submit a Combined Plan in lieu of a Unified Plan.



Team Development and Sustainability

Leadership team members who are knowledgeable of how effective career pathways systems work will be more engaged in the process. The leadership team may consider training team members on the benefits to participants, organizations, and employers in maximizing the overall impact on the local or regional economy. Partnerships provide real support for the effort that go beyond token letters of support. To create a win-win partnership, the team will do several things:

Understand Each Other's Programs

- Understand each other's specific goals, resources, and program performance measures and requirements.
- Conduct a service/resource mapping session. Though many of the participating organizations and agencies are trying to achieve similar objectives—such as strengthening the local economy—they measure their progress in different ways. By understanding the core elements of each partner's work, the leadership team can develop a systemic framework that can complement everyone's goals.

Understand Career Pathways

- Make sure all partners understand the big picture of developing a career pathways system. Partners adopt a shared definition of career pathways and key related concepts to embed them into their own strategic plans/goals/strategies and into new and existing policies to support career pathways.

Focus on Mission

- Reflect the mission in all career pathways materials and constantly remind partners that the success of the career pathways system depends on the participant outcomes and how well they align with employer demands.

Communicate Expectations

- Clearly communicate expectations of each of the participating partners while also acknowledging the value of their contribution to the overall effort. Partners need to realize the importance and impact of their contributions.

Use Performance Data

- Use performance data to demonstrate progress and impact. This will also support partner buy-in and reinforce continued engagement over time. When the team regularly reviews data and compares itself to benchmarks, partners can make course corrections and are clear that their contributions are adding value.

A periodic review of state and local team membership can ensure that the team includes representatives that support key functions and services within the system. In addition, new partnerships expand as the group seeks to engage new target populations.

The leadership team will not be able to implement the career pathways system without the help of the staff members within the agencies and organizations represented on the leadership and operations teams. Therefore, once the leadership team convenes, it is important to inform all state and local staff members about the career pathways system development and implementation plan. Training multiple agencies' staff together on the new career pathways system will model collaboration and ensure that all staff members learn the same information.

Component 1.2: Establish a Shared Vision, Mission, Goals, and Strategies.

Once the career pathways leadership team is formed, it is important that the state system partners (in conjunction with local/regional partners) are committed to a shared vision of industry sector-based career pathways for youth and adults and to a strategy for building, scaling, and sustaining state and local/regional career pathways systems. All partners should be committed to the same mission aligned with common goals and strategies. The vision provides a directional statement and a framework for the team's area of influence and responsibility by describing the desired future state of the community in a way that inspires the team to progress. A mission statement—a brief description of the team's fundamental purpose—helps the team agree on what to work on together. Defining these elements will allow the team to establish an agreed-upon set of goals with accompanying strategies and aid in the development of a plan to guide collaborative work. As the system evolves over time, the team commits to reviewing and revising the vision, mission, goals, and strategies regularly to match changing interests and ensure the plan is consistent with the state's unified/combined plan. The leadership team may find it helpful to develop its shared vision, mission, goals, and strategies during a strategic planning session.

The state leadership team will want to share its strategic plan with local operations team members. The local Workforce Development Boards will want to ensure their vision, mission, goals, and strategies are consistent with the state leadership team's strategic plan and/or the State's Unified/Combined Plan.

CAREER PATHWAYS FYI: Career Pathways and WIOA

WIOA makes development of career pathways strategies a function of the state and local workforce boards and encourages career pathways activities under all parts of the Act. The career pathways approach provides a framework for state and local unified/combined planning that reorients existing education and workforce services (including those authorized under WIOA) from myriad disconnected programs toward one system focused on individuals' postsecondary and economic success.

CAREER PATHWAYS FYI: Career Pathways and WIOA

WIOA increases the emphasis on cross-system alignment, strategic planning, performance measurement and data collection/utilization.

COMPONENT 1.3: Define the Roles and Responsibilities of All Partners.

The leadership team should adopt a shared strategy and formally commit their organizations to carrying out specific roles and responsibilities and to communicate and coordinate with each other to build, scale, and sustain career pathways systems. While some agencies provide services to the general population, others may serve only "targeted" populations. It takes a variety of agencies and/or funding streams to provide comprehensive services to both targeted and universal populations. Partners may continue to define roles and responsibilities by organization and assign critical responsibilities to each team member.

CAREER PATHWAYS FYI: It is the responsibility of all partners to

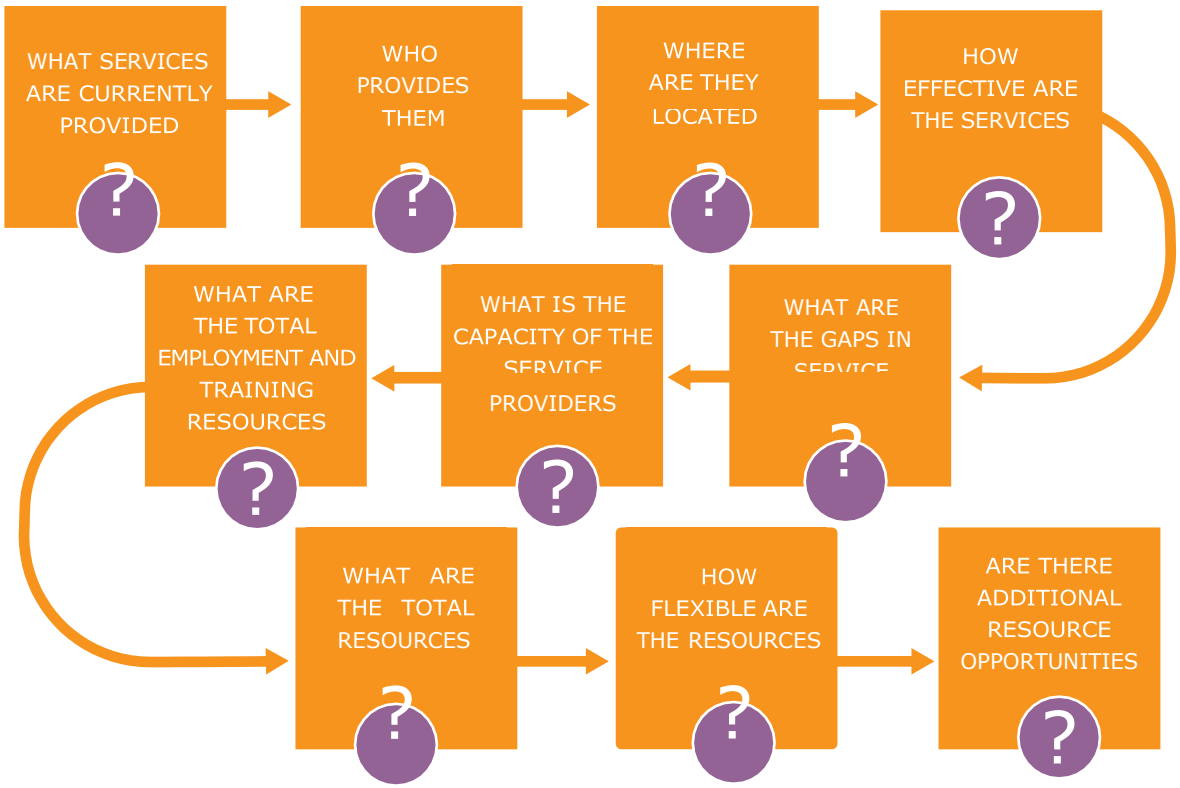
- Leverage and coordinate new Federal, state, and/or private/philanthropic resources to support the local/regional career pathways system and programs.
- Leverage and coordinate existing Federal, State, and/or private/philanthropic resources to support the local/regional career pathways system and programs.

A prerequisite for defining the roles and responsibilities of each of the partners within the career pathways system is shared knowledge of the services each agency provides, the populations it serves, and the service models on which its programs are based.

Community service mapping/resource mapping will allow partners to know what each public and private agency can provide to achieve the career goals of all populations including the specific services for targeted populations. The process will produce the data necessary for coordinating services among multiple agencies and identifying funding streams that can support the development of career pathways systems. The service/resource mapping process will allow all parties to understand each other's existing roles and responsibilities. The team can develop an operational and strategic plan and assign team members functional roles and/or individual task responsibilities. The team may decide to formalize these relationships with a written agreement or within a memorandum of understanding (MOU) to support sustaining relationships over time.

A Community Service Mapping tool is available in Section 2 of this Toolkit.

Mapping will facilitate the following questions:



It is important to define the roles and responsibilities of all partners. The chart on the following page outlines some of the common roles and responsibilities assigned to the key partners involved in developing career pathways systems.

Early in the development of career pathways systems, the team may decide which person and/or agency will take the lead in coordinating the leadership group activities and will assign tasks involved in carrying out the initiative. Consideration should be given to the establishment of at least one full-time staff position within the lead agency to oversee and coordinate leadership team activities and related system development tasks.

The following is an example of typical cross-agency roles. The chart is not all inclusive or prescriptive and state agency partnerships may wish to complete a matrix for their own partnership.

	Workforce Agencies	Educational Institutions & Agencies	Economic Development Agencies	Human Services Agencies	Community-Based Organizations	Employers
Assess skills	•			•	•	
Assist with financial aid		•				
Assist with tuition and fees	•			•	•	•
Create a job friendly business environment			•			
Create links between credit and non-credit programs		•				
Develop curriculum		•			•	•
Develop curriculum with multiple entrances/exits and "modularized" (chunked) sections		•			•	•
Deliver training		•			•	•
Design programs		•			•	•
Engage employers	•	•	•	•	•	
Expand export opportunities			•			
Fund innovation			•			
Identify industry-recognized credentials	•	•		•	•	
Identify skill sets						•
Promote portability and flexibility		•				
Provide academic and personal counseling		•				
Provide career and personal counseling	•			•	•	
Provide case management	•				•	•
Provide credit for prior learning		•				
Provide employment						•
Provide incentives for business expansion			•			
Provide incentives to train incumbent workers			•			

	Workforce Agencies	Educational Institutions & Agencies	Economic Development Agencies	Human Services Agencies	Community-Based Organizations	Employers
Provide job placement assistance	•	•		•	•	
Provide job retention services	•			•	•	
Provide job search assistance	•			•	•	
Provide labor market information	•		•			
Provide professional development opportunities	•	•		•	•	
Provide support services	•	•		•	•	
Provide system navigation	•			•	•	
Provide trainers/faculty		•			•	•
Provide training facilities & equipment		•				•
Provide work-based learning opportunities						•
Recruit and make referrals	•			•	•	
Recruit new business development			•			

Clarify Working Relationship Between State and Local Partners

In addition to clarifying the roles and responsibilities of the various collaborating partners, the leadership team may want to define the working relationship between the state level and the local level agencies and partners. For example, is decision-making happening at the state level with local officials expected to implement them? Alternatively, is decision making happening at the local level with state officials acting in an advisory and supporting capacity?

However decision-making occurs, it is important to ensure that there is a clear understanding of the roles of each partner and an agreement is made that spells out those roles. Like other partnerships, it may be useful to formalize these relationships with a written plan and/or a MOU.

PROMISING PRACTICE: Virginia Career Pathways—Align Systems

In the spring of 2008, Governor Tim Kaine issued an executive order establishing the Virginia Career Pathways Task Force. This task force included representation from the eight state agencies charged with administration and oversight of the Commonwealth's workforce development system, as well as a representative from the Commonwealth's economic development office. Charged by the Governor to develop a career pathways strategic plan, the members met regularly over several months to develop a shared vision, consistent definitions, and systemic expectations of what career pathways meant for the various workforce programs. In December 2008, the task force issued Virginia's career pathways strategic plan, *Bridging Business and Education for the 21st Century Workforce: A Strategic Plan for Virginia's Career Pathways System*, which outlined a vision for the system and specific goals and outcomes across agencies and programs.

In the years since the release of that plan, the group has continued to meet, collaborate, plan, and problem solve. While the name has changed from task force to work group, and membership has shifted, the core group has remained committed to partnership because of real progress made in building career pathways into Virginia's workforce development system as well as the trust and respect that has grown among the members. The core group consists of representatives from the Governor's Office, Department of Labor and Industry, State Council for Higher Education, Virginia Community College System, Department of Social Services, Virginia Employment Commission, and Virginia Economic Development Partnership. The results have exceeded everyone's early expectations, and they include truly collaborative interagency programming, tens of millions of dollars in public and private grants, and legislation that has advanced recommendations that grew out of the work.

COMPONENT 1.4: Develop a Work Plan and/or Memorandum of Understanding for the Partnership.

Once the leadership team establishes a shared vision, mission, goals, and strategies governing the partnership, the team is ready to develop a work plan consistent with the strategies delineated in the Unified/Combined Plan.

The work plan is necessary for the partnership to accomplish its goals. The work plan should identify who, what, when, and how the strategies will be implemented.

Who: One or more individuals representing an agency responsible for each task, accomplishing the task, and providing progress reports.

What: The annual priorities based on current and projected rigorous assessment of the needs of the state/regional economy, the selected targeted industry sector(s), and the capacity of the system.

When: The timelines assigned to each task to include the completion dates.

How: The strategies required to accomplish each task along with the criteria for system metrics and evaluation.

The work plan may include many of the considerations described in the graphic to the right in the development of the key strategies and tasks.

Partnership Work Plan Considerations:

ELEMENT ONE TOOLBOX

Team Tools

See Section Two—*Team Tool How-to Guide* for facilitator instructions for each of the following tools:

- Six Key Elements Graphic Framework https://learnwork.workforce3one.org/view/2001120641504542734/info
- Six Key Elements Action Planning Tool https://learnwork.workforce3one.org/view/2001120642119875739/info
- Service Mapping Tools https://learnwork.workforce3one.org/view/2001126552554540652/info
- Sample Partner Agreements https://learnwork.workforce3one.org/view/2001126942046585407/info
- Six Key Elements Readiness Assessment Tool: (available in Section 2 of the Toolkit)

Reports and Publications

- *Career and Technical Programs of Study: A Design Framework.* U.S. Department of Education. http://cte.ed.gov/initiatives/programs-of-study
- *Best Practices for Career Pathways and Credentials: the Minnesota and Kansas Models.* U.S. Department of Labor. Webinar held January 10, 2014. https://careerpathways.workforcegps.org/announcements/2015/02/18/12/22/Best_Practices_for_Career_Pathways_and_Credentials
- *Bridging Business and Education for the 21st Century Workforce: A Strategic Plan for Virginia's Career Pathways System.* State of Virginia. December 2008.
- *Career Pathways Initiative: Building Cross-Agency Partnerships* U.S. Department of Labor and Social Policy Research Associates, March 2011; https://www.workforce3one.org/view/5001104843457641130/info
- *Center for Faith-Based and Neighborhood Partnerships,* U.S. Department of Education. http://www.ed.gov/edblogs/fbnp/
- *CTE Clearinghouse: Business Partnerships and Community Involvement.* Association for Career and Technical Education (ACTE). https://www.acteonline.org/clearinghouse_partnerships/#.VLLN6NLF-So
- *Governor McAuliffe Unveils Major Workforce Development Initiative.* Virginia Office of the Governor, August 2014. *https://governor.virginia.gov/newsroom/newsarticle?articleId=5787*
- *From the Ground Up: Creating Sustainable Partnerships between Public Housing Authorities and Workforce Investment Boards.* U.S. Department of Housing and Urban Development and U.S. Department of Labor, Spring 2014. http://portal.hud.gov/hudportal/documents/huddoc?id=14_dol_publication.pdf
- *Joint Career Pathways Letter.* U.S. Departments of Education, Labor, and Health and Human Services. http://wdr.doleta.gov/directives/attach/TEN/ten_36_11_att.pdf
- Jolin, Michelle; Schmitz, Paul; and Seldon, Willa. *Community Collaboratives Whitepaper: A Promising Approach to Addressing America's Biggest Challenges.* Corporation for National and Community Service, 2012. http://www.serve.gov/sites/default/files/ctools/CommunityCollaborativesWhitepaper.pdf
- *Shared Vision, Strong Systems.* Alliance for Quality Career Pathways, Center for Law and Social Policy, June 2014, http://www.clasp.org/resources-and-publications/files/aqcp-framework-

ELEMENT TWO

IDENTIFY INDUSTRY SECTORS AND ENGAGE EMPLOYERS

Sectors and industries are selected and are partners and co-investors in the development of career pathways systems.

Key Element Components:

- Conduct labor market analysis to target high demand and growing industries.
- Survey and engage key industry leaders from targeted industries and sector partnerships.
- Clarify the role of employers in the development and operation of programs.
- Identify existing training systems within industry as well as the natural progression and/or mobility (career ladders/lattices).
- Identify the skill competencies and associated training needs.
- Sustain and expand business partnerships.

A career pathways system must be employer driven. This is the single most important transformational element of a career pathways system; employers are a partner and co-investor in the system. As a full partner, employers have active and continual involvement from program inception through implementation. Engaging employers early on in the design of an initiative will help ensure your career pathways system aligns with business needs. Many states are using sector strategies to complement and strengthen their relationships with employers. Sector strategies is a strategic approach to engage employers by bringing together industries critical to the economic success of a region and identifying the skills that are necessary to build the region's talent pipeline. This approach allows for the development of career pathway programs for a range of workers within a regional economy. Alignment with regional economies allows the career pathways system to identify careers that are emerging, growing, and/or have the greatest need for replacement workers and promise long-term employment at a family-sustaining wage. WIOA strengthens the requirements for state and local providers to align workforce services with regional economic development strategies and sector strategies tailored to their needs.

CAREER PATHWAYS FYI: Contributions you can expect from industry leaders

Federal employment and training programs are funded at just over $17 billion in the FY 2014 Federal budget. By way of comparison, in 2013, U.S. employers are estimated to have spent over $450 billion on training for their own employees. This amounts to 25 times more than the Federal government spends on job training.

Ready to Work: Job Driven Training and American Opportunity, White House, July 22, 2014

COMPONENT 2.1: Conduct Labor Market Analysis to Target High-Demand and Growing Industries.

The intent of career pathways is to train participants for the skill needs of employers, so it is essential to select the industries that will benefit the local economy and provide employment at family sustaining wages. Skillful use of labor market information (LMI) is an effective way to manage risk and ensure that the industries chosen will provide the best return on investment. States may wish to analyze many sources of labor market information to identify the regional workforce needs. These sources may include traditional LMI from the Bureau of Labor Statistics, real-time LMI from internet job boards, sophisticated employer internal tracking systems, and industry cluster studies.

CAREER PATHWAYS FYI: In-Demand Industry Sector or Occupation

A) IN GENERAL—The term ''in-demand industry sector or occupation'' means—

(i) an industry sector that has a substantial current or potential impact (including through jobs that lead to economic self-sufficiency and opportunities for advancement) on the State, regional, or local economy, as appropriate, and that contributes to the growth or stability of other supporting businesses, or the growth of other industry sectors; or

(ii) an occupation that currently has or is projected to have a number of positions (including positions that lead to economic self-sufficiency and opportunities for advancement) in an industry sector so as to have a significant impact on the State, regional, or local economy, as appropriate.

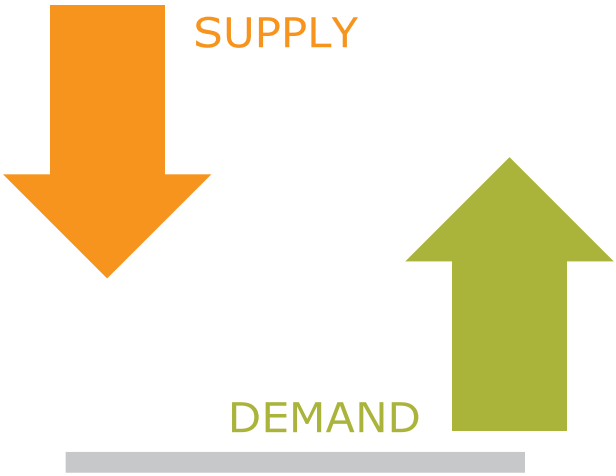
(B) DETERMINATION—The determination of whether an industry sector or occupation is in-demand under this paragraph shall be made by the State board or local board, as appropriate, using State and regional business and labor market projections, including the use of LMI.

Traditional LMI is employment statistics, job forecasts, wages, demographics, and other labor market data gathered and made available for the exact purpose of assisting public and private organizations, researchers, and others to better understand today's complex workforce. These data collections are usually tailored to reflect (1) the nation, (2) national regions (e.g. the "northwest"), states, regions within states, and counties/ communities. LMI data may also be reported in timeframes such as the previous month, quarter, or year.

HOW TO: Use LMI to Learn

- What skills employers are looking for;
- Which occupational areas are growing in the future;
- Which industries are hiring;
- Where to find employers who are hiring;
- What working conditions are like for specific industries;
- What education and training you need for specific occupations; and
- What factors can stop you from getting a job.

In a broad sense, LMI collects, analyzes, and disseminates employment levels, wages, occupational projections, number of people employed, etc. to predict the relationship between supply and demand. Supply indicates how many individuals are available and capable of taking an explicit job while the demand tells you how many jobs are open – or will open with retirements and job-changers.



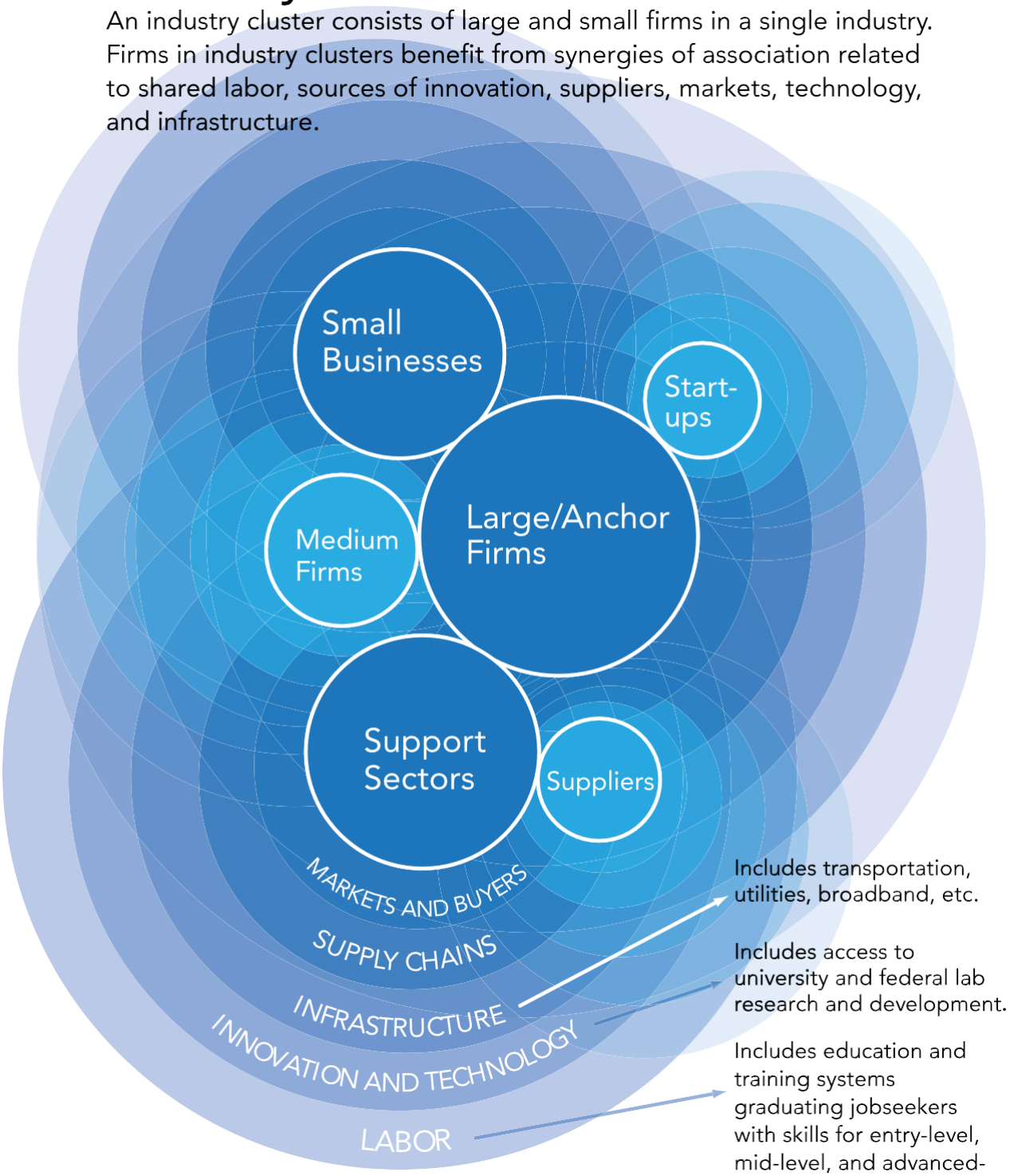
LMI agencies look at job vacancies, as well as job growth. There is considerable churning in a labor market as people retire, are promoted, etc. LMI agencies need to look at replacement workers as well as new and emerging job growth in order to identify where the greatest demand for workers will be. The team will elect to prepare training for jobs where the demand is high, the supply of potential workers is low, and the occupations pay a family sustaining wage.

There are many other sources of labor market data to complement the traditional labor market information presented by the Bureau of Labor Statistics. Modern technology allows access to real-time data using software that pulls information from the internet from job posting boards and can provide supplemental data on labor supply and demand. Many larger employers have sophisticated Applicant Tracking Systems (ATSs) or larger Talent Management Systems (TMSs) to track information on job applications and hiring. These tracking systems help the employers identify skill shortages in their regional economies. This information is critical for them in making management decisions to expand or contract in a region or to invest in training options for the regional workforce that will provide them with a competitive advantage.

In addition, LMI agencies in many states (i.e., California, Connecticut, Colorado, Maryland, Michigan, Minnesota, New Jersey, and Ohio) have analyzed the state's economy as well as bordering states by looking at the industry clusters influencing a regional economy. Dr. Michael Porter Economist, Harvard Business School, defines industry clusters as "geographic concentrations of interconnected companies, specialized suppliers, and associated institutions in a particular field that are present in a nation or region." Clusters emerge because they raise a company's productivity by proximity to local assets and the presence of like firms, institutions, and infrastructure that surround it. To conduct cluster studies, LMI agencies can analyze the state's economy by looking at the concentration of specific industries within a geographic area by using the North American Industry Classification System (NAICS). The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. The LMI office analyzes the concentration of industries by using a location quotient (LQ). A LQ of employment identifies the relative concentration of employment in an area compared to a larger area. When the LQ is equal to one, the industry cluster share of employment is equal to that of the United States. However, when the LQ is greater than one, the cluster has higher relative share of employment within the state than in the nation. This means the state has a competitive advantage in this industry compared to other states.

Industry Cluster

An industry cluster consists of large and small firms in a single industry. Firms in industry clusters benefit from synergies of association related to shared labor, sources of innovation, suppliers, markets, technology, and infrastructure.



Groves, Garrett and Woolsley, Lindsey. State Sector Strategies Coming of Age: Implications for State Policy Makers. *National Governors Association*, January 2013.

Cluster studies are critical in developing industry sector strategies. Industry sector strategies can address the workforce needs of a larger area by aligning the critical partners of education, training, economic development, and community-based organizations that solve workforce challenges in industries specific to a region. Sector strategies may not fit within geo-political boundaries and may even cross state lines. A good example of the synergies of a cluster study is depicted in the graphic from the National Governor's Association on the previous page.

Once a detailed analysis of industry clusters is known, state and local Workforce Development Boards can determine the predominance of specific industries and identify new and emerging industries that the Workforce Development Boards can prepare for. This process allows a Board to focus on the strengths of industry clusters and identify if sector partnerships exist to avoid duplicating their work.

Cluster studies also identify new emerging occupations as well as growth occupations that can strengthen the state's competitive advantage within the industry. A promising practice in Kentucky illustrates how a large industry sector partnership grew as a result of one business identifying training needs and developed into career pathways for automotive workers.

PROMISING PRACTICE:
Automotive Manufacturing Technical Education Collaborative (AMTEC)

In 2005, the Kentucky Community Technical College System began a customized training program for Toyota. Since the needs of other automotive manufacturers were similar including their supply chain, the automotive sector quickly grew into an automotive industry sector partnership that included other American, Asian, and German auto manufacturers. Today, the Automotive Manufacturing Technical Education Collaborative (AMTEC) has expanded across numerous economic, education, and political boundaries along the 1-65 and I-75 corridors from Michigan to Texas. It includes 32 community colleges and labor organizations across 13 states, all focused on the goal of making sure that a new generation of skilled, globally competitive autoworkers emerge. AMTEC uses a sector partnership to identify worker skills needs across two critical job classifications—production and maintenance. AMTEC uses a career pathways approach to make sure the coursework is modular, flexible, and contextualized and produces stackable credentials.

A state, region, or local team just starting out may want to focus first on a single industry. The lessons learned from a small-scale pilot may then inform efforts to add other industries or sector partnerships.

The following promising practice illustrates how Maryland used labor market research to determine a sector focus and to engage employers in their career pathways efforts.

PROMISING PRACTICE: Employer Engagement in Maryland

Maryland has focused its career pathways efforts on its Upper Shore region, where the basis of the economy has shifted from natural resource extraction to manufacturing and services. Although hospitality, tourism, and construction are in decline, healthcare continues as an important economic engine in the region. Accordingly, the Maryland career pathways team wanted a better picture of the Upper Shore's healthcare labor force. The team had originally planned to hire a consultant to conduct a labor market analysis to get a clearer idea of which occupations to target. Due to limited funding, however, the team decided to conduct an in-house labor-shed analysis instead. This meant collecting data that would allow them to map the geographic distribution of healthcare workers in the region, irrespective of natural or political boundaries. The study would also address underemployment, the willingness of current and prospective employees to change employment, current and desired occupations, wages, hours worked, and the distances workers were willing to commute to work. The team conducted the labor-shed analysis by compiling healthcare industry data via Internet resources. Before using this information to shape the career pathways action plan, however, they met with employers in the region to validate their findings. Being asked to validate this healthcare industry data piqued the employers' interest in the team's career pathways work, and they independently requested to be involved in the initiative. A way to validate data became a valuable strategy for recruiting employers.

COMPONENT 2.2: Survey and Engage Key Industry Leaders from Targeted Industries and/or Sector Partnerships.

Leveraging existing sector partnerships can connect the career pathways leadership to the needs and interest of employers. Because of the importance of industry or sector partnerships, WIOA describes their collaborative attributes in the statutes (see the following text box).

CAREER PATHWAYS FYI: Definition of Industry or Sector Partnerships

WIOA defines an industry partnership as a workforce collaborative, convened by or acting in partnership with a state board or local board, that—

(A) organizes key stakeholders in an industry cluster into a working group that focuses on the shared goals and human resources needs of the industry cluster and that includes, at the appropriate stage of development of the partnership—

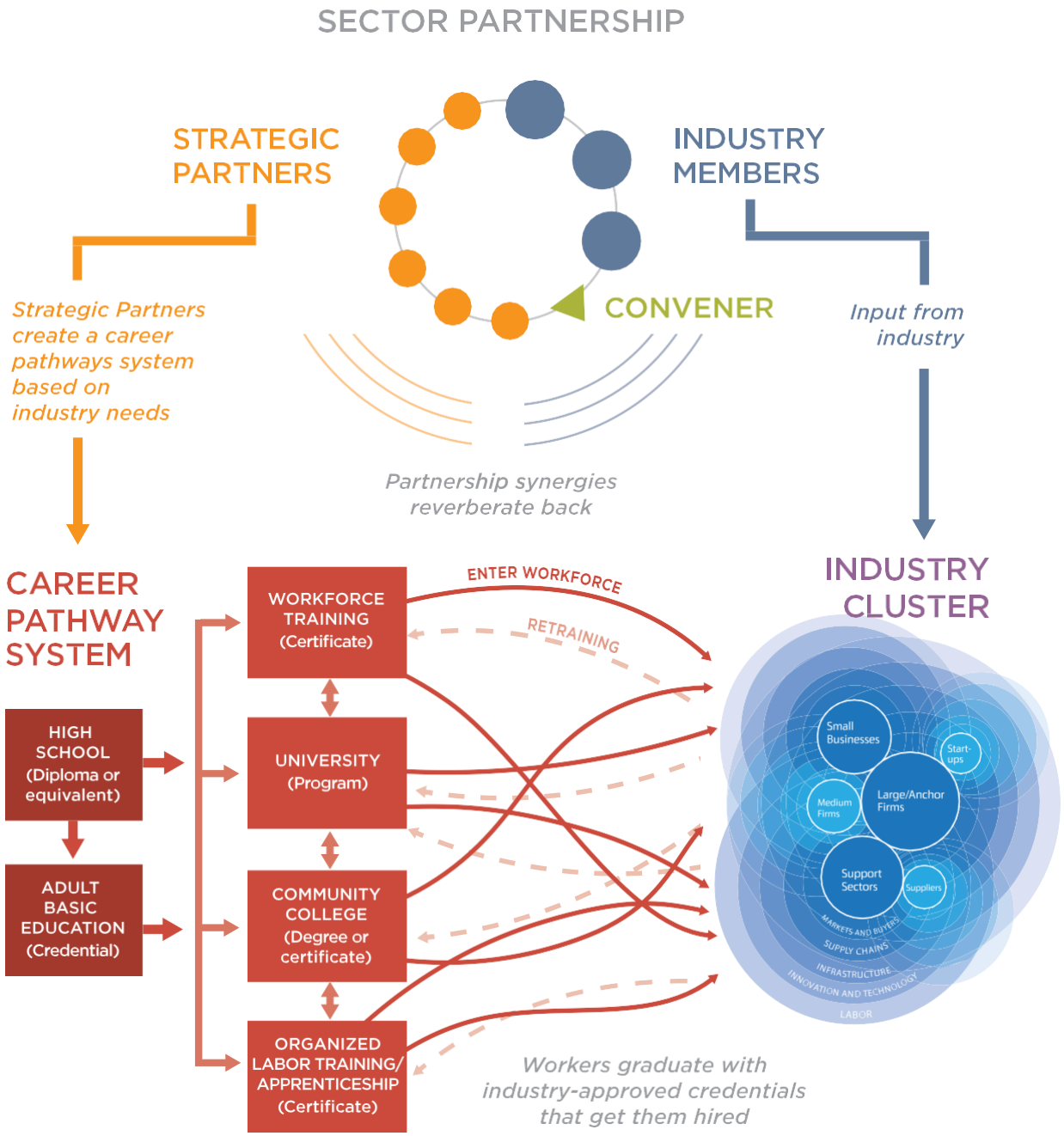
- (i) representatives of multiple businesses or other employers in the industry cluster, including small and medium-sized employers when practicable;
- (ii) one or more representatives of a recognized state labor organization or central labor council, or another labor representative, as appropriate; and
- (iii) one or more representatives of higher education with, or another provider of, education or training programs that support the industry cluster.

(B) may include representatives of—

- (i) state or local government;
- (ii) state or local economic development agencies;
- (iii) state boards or local boards, as appropriate;
- (iv) state workforce agency or other entity providing employment services;
- (v) other state or local agencies;
- (vi) business or trade associations;
- (vii) economic development organizations;
- (viii) nonprofit organizations, community-based organizations, or intermediaries;
- (ix) philanthropic organizations;
- (x) industry associations; and
- (xi) other organizations, as determined to be necessary by the members comprising the Industry or sector partnership.

Existing sector partnerships may already have collaborated with local training institutions. Career pathways systems enhance the sector partnership by offering a clear sequence of coursework and credentials that align with the natural progression of occupations within an industry or across industries—a pathway.

The following graphic from the National Governor's Association illustrates the linkages between sector partnerships and career pathways.



Groves, Garrett and Woolsley, Lindsey. *State Sector Strategies Coming of Age: Implications for State Policy Makers.* National Governors Association, January 2013.

COMPONENT 2.3: Clarify the Role of Employers in the Development and Operation of Programs.

Key employers will accept multiple roles and contribute in the development of career pathways programs. The greater the role of the employers, the more likely the career pathways programs will meet industry needs. The graphic below lists some of the roles that employers can play in the system:

Write an employer agreement

It is wise to capture employer involvement in some formal manner. Teams may wish to develop a formalized contract or MOU to document, capture, or describe specific contributions, limitations, issues, legalities, and scope of responsibilities of the employer.

The MOU can specify the parameters of employer contributions such as the specific role of an employer instructor; the rules and expectations of any work-based learning opportunities; the use of the employer's facilities and equipment; and any co-investment into curriculum development.

COMPONENT 2.4: Identify Existing Training Systems within Industry and the Natural Progression and/or Mobility (Career Ladders/Lattices).

Employers train employees on the job and provide formal and experiential learning to help them acquire skills. To augment industry programs, the career pathways system must understand the type of training available within industry and align curriculum to meet changing industry standards.

The career pathways system will begin by obtaining a full understanding of job clusters and specific jobs within the industry and how they relate to each other. In many companies, there is a well-understood job progression as an employee– seeking upward mobility – learns a job, acquires the competencies to be proficient, and advances to a job requiring more skills and knowledge. Each "next job" generally builds from the competencies, skills, and experiences of the previous job.

It is important for a career pathways program designer to map out the skill acquisitions necessary to advance within the company. The employer may also have a company-based or industry-based certification that authenticates the acquisition of skills. Any new career pathways training system must align with the job progressions, the existing training systems, and the certification system in place.

What are the entry-level positions?	What are the occupations that are a level above entry?	What jobs follow those?	What are the skill requirements to move up?	Is there increasing compensation along with the increased skill requirements?

COMPONENT 2.5: Identify the Skill Competencies and Associated Training Needs.

At the core of training program design is a thorough understanding of the competencies required for successful job performance. Pathway designers, working with the employer, allow the employer to describe and determine the needed skills and knowledge for the specific career pathways training. Asking the right questions and identifying the skill requirements to perform the essential functions of a job is what gives the employer a competitive advantage.

Develop a competency model

An industry competency model is a collection of competencies (knowledge coupled with skilled tasks) that together define successful performance in a particular job or job family. Competency models designate the industry requirements that are essential components to design training curriculum.

An educational design team ("pathway builders") will work directly with the employer and/or professional association to list or document competencies that an employee must know to perform the job. Sometimes documentation may already exist that will contribute to the development of the model. It is very important that the employer and his team review and confirm the accuracy of the lists of competencies.

For a more detailed explanation of competency models, see Component 3.3 "Review or Develop Competency Models" under Element 3: "Design Education and Training Programs."

COMPONENT 2.6: Sustain and Expand Business Partnerships.

Strong reliable relationships with employers require a routine series of communications and actions in order to ensure continued commitment from business partners. Working with industry sector partnerships can provide a more organized approach and can provide a better opportunity for sustainability. The leadership team will note that employers often bring different decision-making expectancies and timetables with less tolerance for extended discussions. Members of the leadership team must develop a communication style that reflects the urgency and needs of employers while ensuring their own staff's program design needs are being heard. Figure out how to merge the varying styles and expectations and be well organized. As the career pathways systems expand to target additional industries or sector partnerships, other employers are cultivated to inform all new career pathways program development.

	NEW RELATIONSHIP	WORKING RELATIONSHIP		STRATEGIC PARTNERSHIP	
	LEVEL I	LEVEL II	LEVEL III	LEVEL IV	LEVEL V
Key Employer Role	Advising	Capacity-building	Co-designing	Convening	Leading
Stage of Relationship	Initial contact/ new relationship	Establishing trust and credibility	Working relationship	Trusted provider and collaborator	Full strategic partner
Engagement Examples by Level	Discuss hiring needs, skills, competencies; advise on curricula; contract training; hire graduates	Job site tours, speakers, mock interviews, internships, needs assessment, loan/donate equipment, recruiting	Curriculum and pathway development; adjunct faculty and preceptors	College-employer sectoral partnerships	Multi-employer / multi-college partnerships

www.jff.org/sites/default/files/publications/materials/A-Resource-Guide-to-Employer-Engagement-0113

ELEMENT TWO TOOLBOX

Team Tools

- Six Key Elements Readiness Assessment Tool: (available in Section 2 of the Toolkit)
- Key Elements Action Planning Tool https://learnwork.workforce3one.org/view/2001120642119875739/info

Reports and Publications

- Groves, Garrett and Woolsley, Lindsey. *State Sector Strategies Coming of Age: Implications for State Policy Makers.* National Governor's Association, January 2013. http://www.nga.org/cms/home/nga-center-for-best-practices/center-publications/page-ehsw-publications/col2-content/main-content-list/state-sector-strategies-coming-o.html
- *Pathways For Youth Employment: Federal Resources For Employers.* The White House, February 2015. https://www.whitehouse.gov/sites/default/files/docs/pathways_for_youth_employment_Federal_resources_for_employers_feb_2015.pdf
- Wilson, Randal. *A Resource Guide to Engaging Employers.* Jobs for the Future, January 2015. http://www.jff.org/publications/resourceguide-engaging-employers
- *Tools for Building Employer/Educator Partnerships.* U.S. Department of Education, Office of Career, Technical, and Adult Education: http://lincs.ed.gov/employers/

ELEMENT THREE
DESIGN EDUCATION AND TRAINING PROGRAMS

Career pathways programs provide a clear sequence of education courses and credentials that meet the skill needs of high-demand industries.

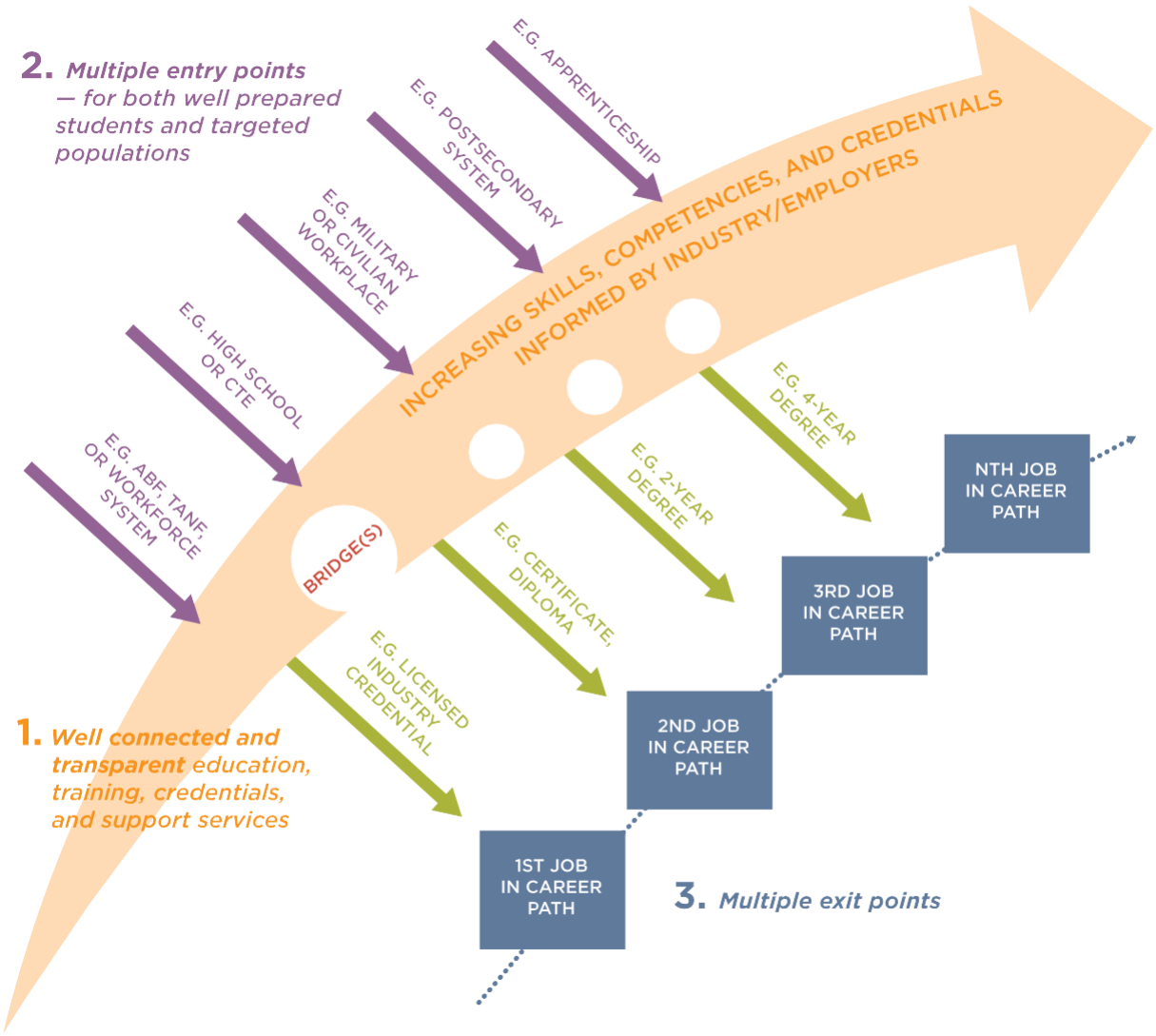
Key Element Components:

- Identify and engage education and training partners.
- Identify target populations, entry points, and recruitment strategies.
- Review, develop, or modify competency models with employers and develop and validate career ladders/ lattices.
- Develop or modify programs to ensure they meet industry recognized and/or postsecondary credentials.
- Analyze the state's and region's education and training resource and response capability.
- Research and promote work-based learning opportunities within business and industry.
- Develop integrated, accelerated, contextualized learning strategies.
- Provide flexible delivery methods.
- Provide career services, case management, and comprehensive supportive services.
- Provide employment assistance and retention services.

In a comprehensive career pathways system, education and training programs provide a clear sequence of education courses and credentials combined with continual seamless support systems that prepare individuals, regardless of their skill levels at the point of entry, for postsecondary education, training, and employment. Likewise, the Career and Technical Education system (CTE) requires a clear sequence of courses that must align with postsecondary education and the workforce training systems in order for youth to benefit from a career pathways system. As addressed in Element One and Element Two, all the partners connected to the career pathways system work together to ensure that local education and training programs align with the skills requirements of growing and emerging industries while simultaneously meeting the education and training needs of diverse populations. WIOA strengthens this requirement throughout. Therefore, designing these programs cannot be "business as usual" and requires "out of the box" thinking to best meet the needs of employers and learners. The Center for Law and Social Policy (CLASP) has developed the following depiction of a career pathways process (see graphic on next page).

Adults, youth, and non-traditional, working learners often struggle to complete education and training programs that provide the necessary credentials for many growing careers. This is especially true for those who lack basic skills, including work readiness skills and English language comprehension. These populations often have other barriers to training and employment, such as transportation and the need for childcare. In addition, working learners have the added challenge of balancing jobs with education or training, which makes flexible training programs, such as evening/weekend, and/or online classes critical to their success. Designing training programs that accommodate these challenges ensures higher completion rates. When training and education programs do not accommodate the needs of adults, youth, and non-traditional students, they drop out. Developing career pathways-oriented education programs that support the unique needs of targeted populations helps patch the "leaky pipeline" of learners prematurely exiting training programs.

Career pathways systems provide participants with multiple entry points to accommodate academic readiness and multiple exit points to permit on ramp and off ramp when necessary. The intent for career pathways is to lead to industry-recognized credentials, at family supporting wages with occupational advancement opportunities.



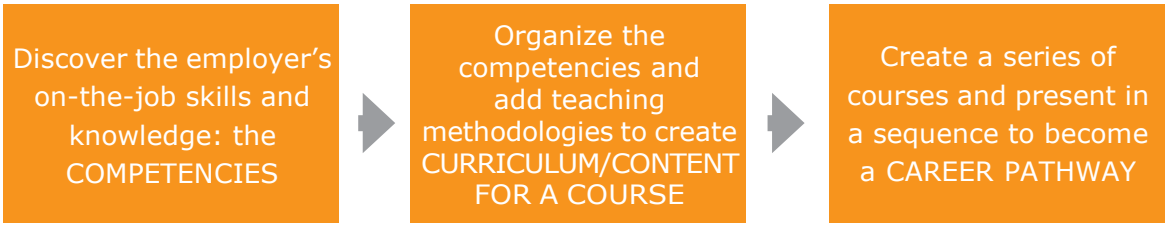
Shared Vision, Strong Systems: The Alliance for Quality Career Pathways Framework Version 1.0. Center for Law and Social Policy, June 2014.

An Overview of the Design Process

Although career pathways require new business processes to be inclusive of the partnership, the design of curriculum leading to a pathway still requires a more traditional approach from identifying the skills and knowledge needed by the employer to creating courses and programs—a "pathway."

The process begins by identifying and capturing the employer-based competencies required for successful job performance (refer to Component 3.3 of this element). As noted in the diagram on the next page, competencies are the basic building blocks of what ultimately becomes a program of study —a career pathway.

Steps in Career Pathway Progress



Designing programs requires organizing competencies into a logical sequence of information and experiences by applying teaching methodologies. These include lesson plans, instructional content, materials, learning experiences, resources, and evaluation all designed to help the learner master the knowledge and skills required to attain and perform a job. The package of competencies and methodologies is the curriculum of a course. The curriculum itself may be delivered in multiple modalities including a combination of experiential learning, classroom instruction, e-learning, etc.

COMPONENT 3.1: Identify and Engage Education and Training Partners

The education and training for a complete career pathways program may require multiple educational, service, and/or community-based organizations. In an effort to avoid duplication, the career pathways team should identify all potential "education, training and service partners" within the team's service area including secondary education. It is especially important, whenever feasible, to coordinate opportunities for dual enrollment between secondary and postsecondary education. Dual enrollment or dual credit allows secondary students to enroll in courses at institutions of higher education and earn both high school and postsecondary credit for completing a class. The intent of the program is two-fold: (1) to provide learners with opportunities for additional academic challenge and rigor, and (2) to offer an alternative educational setting that may stimulate interest and result in accelerated course completion options.

HOW TO:
Determine the Strengths of Potential Training Partners by Asking About...

- Courses and curriculum offered;
- Dual enrollment options;
- Credentials offered upon completion;
- Credentials and experience of faculty;
- Organization(s) that oversee, certify, or approve of the training;
- Funding capacity and budget;
- Curriculum alignment with industry recognized credentials; and
- Placement rate and earnings of graduates.

COMPONENT 3.2: Identify Target Populations, Entry Points and Recruitment Strategies.

The leadership team should explore opportunities to recruit special populations which may include individuals lacking basic or work readiness skills, individuals receiving public assistance, individuals with a disability, and individuals who are English language learners. Career pathways programs are well suited to help these populations and address their barriers and help them gain occupational skills that are in demand.

CAREER PATHWAYS FYI: WIOA Definition of English Language Learner

Individual who has limited ability in reading, writing, or comprehending English language and—

(A) whose native language is a language other than English; or

(B) who lives in a family or community environment where a language other than English is the dominant language.

CAREER PATHWAYS FYI: Americans with Disabilities Act Definition of an Individual with a Disability

An individual with a disability is a person who has:

1. A physical or mental impairment that substantially limits one or more major life activities;
2. A record of such an impairment; or
3. Is regarded as having such an impairment.

Build a Pipeline

Recruitment strategies for special populations require the help of a widespread collaboration of community organizations, especially community-based groups that serve specific populations. The team should consider designing a marketing/outreach strategy that uses the contacts of partners and uses marketing tools that reach the targeted population. For example, social media tools such as Facebook, Twitter and others are used effectively for reaching younger targets.

Learn about the target population

Collaborating with local community-based organizations can help the team understand some of the characteristics and corresponding needs required by these populations. The more known about the client base, the better a career pathways program will be able to address barriers and increase the potential for program success.

Consider employability skills

Employability skills is a critical component to college and career readiness and requires integration into career pathway curriculum and experiences, especially for some populations. Employability skills are general skills that most employers demand and typically fall into three broad categories:

- Applied Knowledge—the thoughtful integration of academic knowledge and technical skills, put to practical use in the workplace;
- Effective Relationships—the interpersonal skills and personal qualities that enable

HOW TO: Critical Information Needed to Identify, Select, and Serve Targeted Populations

- Economic status;
- Residence and location;
- Educational attainment;
- English proficiency;
- Literacy skills;
- Work history;
- Culture impacts; and
- Special accommodations, if needed.

individuals to interact effectively with clients, coworkers, and supervisors; and

- Workplace Skills—the analytical and organizational skills and understandings that employees need to successfully perform work tasks.

Multiple Program Entry Points

The career pathways system should provide courses and experiences that allow learners to begin from a point where he/she can succeed and build upon. To make the best match between learner readiness and a specific set of courses requires assessing the learner. With multiple entry points, some learners may need basic skills to include reading, math, and work readiness skills. Other learners may have good education skills and enter the pathway at a higher level. Additional personal assessments such as drug/alcohol use and a criminal background check may be necessary for some programs of study.

CAREER PATHWAYS FYI: Potential Community Organizations to Collaborate With

- Minority-based, private, non-profits;
- Refugee organizations;
- Faith-based community organizations;
- Veteran organizations;
- Organizations serving individuals with disabilities;
- Temporary Assistance for Needy Families (TANF) organizations;
- Organizations serving dislocated workers; and
- Youth-serving organizations.

PROMISING PRACTICE: Instituto del Progresso Latino

Staff members at *Instituto del Progresso Latino* in Chicago, Illinois, learned early on that to keep their adult population engaged in learning they needed an innovative curriculum approach. Contextualized basic skills courses allowed the *Carreras En Salud* program to combine academic instruction with technical training for the healthcare industry. Instituto's curriculum developers observed the workplaces of their employer partners, specifically looking at the duties, skills, and information required to perform jobs such as Certified Nursing Assistant (CNA) and Licensed Practical Nurse (LPN). These observations led to the production of a customized curriculum that met the needs of employers and had embedded in it the basic academic skills instruction that learners needed. Instituto's success shows in its high retention rates (70% to 90% depending on the cohort) and the average wage increases of their LPN program completers ($10 to $25 per hour). Additionally, 88% of students complete their Vocational English Language Acquisition (ELA)/Pre-CNA courses and 77% advance to the bridge portion of the program. For more information please see: http://www.idpl.org/

COMPONENT 3.3: Review, Develop, or Modify Competency Models with Employers and Develop and Validate Career Ladders/Lattices.

Competency Models

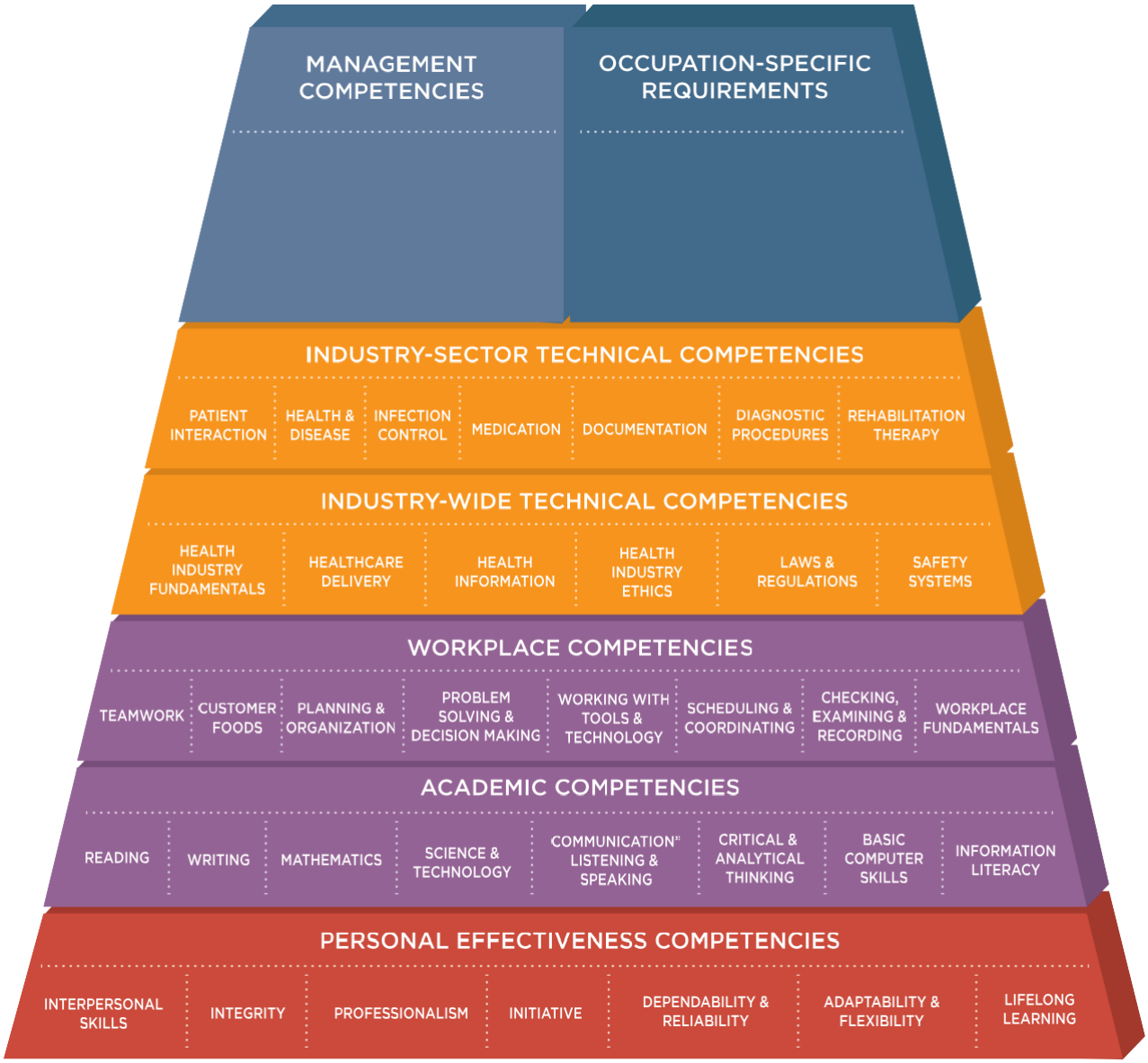
An industry competency model is a collection of competencies, skills, and knowledge that together define successful performance in a particular industry or cluster of related occupations. Competency models articulate the business and industry requirements that are essential components for the development of curriculum, skill assessment instruments, and certifications. Competency models, as the basic building block, also facilitate the development of the courses and ultimately the career pathways and career lattices that provide the framework for career advancement.

The Competency Model Clearinghouse, developed by USDOL, provides tools and resources for building competency models (from scratch or by modifying existing models) as well as developing career ladders/ lattices based on competency models. See the resources in the Toolbox at the end of this section for a link to Competency Model Clearinghouse resources.

HOW TO: Steps in Building Competency Models

- Educator reviews the existing competency models in the database as a reference point with employer;
- Employer identifies the critical work functions or tasks in the workplace for a specific job;
- Employer and educator engage Subject Matter Experts (SMEs) currently performing the job tasks;
- SMEs identify the most critical and frequently performed tasks;
- SMEs identify the knowledge, skills, and abilities it takes to perform tasks; and
- Employer and educator validate competency model for the specific job.

Employers are crucial in developing competency models for selected occupations within their local and regional industry sectors. USDOL has compiled a database of employer-approved competencies that can serve as a good starting point when developing a competency model for a particular sector. The team can ask local employers to validate a competency model drawn from the database, and suggest changes based on the unique requirements for their businesses. The following example depicts a competency model from Allied Health.



Competency Model Clearinghouse (Career One-Stop): *http://www.careeronestop.org/CompetencyModel/*

In addition to validating an existing competency model, the employer and educator may wish to conduct a job profiling or job analysis session in which they verify the knowledge, skills, and abilities required to successfully perform "critical work functions" or tasks in the workplace. This may provide more information on the specific skill sets required for the employer's work site. In general, competency models include foundational skills to include personal effectiveness, academic competencies, workplace competencies, and industry-wide competencies.

Once employers have informed and validated the competencies related to the selected occupation, they may wish to continue the process for higher-level jobs in their organization. Educators may now engage employers in the next step—program development.

HOW TO: Critical Questions to Ask Employers When Building Competency Models

- Which of these competencies are needed for entry-level jobs?
- Which of these competencies are needed for each step in the career progression?
- Which competencies build upon each other and lead to the next step in the career progression?
- Which of these competencies are lacking within the current labor force and need skill building opportunities for workers and job candidates?

Career Ladders and Lattices

At the heart of effective career pathways programs are career ladders and lattices that describe the passageways by which individuals can ascend from entry-level jobs to higher-level jobs within an occupational area. Career ladders/lattices often coincide with the previous step in developing competency models. Using these competency models, educational institutions design incremental training modules as a sequence of courses leading to industry-recognized credentials or certificates. Often, these credentials are added together—sometimes called "stacked"—so that they progressively lead to a diploma or degree. Participants may complete one or more certificate/credential programs, all linked together within the career ladder. In general, each "rung" on the ladder (often marked by an earned certificate or credential) leads to the opportunity for employment within a certain set of occupations associated with the career ladder.

CAREER PATHWAYS FYI: Career Ladders/Career Lattices

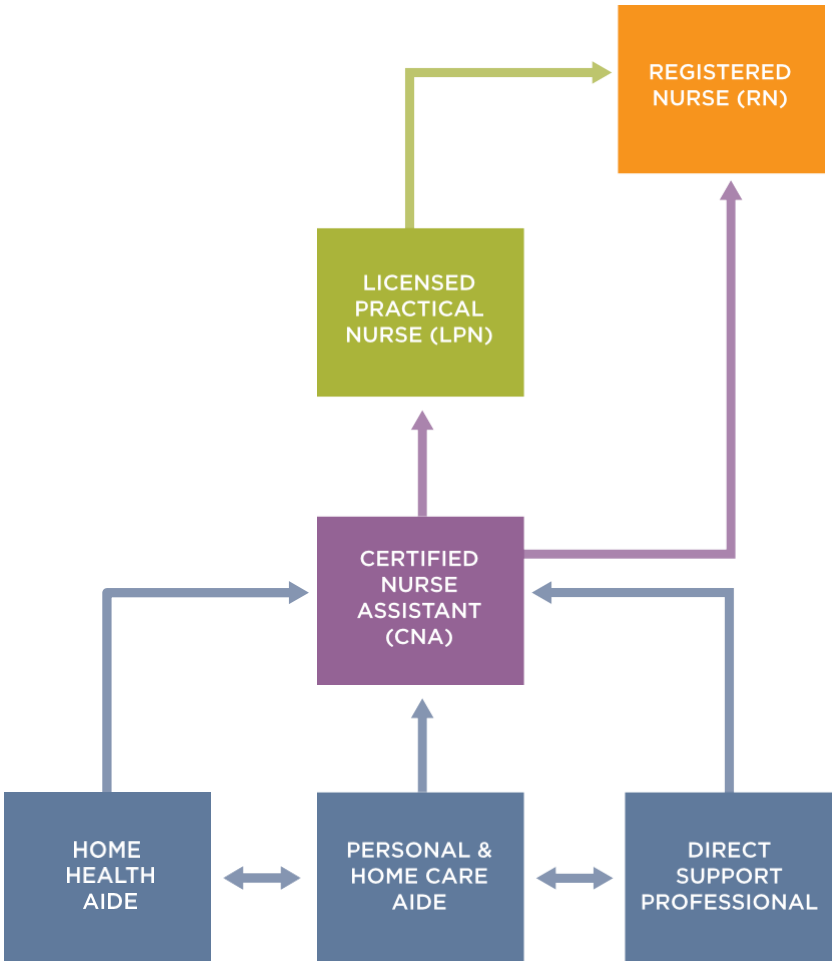
Career ladders/lattices are a group of related jobs that may comprise a career. They may include a pictorial representation of job progression in a career and detailed descriptions of the jobs, education, and experiences that facilitate movement between jobs.

Career ladders display only "vertical" movement between jobs.

Career lattices show both vertical and lateral movement between jobs and may reflect more accurately today's complex career paths.

Optimally, participants are able to "enter" and "exit" the career pathway ladder over the course of their careers, periodically "stacking" or earning additional certificates and credentials leading to positions of increased responsibility and higher wages. An example of the career ladder for a Registered Nurse (RN) appears on the following page. To learn how to create these visuals, see the Toolbox at the end of this section.

Example of Career Lattice for Registered Nurses

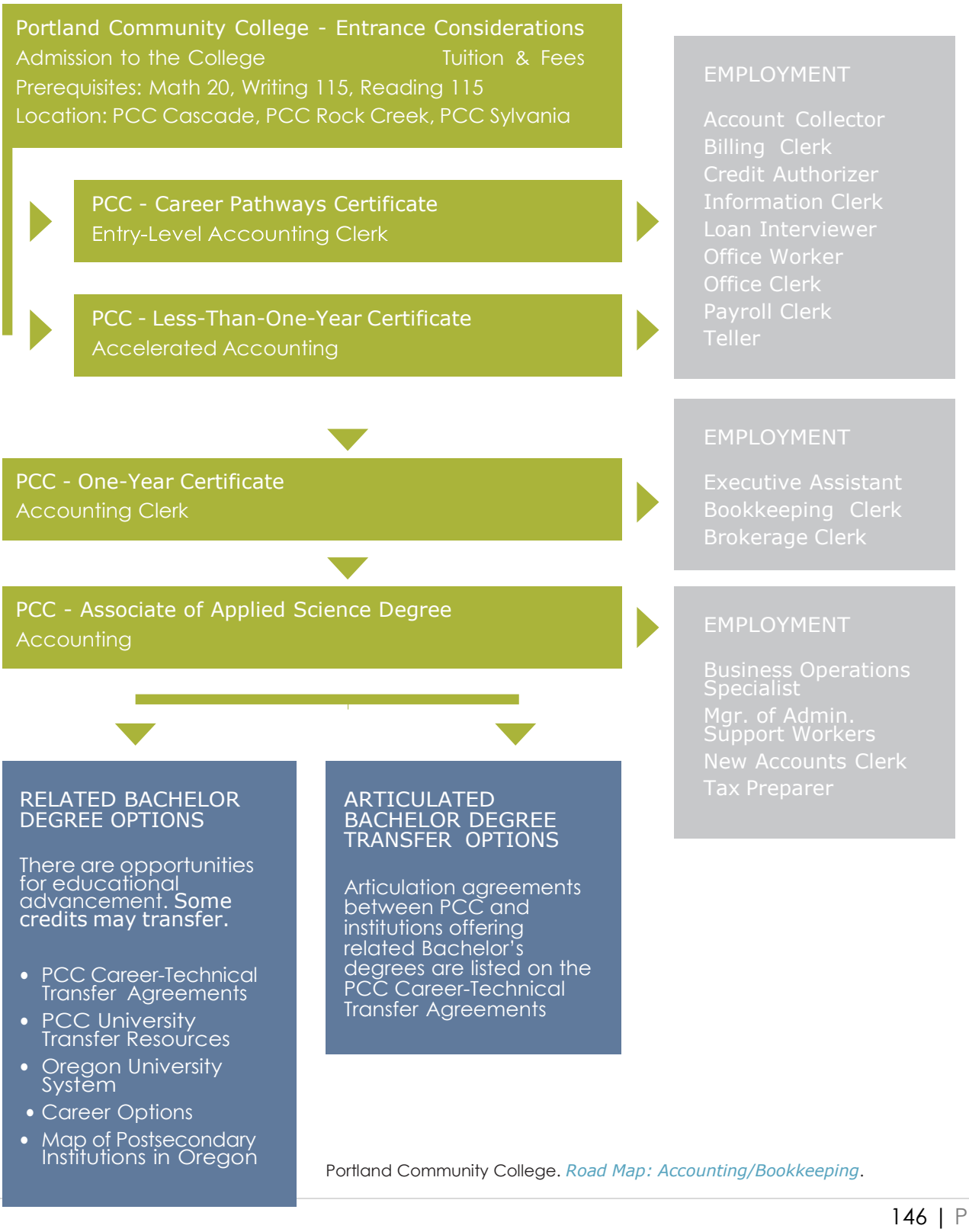


HOW TO: Questions to Confirm That Programs Align With Industry Skill Needs

- Are the competency lists accurate and/or have they changed recently?
- Are the skills still critical for the occupation and are there job vacancies in the occupation?
- Does the progression of courses and learning experience match learning on the job and make sense within the industry?
- Are the ladder and the curriculum complete, accurate, and up to date, with the right skills?
- Do the learning labs match equipment and processes within the industry?
- Are the credentials and certificates accurate and reflective of industry standards?

Career Pathways Roadmap: Accounting/Bookkeeping

Another example of a career pathways roadmap for a profession from Portland Community College in Oregon is provided below:



Portland Community College. *Road Map: Accounting/Bookkeeping*.

Component 3.4: Develop or Modify Programs with Industry Recognized and/or Postsecondary Credentials.

Constantly Check in with Employers

Continued guidance from employers during the design process is necessary to confirm the courses and programs will meet the skill needs of local/regional industry sectors.

Types of Credentials and Definitions

Many different agencies, organizations, and industry associations award credentials. Understanding the different characteristics of each type of credential and the "door-ways" they provide to those who earn them is important.

A credential attests to a specific qualification or competence. Third party organizations with relevant authority or jurisdiction, (accredited educational institution, an industry association, or an occupational or professional association), award credentials to individuals. One important source of information on credentials is the Career One Stops' certification database. The resource section has more information about finding and learning about credentials.

CAREER PATHWAYS FYI: Recognized Postsecondary Credential

The term ''recognized postsecondary credential'' means a credential consisting of an industry-recognized certificate or certification, a certificate of completion of an apprenticeship, a license recognized by the State involved or Federal Government, or an associate or baccalaureate degree.

Postsecondary credentials are extremely critical when they are a prerequisite to licensure. Many occupations require a postsecondary credential from an accredited body before an individual can take an exam leading to licensure. This can be especially difficult when the licensure body requires the credential to be from a postsecondary school in the United States. Many foreign educated workers cannot demonstrate they have the prerequisite skills without returning to a postsecondary education agency in the United States. The text box on the following page is an example of how Maryland reached out to immigrants living in the United States to assist them on the pathway to licensure in this country.

PROMISING PRACTICE: Welcome Back Center of Suburban Maryland

The Welcome Back Center of Suburban Maryland is an innovative model that builds on the personal and professional assets of immigrants living in the United States to: further address health professional shortages; diversify the health workforce; provide economic opportunities to underutilized individuals as they return to work in the health field; and enhance health outcomes of the entire community. In 2006, the Latino Health Initiative (Montgomery County Department of Health and Human Services) launched the Foreign-Trained Health Professionals Program to facilitate the Maryland health professions licensure process. In 2010, this program became the "Welcome Back Center of Suburban Maryland," one of several centers comprising the national "Welcome Back Initiative" network. The center provides a comprehensive, integrated, and coordinated approach to effectively address the needs and decrease the challenges and barriers foreign-trained health professionals encounter in Maryland in obtaining their licenses. Partners include an array of state and local organizations and employers, including the Montgomery Works One-Stop Career Centers, the Maryland Hospital Association; the Governor's Workforce Investment Board; Montgomery College; the County Department of Economic Development; and Holy Cross, Shady Grove, and Washington Adventist hospitals.

- The Center uses a successful model of services that provides:
- Guidance and support, including individualized case management;
- Academic training, including English as a Second Language instruction and board exam preparation;
- On-the-job exposure to the U.S. healthcare system and mentoring at Maryland hospitals and other healthcare facilities;
- Pre-employment services for health-related jobs, career development support, and job-readiness training; and
- Leadership development for culturally competent leaders.

Types of Career Pathways Related Credentials

EDUCATIONAL AWARD

CERTIFICATE: A formal award certifying the satisfactory completion of a postsecondary education program.

DEGREE: An award conferred by a college, university, or other postsecondary education institution as official recognition of the successful completion of a program of study.

DIPLOMA: An award signifiying the completion of a course of study.

CERTIFICATION/PERSONNEL CERTIFICATION

A certification indicates that the individual has acquired the necessary attributes (based on a formal study) to perform a specific occupation or skill. Personnel certifications are granted by a third party non-governmental agency (usually an industry association or industries) and are time limited. The certification process requires an examination process that the individual has mastered the required industry standards and may be renewed through a recertification process or rescinded for ethical violations and/ or incompetence.

APPRENTICESHIP CERTIFICATE

An award certifying the completion of an apprenticeship program. USDOL or a state apprenticeship agency issues apprenticeship certificates. The apprenticeship system offers two types of credentials: 1) certificate of completion of an apprenticeship program, and 2) interim credentials such as pre-apprenticeship.

LICENSE/OCCUPATIONAL LICENSE

An occupational license is typically granted by a Federal, state, or local government agency; is mandatory in the relevant jurisdiction; is intended to set professional standards and ensure safety and quality of work; is required in addition to other credentials; is defined by laws and regulations; and is time-limited. Violation of the terms of the license can result in legal action.

INDUSTRY-RECOGNIZED CREDENTIALS

These are either developed or endorsed by a nationally recognized industry association or organization and are sought or accepted by companies within the industry sector for purposes of hiring or recruitment. Having credentials be industry-recognized ensures potential employers that holders of the credential have the core competencies needed by employers for industry jobs. USDOL certification finder: www.careeronestop.org/businesscenter/certifications/certification-finder.aspx

STACKABLE CREDENTIAL

"A part of a sequence of credentials that can be accumulated over time to build up an individual's qualifications… typically, stackable credentials help individuals move up a career ladder or along a career pathway to different and potentially higher-paying jobs."

PORTABLE CREDENTIAL

This credential is "recognized and accepted as verifying the qualifications of an individual in other settings—either in other geographic areas, at other educational institutions, or by other industries or employing companies."

USDOL Guidance Letter (TEGL-15-10) published December 15, 2010

COMPONENT 3.5: Analyze the State's and Regions' Education and Training Resources and Response Capability.

A survey or review of the available education and training resources that currently exist will expedite identifying what will be required to meet employer needs.

Identify the "Gaps" in Training Resources

- Do adequate training facilities (classrooms and lab space) exist?
- Are there adequate and appropriate educational staff to advise, counsel, and tutor?
- Are there employer work-based learning sites, training spaces, equipment, and materials available?
- Do instructors have appropriate credentials?
- Is there appropriate equipment for hands on instruction?
- Are training slots available for occupations requiring a specific number of supervised hours on the job prior to licensure, e.g., clinicals for Registered Nurse and supervised practicum for Psychologist?
- Are there adequate supplies, books, e-learning options, and tools available?

COMPONENT 3.6: Research and Promote Work-based Learning Opportunities within Business and Industry.

Work-based learning may be the oldest type of formal learning. Experienced workers frequently demonstrate appropriate work tasks for new employees ("show them the ropes"). There are many different types of work-based learning opportunities that will be featured here.

CAREER PATHWAYS FYI: WIOA Definition of On-the-Job Training

ON-THE-JOB TRAINING—training by an employer that is provided to a paid participant while engaged in productive work in a job that—

(A) provides knowledge or skills essential to the full and adequate performance of the job;

(B) is made available through a program that provides reimbursement to the employer of up to 50 percent of the wage rate of the participant, except as provided in section 134(c)(3)(H), for the extraordinary costs of providing the training and additional supervision related to the training; and

(C) is limited in duration as appropriate to the occupation for which the participant is being trained, taking into account the content of the training, the prior wor experience of the participant, and the service strategy of the participant, as appropriate.

On-the-Job Training (OJT) while defined specifically in WIOA for program participants, it also generally refers to any type of learning, both formally structured or informally, whereby a learner or entry-level employee learns the knowledge and tasks of a specific job by doing the job. Usually the learner is under the supervision of an experienced employee or supervisor. Formal OJT indicates that the learner is following a curriculum or lesson plan with steps/levels of learning and with recognized points of success.

Registered Apprenticeship is a formalized and highly structured system of learning that is a combination of on-the-job training and related classroom instruction in which workers learn the practical and theoretical aspects of a highly skilled occupation. It is an educational process that is overseen by a regulatory or certification organization and has been approved by the organization or the State/Federal government. Employers and labor groups, individual employers, and/or employer associations jointly sponsor apprenticeship programs. The process is most often operated under the USDOL/ETA, Office of Apprenticeship (OA) that registers apprenticeship programs and apprentices.

Pre-apprenticeship programs: Pre-apprenticeship programs are designed to prepare individuals to enter and succeed in Registered Apprenticeship programs. These programs have a documented partnership with at least one Registered Apprenticeship program sponsor and together, they expand the participant's career pathway opportunities with industry-based training coupled with classroom instruction. Pre-apprenticeship programs are intended to explore occupational opportunities while bridging the gap of an individual's basic skills (including English language learners) leading up to an opportunity to enter an apprentice occupation.

Internships and paid/unpaid work experience: Internships may be either paid or unpaid and provide a learning experience where the individual works on real job tasks. They are often of short duration and an individual may move around within an organization trying different tasks.

Incumbent worker training: Incumbent worker is designed to meet the special requirements of an employer (including a group of employers) to retain a skilled workforce or avert the need to lay off employees by assisting the workers in obtaining the skills necessary to retain employment. In accordance with WIOA, the employer or group of employers must pay for a significant share of the cost of the training.

Customized training: Customized training is designed to meet the special requirements of an employer or group of employers, conducted with a commitment by the employer to employ all individuals upon successful completion of training. The employer must pay for a significant share of the cost of the training.

Transitional jobs: Transitional jobs are time-limited work experiences that are subsidized for individuals with barriers to employment who are chronically unemployed or have an inconsistent work history. These jobs may be in the public, private, or non-profit sectors. Transitional jobs can be effective solutions for individuals to gain necessary work experience that they would otherwise not be able to get through training or an OJT contract.

Job shadowing: Job shadowing is an initial experience where the individual follows a regular employee through a day to gather information on the job and the work setting. It is typically unpaid and is a good way to expose individuals including youth to various occupations.

Youth mentoring: Youth mentoring, as defined in WIOA, must last at least 12 months and defines the mentoring relationship. It must be provided by an adult other than the WIOA youth participant's assigned case manager since mentoring is above and beyond typical case management services. Mentoring may take many forms, but at a minimum must include a youth participant matched with an individual adult mentor other than the participant's case manager.

Mentoring: Mentoring is a more complex relationship between an individual and an experienced employee. The mentor observes the mentee's performance and will routinely comment on it and make suggestions, teach, or give constructive feedback.

PROMISING PRACTICE: Apprenticeship in South Carolina

South Carolina took a comprehensive approach to expanding Registered Apprenticeships in the state. By offering employers a modest $1,000 tax credit per apprentice and establishing Apprenticeship Carolina, an apprenticeships' marketing and employer assistance office within the state technical college system, South Carolina has made it easier for employers to design and launch apprenticeship programs tailored to their companies' needs. For more information please see: http://www.apprenticeshipcarolina.com/

COMPONENT 3.7: Develop Accelerated, Contextualized Learning Strategies.

Career pathways programs offer a clear sequence of education coursework and/or training credentials aligned with employer-validated work readiness standards and competencies. Education and training programs are structured with enough flexibility in design to meet the needs of working learners and non-traditional students. WIOA encourages integrated education and employment opportunities to build upon adults, youth, and non-traditional students' transferable skills and workforce readiness.

Bridge Programs: It can be difficult to train and employ individuals with multipe barriers to employment, such as insufficient education and/or work experience, limited English proficiency, low-level academic skills, and/or lack of work readiness skills. In addition, other barriers such as childcare, transportation, and/or housing may exist. The accumulation of barriers makes these populations more at risk of failing to complete their training programs that are necessary for them to acquire jobs where they can earn family sustaining wages.

The use of bridge programs is a powerful and effective strategy to overcome multiple barriers. Bridge programs serve to build the foundation skills of individuals whose academic skills do not meet the minimum requirements of a degree or certificate program. Bridge programs allow learners to start from their current skill level and provide them with the extra instructional time to develop the basic skills they need to begin the training program. In some states,

CAREER PATHWAYS FYI: WIOA Definition of Integrated Education & Training

The term "integrated education and training" means a service approach that provides adult education and literacy activities concurrently and contextually with workforce preparation activities and workforce training for a specific occupation or occupational cluster for the purpose of educational and career advancement.

The articulated career pathway should include short-, moderate-, and long-term training and education programs to match the availability of different students (especially working learners and those balancing adult responsibilities) and include multi-level employment opportunities at different points of certificate or degree attainment.

PROMISING PRACTICE: Washington State I-Best Program

In an effort to be more deliberate in adult literacy and job training, Washington State college leaders developed a model that integrates Adult Basic Education with English Language Acquisition (ELA) courses with technical training aligned to state career pathways. Research shows that relatively few English language learners transition to workforce training from basic skills courses. English language learners typically take a patchwork of credit and non-credit courses, disconnected from industry-recognized training and credentials. The state addressed this problem by developing the **Integrated Basic Education and Skills Training (I-BEST)** program, pairing ELA and Adult Basic Education instructors and professional-technical instructors who provide basic education and workforce skill training concurrently. The I-BEST model provides a mechanism for accelerating learning while simultaneously preparing students for work and higher-wage positions contributing to Washington State's economy. For more information see: http://sbctc.edu/college/e_integratedbasiceducationandskillstraining.aspx

local adult education providers may offer pre-bridge classes to their students that contextualize their basic skill instruction to the occupational language of a career pathways program. Career pathways design and bridge program development often focus on specific populations.

Targeted groups could include public assistance recipients, English language learners, veterans, individuals with a disability, at-risk and disconnected youth, dislocated workers, incumbent workers, ex-offenders, or other uniquely defined groups. Typically, a common characteristic of each targeted population is that the individuals have low skills and low educational attainment and are in need of a family sustaining wage. Of special concern are new immigrants who may face a multitude of other challenges besides language, such as cultural differences.

Progressive and Modularized: The education/training program is structured so that each course builds upon the next, with individuals moving through competency sets, building and attaining new skills as they go. Modules are taught in manageable "chunks" so individuals with varying levels of proficiency can accomplish them. A chunked curriculum is one that has been broken down into smaller units, each of which is stackable and linked to other modules in a series that culminates in an industry-recognized credential.

Accelerated: Many adults may have attained, through life experiences, some of the knowledge and skills required to achieve their career goals. Programs should maximize instruction time by ensuring they do not sit through classes that teach skills they already know. These programs give credit for demonstrated prior learning. Results of administered skill assessments can be used to target and align skill remediation goals with career pipeline objectives. Offering self-paced training curriculum in education and training programs is a good option for allowing working learners to accelerate their educational completion and degree attainment.

Contextualized: Research indicates that individuals (both adults and youth) learn best when the skills or knowledge are directly relevant to real work. Contextualized instruction embeds traditional academic content (e.g. reading, writing, mathematics) within the content that is meaningful to learners' daily lives or interests. Information is usually related to general workplace skills or a specific field or trade. The most successful examples are adult literacy courses that teach reading, writing, or math within the context of an industry sector such as construction, allied health, or service and hospitality.

Contextualized instruction is also another opportunity to engage employer partners. Employers may be willing to provide workplace-learning experiences such as job shadows, internships, and pre-apprenticeships to support learning within a work setting. Making work a central context for learning will also help students attain work readiness skills.

Multiple Entry/Exit Points: Individuals are assessed so they may enter a program of study at a level they can succeed at based on their skill levels and personal situation.

PROMISING PRACTICE: NYBEST and Immigrant Bridge Programs

LaGuardia Community College has designed a college bridge program based off the Washington State I-BEST program. The LaGuardia program is for low-literacy immigrants to improve language and literacy that will allow for enrollment in degree and credential programs. This program utilizes Adult Education funds.

The New York City Immigrant Bridge Program provides individualized career plans, contextualized English for Speakers of Other Languages (ESOL), and job readiness preparation for college-educated immigrants.

Some individuals will leave after attaining a certificate or diploma (e.g., Certified Nursing Assistant) while others may continue their education along a career pathway to acquire higher-level skills (e.g., Licensed Practical Nurse or Licensed Registered Nurse).

English Language Acquisition Program: Many new immigrants and some Americans may not possess English language skills sufficient to benefit from occupational skills training. In these instances, a unique teaching strategy is necessary to ensure these learners have the opportunity to gain the skills necessary to compete in America's workforce and earn a family sustaining wage.

CAREER PATHWAYS FYI: WIOA Definition of English Language Acquisition Program

The term "English language acquisition program" means a program of instruction—

(A) designed to help eligible individuals who are English language learners achieve competence in reading, writing, speaking, and comprehension of the English language; and

(B) that leads to—

(i) (I) attainment of a secondary school diploma or its recognized equivalent; and

(II) transition to postsecondary education and training; or

(ii) employment.

COMPONENT 3.8: Provide Flexible Delivery Methods.

A variety of individuals will be participating in the career pathways education and training programs. These include recent high school graduates, high school dropouts, incumbent workers, dislocated workers, public assistance recipients, adult learners, youth, part-time workers, justice involved individuals, individuals with a disability, English language learners, and recently returning veterans. Many of these individuals will be parents. The normal college and university schedule—semester coursework with limited summer offerings—does not meet the urgency that non-traditional students have to obtain a credential and find a job.

Flexibility in program offerings means more than class schedules. It also includes e-learning and work-based learning that allows students to progress at their own speed based on their abilities and time availability. Computer-based or web-based lessons allow the learner to study at times that fit their schedules.

PROMISING PRACTICE: Flexibility Means Access and Retention

Ensuring student success can be as simple as providing training programs that are flexible, accessible, and offer certain support services. Owens Community College (OCC) located in Toledo, Ohio, recognized early on that providing accelerated instruction in accessible locations would increase enrollment and retention rates at the campus. In 2007, OCC opened up the Learning Center at the Source, a One-Stop Career Center in downtown Toledo. Understanding the need to quickly get low-skilled adults into the workforce, OCC created accelerated basic skills courses that included two levels of remediation in one class. Accelerating the instruction and providing the course in satellite locations allows OCC to provide instruction during the day, evenings, or weekends, making the program more accessible to working adults and parents. Additionally, OCC instituted enhanced support services coupled with modest scholarships for eligible adult students. Students are assigned advisors who have smaller caseloads than most advisors on the campus, and they are required to meet frequently to discuss their academic progress and address any issues that might impact their participation in the training. Eligible students also receive a $150 scholarship for two semesters and are supported with direct access to financial aid, one-on-one tutoring, and assistance with common barriers such as lack of transportation and childcare. For more information please see: http://www.workingpoorfamilies.org/pdfs/Ohio_Stackable.pdf

Several useful strategies for flexible delivery methods:

- Offer non-semester-based classes;
- Offer classes in the evening and on weekends;
- Offer alternative locations for training, including offerings at employer's work site;
- Offer credit for prior learning;
- Provide flexibility around course completion when learners encounter unforeseen barriers;
- Provide reasonable accommodations for an individual with a disability;
- Develop alternative options such as web-based training for individuals who may lack easy access to education and training facilities, but who can complete online coursework from home computers; and
- Develop mobile training sites for individuals in rural areas who may lack access to home computers and/or broadband Internet connections.

COMPONENT 3.9: Provide Career Services, Case Management, and Comprehensive Supportive Services.

Program design should include appropriate services for populations that may not be able to participate in employment and training because of personal commitments such as childcare, food, and shelter. For some, attending training requires much more than academic support. Many individuals with a disability or other barriers to employment, including living in rural areas, need additional assistance in the form of transportation to attend training as well as transportation to and from childcare. This should be a part of their individual employment/career plan. For others, tutoring may be necessary in order to keep pace with other learners. Customized services provide the special guidance and support necessary to meet the unique needs of each individual and may require coordination with cross-agency partners.

WIOA identifies these activities as career services. WIOA career services are organized into three categories:

1. Basic Career Services - services made available to all participants of a one-stop delivery system.
2. Individualized Career Services - services provided to program eligible participants in order to succeed along a career pathway.
3. Follow-up Career Services - services necessary to obtain and retain employment.

Many of the career services identified in WIOA are provided by multiple partners and are described in more detail in the following text box.

CAREER PATHWAYS FYI: WIOA Career Services Includes

Basic Career Services

(i) eligibility determination;
(ii) outreach, intake, orientation to services;
(iii) initial assessment;
(iv) labor exchange services;
(v) referrals to and coordination of activities;
(vi) provisions of workforce and labor market statistics;
(vii) provisions of performance information and program cost on eligible providers of training;
(viii) information on local performance accountability measures;
(ix) availability of supportive services or assistance;
(x) information on filing claims for Unemployment compensation; and
(xi) information on applying for financial aid for training and education programs.

(xiii) Individualized Career Services
services, if determined to be appropriate in order for an individual to obtain or retain employment, that consist of—
(I) comprehensive assessment;
(II) development of an individual employment plan;
(III) group counseling;
(IV) individual counseling;
(V) career planning;
(VI) short-term pre-vocational services;
(VII) internships and work experience;
(VIII) workforce preparation activities;
(IX) financial literacy services;
(X) out-of-area job search assistance, relocation assistance; and
(XI) English language acquisition and integrated education and training programs.

(xii) Follow-Up Career Services
including counseling regarding the workplace, for participants in workforce investment activities authorized under this subtitle who are placed in unsubsidized employment, for not less than 12 months after the first day of the employment, as appropriate.

Case Management: is an overarching process that may directly arrange for or provide services that allow a learner to participate and complete a program of study. Case management is more a process than a service and typically includes non-instructional activities such as navigation to and arrangements for academic, career or personal counseling, financial aid, childcare, housing, and other financial assistance that can be critical to the success and continued engagement of the individual in pursuing their career pathway component. American Job Centers serve as an important case management option throughout a career pathway trajectory; however, other agencies such as educational institutions, community-based organizations, and faith-based organizations may serve this role.

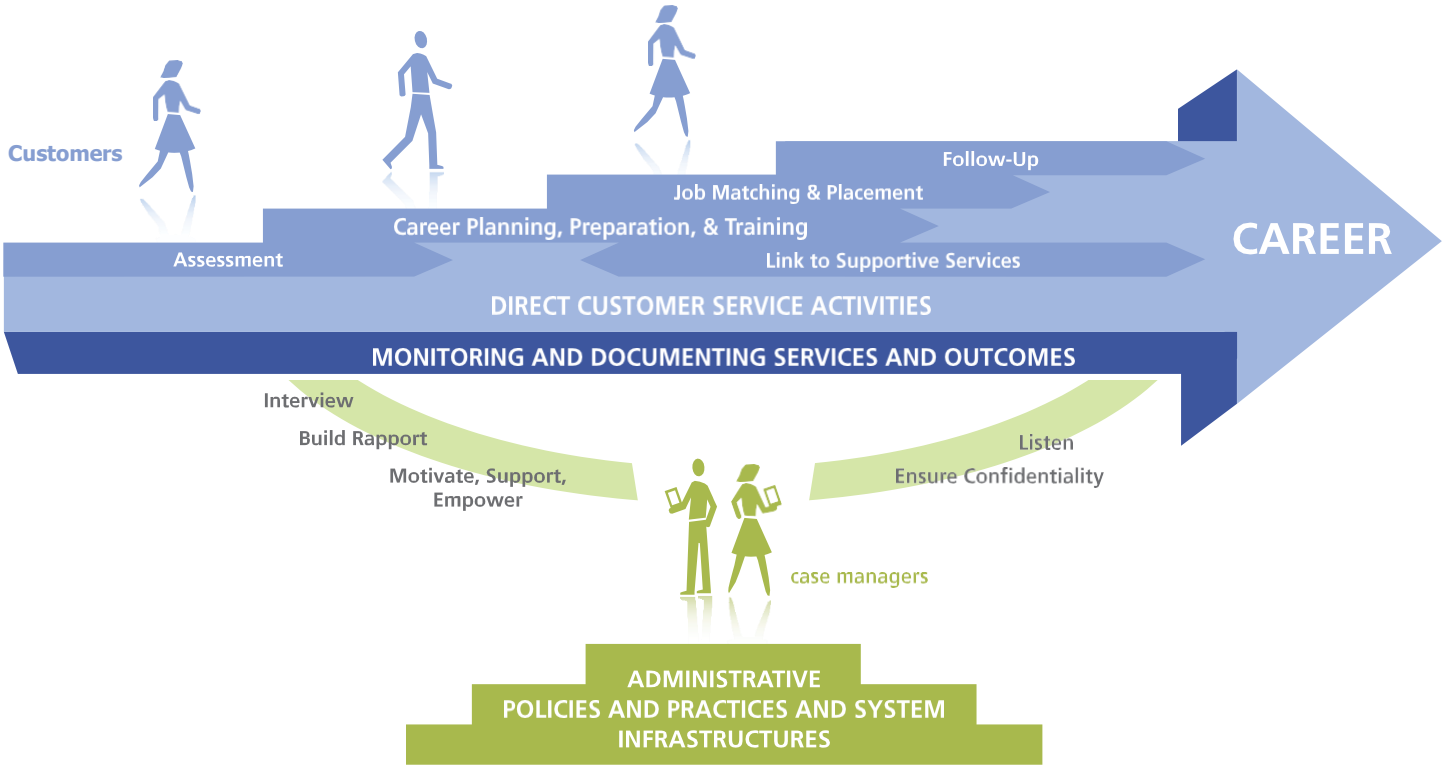
Although the case manager functions as the "point person" for managing and directing services, the case manager may provide a service directly or refer the learner to another service provider for a specific service. Regardless of who provides the service, the case manager is responsible for ensuring the learner is receiving the necessary services outlined in their career plan/individual employment plan. The case manager monitors the learner's progress through the career pathway experience and receives regular feedback from appropriate agency staff and the learner.

A good example of the critical activities that a case manager performs is available in an Issues Brief prepared by Mathematica Policy Research under a technical assistance contract with USDOL/ETA.

CAREER PATHWAYS FYI: Case Management Services May Include

- **Conducting Assessments:** Review the participant's strengths and assets, needs and challenges, interests and goals through a variety of assessments to include discovery as well as interest, skills, and aptitude assessments.
- **Career Planning:** Analyze the participant's skills, interests, and other assessment results, examining current labor market information, and help develop an employment plan.
- **Linking Customers to Supportive Services:** Coordinate access to other services that a customer may need to achieve his or her employment objectives.
- **Job Matching, Placement, and Follow-Up:** Review resume, help the participant develop interviewing skills, or provide links to job leads.

The following diagram is a graphic depiction of the case management process prepared by Mathematica Policy Research.



Laird, Elizabeth and Holcomb, Pamela. Issue Brief - Effective Case Management: *Key Elements and Practices from the Field. Mathematica Policy Research*, 2011.

Although case management is a universal term for directing and coordinating services to an individual, some providers use other terminology to describe the same process.

Common process terms used are case conferencing, integrated service teams, and integrated resource teams. For example, The Integrated Resource Team (IRT) model is effective in delivering coordinated services in USDOL's Disability Employment Initiative. The IRT brings together relevant public and private service agencies on behalf of the customer to coordinate services and resources in a comprehensive manner. A good example of an IRT model is Minnesota's Disability Employment Initiative Grant described in the following promising practice.

PROMISING PRACTICE: Minnesota Disability Employment Initiative Grant

The Disability Employment Initiative (DEI) grant to Minnesota's Department of Employment & Economic Development has found utilizing the IRT strategy extremely helpful in addressing the needs of their youth customers with disabilities. The IRT is a vehicle that is driven by the customer- with-disability's specific needs drawing in additional service providers from across multiple systems. It explores at an individual level potential models for system-wide partnering because it allows organizations to become knowledgeable about each other, such as staff contacts and resources and services that address specific challenges, while benefiting from the formation of networks that engage IRT members working with, and on behalf of, an individual youth with a disability. In the case of DEI, IRT members may include vocational rehabilitation service counselors, teachers, school counselors, parents or other providers, depending upon the needs and goals of their youth participants and their transition from school to postsecondary education or work experience. MN uses the Guideposts to Success in conjunction with their IRT to provide a holistic approach to the participant's goals and has found that its DEI youth thrive with the use of the IRT. The success of the IRT model drove more IRTs to form, often initiated without assistance from the Disability Resource Coordinator, as an important tool in resolving a particular youth challenge or to achieve a specific goal. MN has conducted more than 252 individual IRTs over a two-year period. The IRT approach can translate the Leadership Team Partnership process to the individual customer level to explore and implement career pathways that encompass a spectrum of WIOA and non-WIOA partners and engage them intermittently as the individual passes through various stages of their career trajectory. Additional information on IRTs is available on Workforce3One, Disability and Employment Community of Practice: https://disability.workforce3one.org/page/tag/1001518061825599732 Information on the Guideposts to Success is available at the National Collaborative on Workforce and Disability for Youth website: http://www.ncwd-youth.info/guideposts

Regardless of the process for delivery of services, career services are provided by multiple agencies. The basic and individualized career services described in WIOA are very comprehensive. For the purpose of providing training services, agencies may wish to think of what career services fall within career advisement, academic support, and supportive services.

Career Advisement: This support consists of providing career information, academic assessment, and career counseling; developing a career plan/individual employment plan (selecting a career pathway); and providing financial information on the cost as well as identifying resources that may be available to offset those costs.

Providing career information ensures that individuals with limited knowledge of the labor force will receive appropriate information to make an informed career choice. An effective program design includes an assessment of each individual's skills (academic skills, "soft" or work readiness skills, and technical skills), abilities, and interests. It considers an individual's previous experience, current life situation, salary expectations, previous training, and degrees, diplomas, certificates, and/or credentials. Career and academic assessment helps individuals determine their current situation and spells out the requirements of a career plan/individual employment plan going forward to meet an ultimate career goal. Career planning will support an individual's journey through the pathway, and provide "roadmaps" outlining the education, training, and credentials the learner must complete. An educational institution or a case manager at a private non-profit organization or at an American Job Center may conduct career planning.

For youth, many states have required individualized learning plans (ILP) or career plans. ILPs start with a student, working with a school counselor, to identify their career interests, personal strengths, and work values. Schools that require an individualized learning plan typically provide students with access to computer-based interest and skill inventories; however, tools similar to those used by most schools are readily available for free on the Internet. USDOL provides several free career exploration tools in both paper and computerized formats at: http://www.careerinfonet.org/explore/.

CAREER PATHWAYS FYI FOR YOUTH:

Individualized Learning Plans/Career Plans Definition for Quality ILPs developed by the National Collaborative on Workforce & Disability for Youth (NCWD/Youth) and its partners.

- A document consisting of: (a) course taking and postsecondary plans aligned to career goals; and (b) documentation of the range of college and career readiness skills that the student has developed.
- A process that enhances the relevance of school and out-of-school learning opportunities, and provides the student access to career development opportunities that incorporate self-exploration, career exploration, and career planning and management skill-building activities.

Academic Support Services: Services designed specifically to retain participants in their selected career pathway. Individuals who are English language learners and/or who lack college readiness skills frequently drop out of college, as the obstacles appear overwhelming. Academic supports are available to lessen the burden and arrange for tutoring or other services that may retain the participant in their career pathway.

CAREER PATHWAYS FYI: Academic Support Services May Include

- Providing the opportunity to participate in groups called learning communities or cohorts where they may interact with other students who share some of the same challenges;
- Assisting in learning how to study most effectively through workshops on study skills, test strategies, note-taking strategies, and time management;
- Providing career-specific courses for individuals needing language assistance;
- Providing for or arranging for tutors;
- Providing learning labs where one-on-one computer-based tutoring may be offered;
- Providing dropout prevention strategies and counseling to address barriers and help improve student success; and
- Providing special accomodations for an individual with a disability such as an increase in test-time or readers for an individual who is blind.

CAREER PATHWAYS FYI: WIOA Definition of Supportive Services

SUPPORTIVE SERVICES.—The term ''supportive services'' means services such as transportation, child care, dependent care, housing, and needs-related payments, that are necessary to enable an individual to participate in activities authorized under this Act.

Supportive Services: Services that alleviate many of the obstacles that would lessen an individual's ability to participate in a career pathways program of study. Supportive services provide the basic needs of food, shelter, transportation, and childcare. In addition to an individual's basic needs, the need for financial literacy and digital literacy are critical for a learner to participate in training and/or employment.

Component 3.10: Provide Employment Assistance and Retention Services.

Employment Assistance: Employment assistance is a final component of providing support to participants and occurs following or near the end of training and education. WIOA identifies employment assistance and retention services as the third and final career service category. Its focus is on assisting participants to prepare to seek employment, get a job, and to manage their careers after employment with the option to engage in continuing education and career planning. Employment assistance may include job-seeking skills such as skills identification, identifying the hidden job market, cover letters, resume preparation, internet applications, interviewing techniques, thank you letters, etc. Finally, providing continued career and education planning after placement can provide the participant with options to move forward along a career pathway.

Partner organizations such as American Job Centers or community-based organizations may provide the employment assistance in the career pathways collaboration. The organization responsible for case management services should refer the participant to the appropriate organization.

Retention Services: Although getting a job is an important goal, keeping a job is the ultimate goal. Retention services may include job-keeping skills such as problem solving, following work direction, necessary communications with supervisor and coworkers, appropriate interpersonal relationships with supervisor and coworkers, and balancing work and family. For some populations, retention services may include a job coach or a mentor who can intervene at critical junctures of an individual's employment. It can also be a job accommodation for an individual with a disability.

CAREER PATHWAYS FYI: Provide Employment Assistance

Employment assistance and retention may include—

- Workforce readiness preparation; e.g., resume writing, cover letters, job interviewing skills, and soft skill training.
- Pre-employment connections to the industry; e.g., internships, co-op programs, work/study programs, work experience, and job shadowing.
- Job search assistance; e.g., navigating job banks as well as techniques in searching the hidden job market.
- Job retention skills; e.g., taking direction, job appropriate behaviors, problem solving techniques, and attendance.
- Special accommodations; e.g., reading software for the blind, on-the-job coaching, and workspace modifications.

ELEMENT THREE TOOLBOX

Team Tools

- Employability Skills Framework. U.S. Department of Education. http://cte.ed.gov/employabilityskills/index.php/framework/#
- Guideposts for Success. National Collaborative on Workforce and Disability. http://www.ncwd-youth.info/guideposts
- Road Map: Accounting/Bookkeeping. Portland Community College.
- Six Key Elements Readiness Assessment Tool: (available in Section 2 of the Toolkit)

Reports and Publications

- Competency Model Clearinghouse (Career One-Stop): http://www.careeronestop.org/CompetencyModel/
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- I-Best: *Integrated Basic Education and Skills Training*. Washington State Board for Community & Technical Colleges. http://www.sbctc.ctc.edu/college/e_integratedbasiceducationandskillstraining.aspx
- Ohio Stackable Certificate: *Models for Success*. Community Research Partners, February 2008. http://www.workingpoorfamilies.org/pdfs/Ohio_Stackable.pdf
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- For more information on credentials please see: http://www.careeronestop.org/EducationTraining/KeepLearning/GetCredentials.aspx

- For more information on credentials please see: http://www.careeronestop.org/EducationTraining/KeepLearning/GetCredentials.aspx
- Extended definitions of credentials are found in Attachment 2 of TEGL 15-10, the "*Credential Resource Guide*" (p. 2-5). http://wdr.doleta.gov/directives/attach/TEGL15-10a2.pdf)
- For more information on apprenticeships please see: http://www.doleta.gov/OA/
- For more information on and an example of contextualized learning please see: Klein-Collins, Rebecca, ***Building Blocks for Building Skills: An Inventory of Adult Learning Models and Innovations*** (2006): http://www.cael.org/pdfs/buildingblocksforbuildingskills

ELEMENT FOUR
IDENTIFY FUNDING NEEDS AND SOURCES

Necessary resources are raised and/or leveraged to develop, operate, and sustain the career pathways system and programs.

Key Element Components:

- Identify the costs associated with system and program development and operations.
- Identify sources of funding available from partner agencies and related public and private resources and secure funding.
- Develop long-term sustainability plan with state or local partners.

A primary function of the career pathways leadership team involves identifying funding sources to support the collaborative work. A cross-agency leadership team will be knowledgeable of even non-traditional funding streams that may be incorporated such as the flexible revenue streams from the Ticket to Work program. Many American Job Centers are now Employment Networks for the Ticket to Work program and can support career services and accommodations to individuals with disabilities. Each agency partner is knowledgeable of the allowable activities of their funder and can identify resources to apply to system and program operations. By braiding funding across agencies, any gaps in funding can be identified and the partnership can work together to seek additional resources. This process is complex and requires true commitment from agency leaders.

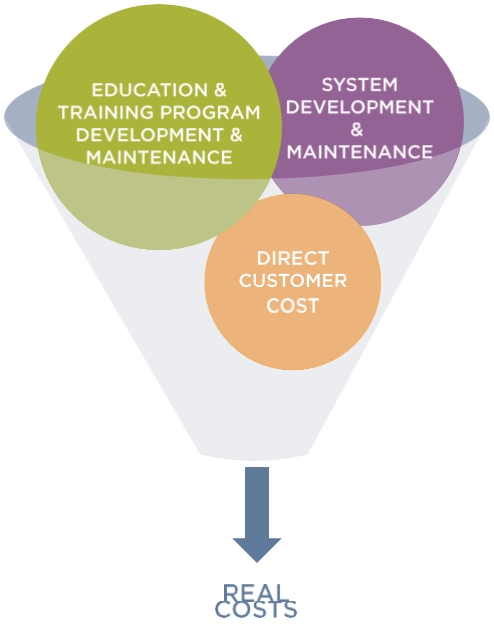
CAREER PATHWAYS FYI: Braided Funding

A funding and resource allocation strategy that taps into existing categorical funding streams and uses them to support unified initiatives in as flexible and integrated a manner as possible. Braided funding streams remain visible. Each public funder maintains responsibility for tracking and is accountable for its funds.

Once funding needs and sources have been identified and agency commitments are made, the leadership team can work together to secure and commit the available funds. The team may wish to designate a specific state agency to coordinate this effort. For any unmet needs, the leadership team members may want to research potential funding from other agencies to include private and philanthropic organizations to support the development and maintenance of system functions and program design as well as implementation and operations. The leadership team members should also identify the measures for Return on Investment (ROI) outcomes. ROI is an important consideration of all agencies contributing funds and a process for communicating the ROI is critical. Information on how to plan for, measure, and communicate ROI can be found in Element Six: Measure System Change and Performance.

COMPONENT 4.1: Identify System, Program Development, and Participant Costs.

As a first step, leadership team members should assess the costs associated with system development and maintenance, program development and operations, and participant cost.



System Costs

System development and maintenance costs include those required to create, operate, and sustain the career pathways system. While costs associated with running education and training programs may be obvious, those associated with coordinating cross-agency functions (including wrap-around supportive services) and overall system development and maintenance may be overlooked.

Although some of the system costs are one time costs associated with building the system, many are ongoing to sustain the system. The leadership team can identify the ongoing system maintenance cost incurred in supporting broad-based system enhancement and operations by carrying out the activities in the text box on the following page.

Program Development Costs

There are many activities associated with developing and implementing education and training programs. A brief list of high-level costs associated with some of these activities is shown in a text box on the following page. The career pathways programs will continue to evolve to keep up with the changing demands of business for new skills and competencies. Therefore, program costs will continue to require new development costs as well as operational costs.

Participant Costs

A team may also want to look at offsetting participant training fees and other direct customer costs through public or private sources. The leadership team identifies sources to cover some of the direct training costs such as: student aid programs (including Pell grants, Ability to Benefit grants, and state grant programs); WIOA funding; employer-paid tuition reimbursement programs; and/or scholarships. The team can explore other direct customer costs considerations such as WIOA Title I and IV, TANF, and Trade Adjustment Act/ Trade Readjusment Allowances and SNAP Employment and Training.

HOW TO: Determine Start-Up System Costs

- Recruit and engage cross-agency partners to form the leadership team;
- Staff a lead state agency or intermediary to coordinate system development;
- Prepare leadership team meeting agendas and minutes, etc.;
- Participate in leadership meetings to include preparation, attendance, and follow up;
- Develop MOUs between state and local agencies to solidify partnerships;
- Conduct initial labor market analysis;
- Conduct state and regional asset mapping;
- Create state and local level policies that encourage and support career pathways development;
- Incorporate state and local policies into the state/local unified/combined plan;
- Build participant reporting systems to track outcomes in a career pathway program across programs;
- Build financial reporting systems to track expenditures across agencies;
- Create an agreed upon system of evaluation to determine the return on investment of the system;
- Implement a marketing strategy to engage local participation in career pathways systems and programs;
- Prepare request for alternative funding to foundations and private, for-, and non-profit organizations; and
- Educate state and local legislators on career pathways and seek potential funding for system cost.

HOW TO: Determine System Maintenance Costs

- Support operational functions for coordinating state/local teams, including ongoing funding for a lead agency or intermediary;
- Continue to identify and engage additional partners (local agencies, labor organizations, employers, foundations) as needed to serve on the leadership team;
- Identify, recruit, and engage additional local partners to participate in local career pathways teams;
- Continue to revisit and revise MOUs;
- Educate agencies within the system and people within the community about career pathways;
- Conduct ongoing state and regional labor market analyses;
- Conduct ongoing state and regional asset mapping;
- Revisit policies to support effective system operations;
- Educate legislators of system outcomes and program alignment changes; and
- Maintain, analyze and utilize reporting systems and measures for career pathways system improvement.

HOW TO: Determine Program Development Costs

- Operate programs *(personnel, facilities, equipment, materials, and supplies);*
- Identify areas of overlap, which may be leveraged between programs *(career pathways and programs of study)* for greater efficiency and savings;
- Develop contextualized curriculum aligned with industry-validated competency models;
- Sequence course work into modules or "chunks" that lead to industry-recognized certificates, and that can be "stacked" towards earning progressively higher degrees;
- Revise instructional formats for accelerated learning and contextualized training content;
- Revise MOUs with employers, as necessary;
- Coordinate ongoing employer vetting of curriculum;
- Ensure career ladders lead to industry-recognized credentials;
- Determine employer contributions (equipment donations, use of facilities for training, and/or scholarships for incumbent workers);
- Develop new avenues for earning credit for work that was previously non-credit-bearing, as well as credit for prior learning;
- Develop outcome measures and methods for evaluating program effectiveness;
- Provide ongoing cross-system professional development for staff members;
- Collect and analyze data to track program outcomes and support program improvement; and
- Promote career pathways programs in secondary and postsecondary education systems as well as career guidance counselors in education and employment and training systems.

HOW TO: Participant Cost Considerations

- Tuition, fees, books, and supplies (training-related tools and equipment);
- Assessment services;
- Academic support and tutoring;
- Career counseling, advising, and planning;
- Case management and coaching (including navigation of financial aid options, educational programs, and supportive services);
- Mentoring for youth and adults;
- Work experience and internships;
- Supportive services (transportation, childcare, uniforms, living expenses while attending training, etc.);
- Placement and retention services (job referrals, job seeking skill techniques, job coach, etc.);
- Assistive Technology (AT) and other accommodation requirements; and
- Financial literacy and asset development counseling.

COMPONENT 4.2: Identify Sources of Funding from Partner Agencies and Related Public and Private Resources and Secure Funding.

Once costs have been determined, state and local partners can work together to determine the appropriateness of funds that are allowable to fund specific activities. For example, one partner may contribute funds covering outreach and recruitment; another may support client services and counseling while additional partners may use their funds for curriculum development, instruction, and training costs. The leadership team will seek funding from a variety of sources but will first engage the core partners outlined in WIOA (see Element One). The leadership team invites the WIOA core partners and other partner agenices to identify funds to apply to each of the components of the career pathways system. The leveraged resources are committed and the team determines resource gaps and seeks additional funding to fill the gaps. In order to aid the leadership team in this exercise, a worksheet developed by CLASP, A Federal Funding Toolkit for State and Local/Regional Career Pathway Partnerships, is included in Section Two of this Toolkit (http://www.clasp.org/resources-and-publications/funding-career-pathways-a-Federal-funding-Toolkit-for-state-and-localregional-career-pathway-partnerships).

PROMISING PRACTICE: California Career Pathways Trust

The California Career Pathways Trust (CCPT) grant is a unique and highly competitive program that builds on the creation of partnerships between K–12 schools, community colleges, and businesses to identify local and regional employer needs for the present and the future. These partnership consortia then develop career pathways that connect the K-12 programs and community college programs to the business community through a variety of work-based learning activities such as job shadowing, apprenticeships, and, ultimately, employment. Once a student has an idea of the type of career they are interested in, the career pathway is the roadmap or plan that shows the students and parents what courses they need to take at both the high school and the college level, to prepare them for success in college and career. Through work-based learning, business participation and industry sector specific curriculum, these school programs have much more relevance to the students participating in them, which also better prepares these students for participation in the 21st century workplace. These programs lead students to two-year degrees, certificates, or four-year degrees that prepare them for highly skilled jobs in growing industries. The development of the applications and the process was a joint effort between the California Department of Education, the California Community College System and the California Workforce Investment board. The initial grant, awarded in 2014 through AB 86, was for a total of $250 million. 123 applications were received. The funding was divided up among 39 applicants with awards ranging from $600,000 to $15 million dollars. Based on the success and demand for the first round of funding, the legislature added another round of funding for 2015. This year's grant is for an additional $250 million for partnership and career pathway creation. The grant has reporting requirements until 2018. A new and exciting portion of the Trust funding will be the availability of Consortium Development Grants. The purpose of these smaller CCPT Consortium Development Grants is to assist interested groups in examining the feasibility of creating local and regional consortia in their areas. During the first year the funding is to be used to bring groups together to discuss and explore local workforce issues and how the creation of career pathways can help address these shortages. The funding for the second year is to be used to start the work of implementing one or more career pathways. For more information: http://www.cde.ca.gov/ci/ct/pt/

To secure the funding sources, the team signs a MOU to commit funds to the appropriate components of the system. The state agencies who are the recipients of the Federal core partner's resources, and any additional agency partner program resources can assist local career pathways teams in identifying their program providers at the local level that may be able to commit resources to their local teams. WIOA partner staff can also facilitate formation of Integrated Resource Teams to tap into diverse program resources or services around the individual customer. After considering all potential public agency funding, the leadership team should consider researching private foundations and/or other private non-profit organizations whose mission aligns with the goal of helping participants acquire the necessary skills and credentials to obtain employment in an in-demand industry at a living wage with the opportunity for upward mobility.

In addition, the leadership team should reach out to industry associations, unions, and local businesses that may have funds to contribute to training workers.

For a list of funding sources that may be used to support career pathways systems, see Funding Career Pathways and Career Pathway Bridges: A Federal Policy Toolkit for States.

PROMISING PRACTICE: The Future—Philadelphia

Engaging employers and understanding future workforce trends at the start of an initiative is crucial to developing effective career pathways systems that serve employers and workers alike. Too often relationships with employers are sought at the end of partnership or program development, leading to insufficient outcomes for both employers and students. In Pennsylvania, a group of employers partnered with local and national healthcare unions to develop the Philadelphia-based 1199C Training and Upgrading Fund (TUF) as a way to meet the needs of employers while expanding and connecting educational supports for low-skilled adults. The TUF is an alliance of 55 employers who make monthly contributions (1.5% of gross payroll) to the fund. The fund paid for the development of a new healthcare education and training school, and remaining funds subsidize education and training for union members and individuals in the broader community who are pursuing health careers in Philadelphia. TUF has helped union and community members acquire new skills, which supports employee retention and helps low-skilled adults enter career pathways to higher earning potential. It also meets the demands of its employer base by regularly updating training to address new work requirements and other changes in the industry. Members of the leadership team meet regularly with employers, conduct focus groups to evaluate program design, and host symposiums focused on emerging trends in the healthcare field. The initiative has received recognition from the U.S. Secretaries of Labor and Education for paying attention to the interplay of employer and workforce needs.

COMPONENT 4.3: Develop Long-Term Sustainability Plan with State/ Local/Regional Partners.

The career pathways system should be the result of comprehensive and inclusive planning, including external and internal stakeholders. This planning process provides an avenue for identifying and securing necessary sustainable resources.

The leadership team should develop a business plan that documents revenue and expenses to continue the operation and improvement of the career pathways system over a long period. It should clearly define potential funding sources and assign responsibility for the obtainment of each source.

CAREER PATHWAYS FYI: The long-term sustainability plan should build upon the initial funding plan and consider

- Replacement of start-up funds from foundation donors for system building;
- Further state system integration to track participant outcomes to include interface with state's wage detail system and educational outcome data;
- Collection, analysis, storage, and evaluation of outcome data for continuous improvement;
- Future tuition and fees, including potential increases in amount and the effect on learner participation;
- Upgrading and/or replacement of equipment;
- Potential new industry partners;
- WIOA formula funds Title 1B adult, youth, dislocated worker;
- Operational savings; and
- Grants and private foundation donations.

ELEMENT FOUR TOOLBOX

Team Tools

See Section Two—Team Tool How-to Guide for facilitator instructions for each of the following tools:

- Six Key Elements Graphic Framework: https://learnwork.workforce3one.org/view/2001120641504542734/info
- Six Key Elements Readiness Assessment Tool (available in Section 2 of the Toolkit)
- Six Key Elements Action Planning Tool: https://learnwork.workforce3one.org/view/2001120642119875739/info
- Service Mapping Tools: https://learnwork.workforce3one.org/view/2001120642445820802/i

Reports and Publications

- Braided Funding Toolkit, Jobs for the Future, 2014. http://application.jff.org/braided_funding_Toolkit/
- Dollars and Sense: *Using Federal Resources to Fund Career Pathways and Bridges,* Center for Law and Social Policy, November 2010 http://www.clasp.org/resources-and-publications/webinar- dollars-and-sense-using-Federal-resources-to-fund-career-pathways-and-bridges
- Funding Career Pathways and Career Pathway Bridges: *A Federal Policy Toolkit for States*, Center for Law and Social Policy, February 2015. http://www.clasp.org/issues/postsecondary/pages/funding-career-pathways-and-career-pathway-bridges-a-Federal-funding-Toolkit-for-states
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ELEMENT FIVE
ALIGN POLICIES AND PROGRAMS

State and local policies and administrative reforms have been revised to align with implementation of a career pathways system.

Key Element Components:

- Identify state and local policies necessary to implement career pathways systems.
- Identify and pursue needed reforms in state and local policy.
- Implement statutory and administrative procedures to facilitate cross-agency collaboration.

Aligning workforce development programs is a function of the State Workforce Development Board. The leadership team, in tandem with the Workforce Development Board, may identify barriers to the implementation of the vision, goals, and strategies of a career pathways system. The Board may review the structure within which the system operates. This structure—made up of the laws, regulations, policies, and procedures associated with workforce development, education and training, social services, and economic development programs—may require change in order to implement a state career pathways system.

CAREER PATHWAYS FYI: WIOA requires states to align the following programs

- Employment and training services for adults, dislocated workers, and youth, and Wagner-Peyser employment services administered by USDOL through formula grants to states;
- Adult education and literacy programs and vocational rehabilitation state grant programs that assist individuals with disabilities in obtaining employment administered by USED;
- Programs for specific vulnerable populations, including the Job Corps, YouthBuild, Indian and Native Americans, and Migrant and Seasonal Farmworkers programs; and
- Programs administered by USED and USHHS.

The success of the system will largely depend on partners identifying the relevant policies that allow them to align the structure in support of their new vision. The leadership team can change policies and procedures quite readily, while barriers such as state statutes require legislative changes. Additional barriers regarding data tracking, data sharing, and electronic system alignment may also require substantial investments that require legislative action.

At the Federal level, the WIOA legislation includes provisions that have lessened the hurdles of Federal legislative alignment and have expanded opportunities for shared accountability. The new legislation can serve as a policy tool to promote coordinated and effective services to individuals who are eligible for multiple funding streams or programs.

In addition to using the leverage of WIOA in aligning systems, programs, and policies, states have a great deal of influence in

CAREER PATHWAYS FYI: WIOA strengthens alignment by

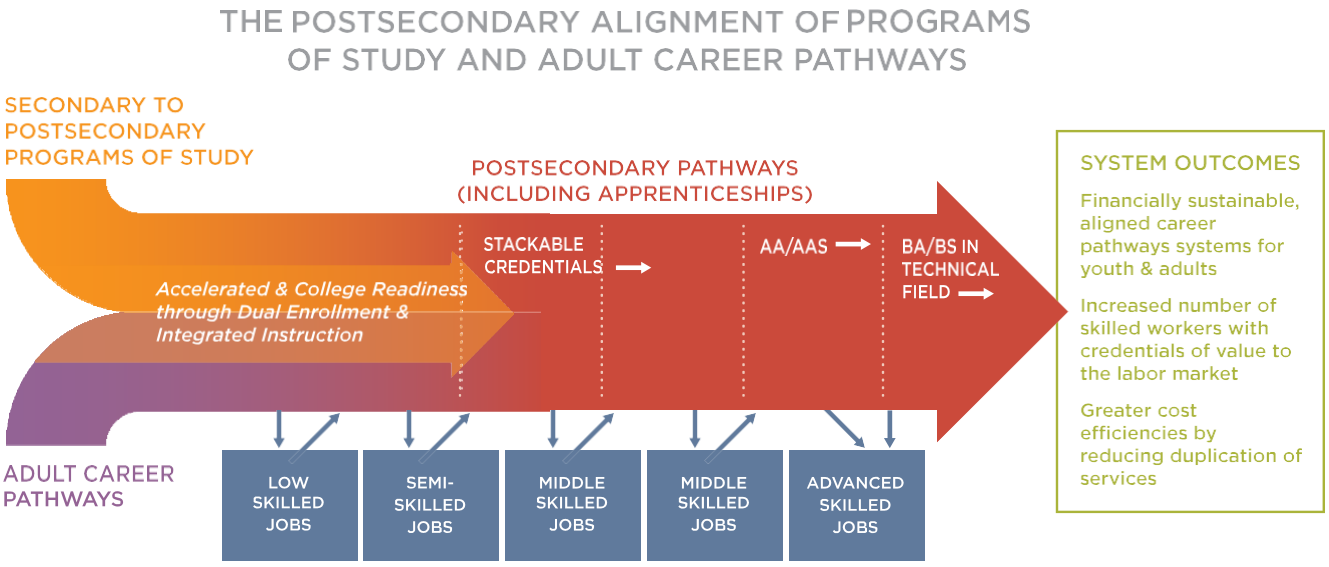
- Requiring common performance accountability system for the core programs;
- Requiring a unified state four-year plan to include core programs;
- Encouraging additional programs to participate such as Temporary Assistance of Needy Families (TANF), SNAP Employment & Training (E&T), and Perkins Career & Technical programs to develop a combined plan;
- Measuring the effectiveness of services to employers for the first time;
- Promoting alignment of the workforce development programs with regional economic development strategies;
- Encouraging the use of sector strategies to engage business;
- Promoting work-based training to assure system is demand driven;
- Strengthening the role of State and local Workforce Development Boards and requiring the development of career pathway strategies; and
- Reinforcing the alignment with Registered Apprenticeship for earn-and-learn opportunities.

whether the programs in the state are job-driven. Governors and State Workforce Development Boards can set industry priority areas based on labor market demand. State agencies can adopt policies that promote the use of data (including labor market information and longitudinal data) for accountability and decision-making. A conscious effort is necessary to ensure the state leadership team for career pathways works with the State Workforce Development Board (if different entities) to ensure that the state's career pathways strategies align with the strategies outlined in the Unified/ Combined State Plan. States may also devote funding to attract businesses to their state and make different decisions about how training programs should support those economic development goals and what level of investment they require of businesses seeking assistance. Governors also have discretion in aligning their job training systems in how they structure their departments within state government.

The Carl D. Perkins Act of 2006 stresses the need for greater alignment between CTE programs and industry. Perkins IV has asked states to support the creation of Programs of Study (POS), an educational option that incorporates and aligns secondary and postsecondary elements. USED's OCTAE helped states identify 10 essential components of CTE POS. The essential components are designed to prepare students to transition into careers and college and create more structured pathways to postsecondary education.

Many states (e.g., California, Minnesota, North Carolina, Oregon, and Washington) have formulated articulation agreements between high schools and community colleges. Articulation agreements refer to agreements whereby an "articulated" high school course or series of courses have been determined by community college faculties to be comparable to a specific community college course or program. Students earn the college credit by either completing the high school course with a prescribed grade or by participating in a credit by examination process. This "dual-credit" option speeds degree completion for high school students seeking some type of postsecondary credential.

The alignment of these two systems is critical to benefit from the expertise and resources of each system. Jobs for the Future has published a paper, "Advancing Career and Technical Education (CTE) in Career Pathways," that offers strategies to align these two efforts. The paper provides a helpful crosswalk for states and local communities in aligning these two initiatives. A graphic of the alignment is on the following page. The art of building a career pathways system is to implement changes the agency has control over first while simultaneously working on strategies to change obstacles that are more difficult. Sometimes the most difficult obstacle is trust and the will to align programs for the benefit of the system. In this case, focusing on common vision, mission, and goals can remove some of this while a culture of trust is established.



Jobs for the Future. *Advancing Career and Technical Education (CTE) in Career Pathways*

COMPONENT 5.1: Identify State and Local Policies Necessary to Implement Career Pathways Systems.

As states begin to develop strategies for aligning policies, there are key actions that can be undertaken to facilitate the expansion and success of state initiatives. The "Pathways Network" initiative by Jobs for the Future provides a good listing of the policy actions that facilitate change. These include:

1. Encouraging better coordination of resources across state and local agencies to provide funding for scale-up of pathway programs.
2. Supporting acceleration of learning through dual enrollment/dual credit.
3. Integrating academic and CTE programs and elevating the profile of these programs as a means to develop crucial workplace skills.
4. Expanding the mission and purview of workforce development organizations and other economic development non-profits.
5. Establishing more robust career information and advising systems linking online resources and appropriate counseling from teachers, mentors, and others through student work-based learning plans.
6. Developing policies that incentivize business involvement and work-based learning.

With these actions in mind, state agencies have considerable freedom to structure their career pathways system. State agencies can use their budget authority over Federal funds to align and braid resources across funding streams. States can also incentivize local/regional career pathways systems in how they chose to distribute discretionary resources that may be available. State agencies can provide specific guidance to local areas in developing their local/regional plans that align with industry needs and state strategies for developing career pathways systems. State agencies can also provide guidance and technical assistance on the allowable use of Federal and state funding under their jurisdiction to support career pathways.

A good example of how Federal incentives can align systems is USDOL's Trade Adjustment Assistance Community College and Career Training (TAACCCT) competitive grant program. The TAACCCT grants align the community college system with business and industry to ensure their programs are demand driven. Grantees were asked to incorporate key features of a career pathways system, including stackable credentials, and multiple entry points that create on-off ramps for workers as they continue in their career path, and articulate from two- to four-year degrees. Although the TAACCCT grant program has a broader scope, it reveals how policy priorities can promote systems change.

PROMISING PRACTICE: Los Angeles Unified School District Career Academies

A local example is the Los Angeles Career Academies' state educational partners that adopt policies that consistently define and document credentials and establish quality assurance processes to ensure their market relevance. The methods education utilizes to engage employers are within their jurisdiction. The educational institutions can also establish consistent assessment. The process for sharing curriculum across the system to maximize its impact can be encouraged by the system office. Articulating and mapping instructional courses from secondary to postsecondary education is within their purview.

The Los Angeles Unified School District received a $7 million grant from the Irvine Foundation to build out new career academies in six high schools that will focus on healthcare, biotechnology, and other technology-related industries. The program is backed by funding from the Irvine Foundation, the United Way of Greater Los Angeles, the Los Angeles workforce investment system, and the Los Angeles Chamber of Commerce and will help provide work-based learning opportunities to students, including 10,000 student summer internships. For more information please see: http://notebook.lausd.net/portal/page?_pageid=33,153234&_dad=ptl&_schema=PTL_EP

COMPONENT 5.2: Identify and Pursue Needed Reforms in State and Local Policy.

To move career pathways forward, state agencies need to examine if there are any real barriers that are in statutes that need addressing. Oftentimes it is policy and resources, not statutes, which created the appearance of a barrier. If there are statutory barriers, state agencies should collaboratively address those issues with the Governor's office and attempt to move those changes forward through their legislatures. The state and local Workforce Development Board members and business associations can be very helpful in advancing legislative changes that will advance the implementation of a state career pathways system. The Request for Information solicitation issued by USDOL, USED, and USHHS in 2014 served to inform the system of common barriers experienced by states/localities in implementing a comprehensive career pathways system. The most common are listed in the text box below.

CAREER PATHWAYS FYI: Most common barriers identified by states/localities include

- The transferability and recognition of stackable, portable, industry-recognized credentials;
- Federal policies and regulations such as training time limits and work participation requirements of TANF;
- Different performance and outcome measures and participant tracking systems;
- Lack of articulation between credit- and non-credit-bearing pathways;
- Funding limitations; and
- Remaining current on labor market information.

Although these may be real barriers, the Workforce Development Board and the Governor can address them by developing long-term strategies to lessen their impact or alleviate them altogether. With a complete list of barriers, the leadership team may collaboratively develop strategies to address each one. The leadership team should start with barriers that are easier to resolve (including those requiring less financial resources). These barriers can provide the core around which new policies are developed. State and local partners can jointly strategize on solutions. During this process, it is critical that the leadership team keeps its focus on the mission, vision and goals to move forward.

At the Federal level, WIOA acknowledges the importance of program alignment and requires a structure that supports Federal legislative alignment. WIOA has elevated the function of policy review, program alignment, and removing programmatic barriers to the State Workforce Development Board. The new legislation can serve as the impetus for real change and can address the barriers in a four-year Unified/Combined State Plan.

If it is determined the barriers to establishing or expanding a career pathways system are not regulatory or are within their purview, the leadership team should address their key policies, which may hamper the goals and vision for a career pathways system, including those that are necessary for coordinating efforts across the state and/or region. Many current policies—quite inadvertently—may support the status quo. Many systems operate in silos for lack of any strong reason to change. The result is that individuals are not able to easily transition between academic programs, adult education and workforce development training systems.

Helpful strategies to support alignment may be:

- Implementing a coordinated and systems approach to youth, adult education, and postsecondary training;
- Developing new and/or strengthened linkages between secondary CTE and academic programs at community colleges, adult basic education programs, and American Job Centers;
- Developing articulation agreements between secondary and postsecondary education;
- Supporting integrated and coordinated services between American Job Centers and TANF service providers;
- Offering programs that allow learners to earn portable and stackable credentials;
- Supporting cross-program and cross-agency professional development;
- Developing work-based learning opportunities;
- Developing an Eligible Training Provider List that promotes the development of career pathways; and
- Establishing and supporting the development of the state's longitudinal data system.

COMPONENT 5.3: Implement Statutory and Administrative Procedures to Facilitate Cross-Agency Collaboration.

Implementation of the new policies and procedures will require communication, communication, communication. Continuity of messaging across departments requires coordination. It may be helpful to develop joint letters signed by the leadership team that delineate the policies and practices that will drive the team's practices going forward.

HOW TO: Engage in Collaborative Communication

- A shared vision and strategies;
- A shared policy agenda to build, scale, and sustain a career pathways system;
- A commitment to collaborate and share and/or leverage resources;
- A requirement for the adaptation of similar local/regional policies;
- An explanation of how the team will hold grantees accountable, and how will they be measured;
- A commitment to share outcome data and work towards a longitudinal participant information system;
- A process for technical assistance; and
- A plan for professional development.

PROMISING PRACTICE: Minnesota FastTRAC

Minnesota FastTRAC (Training, Resources, and Credentialing) seeks to make Minnesota more competitive by meeting common skills needs of businesses and individuals. FastTRAC's adult career pathways program helps educationally underprepared adults succeed in well-paying careers by integrating basic skills education and career-specific training in high-demand fields. Each local adult career pathways program consists of a series of connected educational and training programs that allows learners to advance over time to successively higher levels of education and employment in a given sector. FastTRAC programs cover key Minnesota industries, including healthcare, manufacturing, education, business, energy, and others. As of December 2012, FastTRAC programs have served more than 1,900 adults at 29 sites. Eighty-eight percent of these adults earned industry-recognized credentials or earned credits toward those credentials, and 69 percent had success either gaining employment or continuing into further career pathways education. Local programs have braided FastTRAC grants with other state and Federal funds. Locals have braided funds from TANF, Workforce Investment Act (WIA) Incentive grants, Adult Basic Education Leadership funds, Perkins funds, foundation funding, Pell grants, and other sources. Currently, an allocation from the state workforce development fund and TANF Innovation funds are braided.

PROMISING PRACTICE: Public/Private Partnership Massachusetts

SkillWorks is a multiyear initiative to improve workforce development in Boston and in the Commonwealth of Massachusetts. SkillWorks brings together philanthropy, government, community organizations and employers to address the twin goals of helping low income individuals attain family supporting jobs and businesses find skilled workers. Phase I (2003-2008) invested $15 million to help more than 3,000 workers receive skills training with hundreds entering the workforce or receiving raises and promotions.

Phase II (2009-2013) continued this important work with an added emphasis on better connecting Massachusetts' community colleges and other post-secondary institutions to the workforce development system. SkillWorks raised $10 million for Phase II for investments in Workforce Partnerships, Public Policy Advocacy and Capacity Building.

Phase III (2014-2018) investments will aim to improve the workforce system's effectiveness and efficiency, resulting in significantly improved economic outcomes for job and skill seekers, with a priority focus on those in Greater Boston who are low-income and low-skilled. SkillWorks will achieve this goal by leveraging its leadership position and collaborative model to convene business, labor, education, and civic leaders and catalyze change through innovative investments, adoption of best practices and advocacy. SkillWorks is projecting a $5.6 million, five-year budget for Phase III. For more information, read SkillWorks' Phase III Strategic Plan and check out our latest 1-page snapshot of our strategy, Phase II Outcomes, and Phase III Goals.

ELEMENT FIVE TOOLBOX

Team Tools

- Six Key Elements Graphic Framework https://learnwork.workforce3one.org/view/2001120641504542734/info
- Six Key Elements Readiness Assessment Tool (available in Section 2 of the Toolkit)
- Six Key Elements Action Planning Tool https://learnwork.workforce3one.org/view/2001120642119875739/info
- Service Mapping Tools https://learnwork.workforce3one.org/view/2001120642445820802/info

Reports and Publications

- *Advancing Career and Technical Education (CTE) in State and Local Career Pathways Systems*, Jobs for the Future, March 2014, http://www.cte.mnscu.edu/programs/advancing-cte-initiative.html
- Claggett, Mary and Uhalde, Ray. *The Promise of Career Pathways Systems Change and Initiatives.* Jobs for the Future, July 2012. Commissioned by the U.S. Department of Labor. http://www.jff.org/publications/promise-career-pathways-systems-change
- Couturier, Lara. Policy Meets Pathways: *A State Policy Agenda for Transformational Change.* Jobs for the Future, December 2014, http://www.jff.org/publications/policy-meets-pathways-state-policy-agenda-transformational-change
- Harmon, Tim. *Shared Accountability in WIOA and Career Pathways.* Center for Law and Social Policy, December 2014, http://www.clasp.org/resources-and-publications/publication-1/WIOA_sharedaccountability.pdf
- Los Angeles Unified School District - Los Angeles Academy/Irvine Foundation *Linked Learning Initiative:* http://achieve.lausd.net/Page/524
- Pathways to Prosperity Network: *A State Progress Report, 2012-2014.* Jobs for the Future, August 2014. http://www.jff.org/sites/default/files/publications/materials/Pathways-to-Prosperity-for-Americas-youth-080514.pdf
- Shared Vision, Strong Systems: *The Alliance for Quality Career Pathways Framework Version 1.0.* Center for Law and Social Policy, June 2014, http://www.clasp.org/resources-and-publications/files/aqcp-framework-version-1-0/AQCP-Framework.pdf

ELEMENT SIX

MEASURE SYSTEM CHANGE AND PERFORMANCE

Appropriate measures and evaluation methods are in place to support continuous improvement of the career pathways system.

Key Element Components:

- Define desired system, program, and participant outcomes.
- Identify the data needed to measure system, program, and participant outcomes.
- Implement a process to collect, store, track, share, and analyze data.
- Design and implement a plan for reporting system and program outcomes.

Measuring the impact of comprehensive system change is critical to sustaining the support necessary for carrying out a career pathways approach to education and training. To date, there is no evidence-based research that supports the long-term impact of creating career pathways systems. However, many promising practices exist that reveal the effectiveness of some of the components of a specific career pathway program. Evidence-based research will take time and states have initiatives underway to consistently collect and improve upon the quality of their data in order to evaluate their systems.

There are two parallel Federal initiatives underway to encourage the development of higher quality data and analysis. USED has launched a Statewide Longitudinal Data System Initiative (SLDS) and USDOL launched a complementary Workforce Data Quality Initiative (WDQI). SLDS emphasis is on the P-20 longitudinal data systems to capture, analyze, and use student data from preschool to high school, college, and the workforce. WDQI emphasis is on integration of workforce data with education data and on improving the quality of the data. Quality data in an understandable format is essential for students to make an informed choice about a career pathway.

The crucial infrastructure requirements to build and sustain a longitudinal data system are available in a research & evaluation study by IMPAQ International entitled "Using Workforce Data Quality Initiative Databases to Develop & Improve Consumer Report Card Systems." The infrastructure requirements are:

- Individual-level training data that incudes social security numbers (SSNs);
- Capacity to match education and training participation data to state's wage records;
- Clearance and cooperation to match unemployment compensation wage record data held by State Departments of Labor against participant data held by state's department of education; and
- Funding and know how to use the data to produce a report card website.

The data quality of the education and workforce systems will enable states to make accessible performance data available to participants in the form of a Consumer Report Card (CRCS). CRCS are state systems for calculating program outcomes based on labor market data (employment, retention, and earnings) for those individuals participating in education & training programs.

PROMISING PRACTICE: Florida's Consumer Report Card System

Florida began developing its longitudinal administrative data infrastructure in the 1970s and has continued to expand the system. The Florida Consumer Report Card System (CRCS) is developed statewide from workforce and education individual-level data. It covers the K-20 education system and workforce data, including unemployment compensation wage records. The assessment and analysis of participation and outcomes of all education and training programs are conducted exclusively through use of individual-level data from the Florida education and workforce systems. Much of the data analysis connected to the CRCS is conducted by the state. For example, to be put on a local Eligible Training Provider List, a training provider must provide a program that trains for an occupation that is on the Targeted Occupations List—termed "demand occupations"—and must be licensed in Florida to be on the list. The Florida College System has developed a website for parents, students, and interested parties to be able to see recent first-year outcomes by institution and program.

The long-term goal of SLDS and WDQI is to use their longitudinal data systems to draw information across education and training programs to get a more complete picture of how individuals move through education and training programs and onto careers. High quality and consistent data that is available by integrating education and workforce data is more conducive to research and analysis that leads to program improvement, system change, and policy reform. Measuring the impact of a career pathways initiative will not only support efforts to improve program design, but also will communicate to stakeholders the value of their investment.

The career pathways leadership team will set system-level goals for change and identify desired participant and program outcomes to guide career pathways development. The team will use these established goals and desired outcomes as benchmarks for measuring the performance of affiliated education programs, training programs, and supportive services. The team may want to utilize both external and internal evaluation tools and use data to inform continuous improvement. Share the evaluation results with partners (especially employers) and the broader community to solicit support for and understanding of the career pathways system.

Any data the team can derive from employer-driven standards will serve to expand employer engagement. Providing measureable evidence that the skill sets of the local labor force are improving will certainly glean support from local businesses. Such evidence-based practices can assist the team in maintaining current funding and garner new funding sources. Outcome data serves to support continuous improvement of program design by showing what program components work best for targeted populations and what components may require redesign. Finally, analysis of outcome data informs the policy and procedural adjustments that may be necessary for maintaining alignment within the system.

CAREER PATHWAYS FYI: Improving Strategies

Career pathways system development offers a unique opportunity to improve strategies for measuring the impact of efforts across systems and programs.

COMPONENT 6.1: Define Desired System, Program, and Participant Outcomes.

Systems-level career pathways need the support of state and local partnerships, both in the design phase and in their implementation. Clearly defining the anticipated system interfaces and desired changes associated with an effective career pathways design is an important first step in developing a measurement and evaluation process for the overall pathways effort. Examples of system-level changes and outcomes include the development of cross-agency leadership and oversight structures; blending or braiding resources including human and capital; use of shared participant and program data; and alignment between partnering systems of participant activities such as recruitment, placement, assessment, and curriculum.

The leadership team should identify desired program and participant outcomes and related measures during early strategic planning sessions to ensure that the activities carried forth will support long-term goals. Although WIOA clearly articulates the participant outcomes for the WIOA core partners, other measures may be critical to evaluate the system and program design. All partners inform the strategies used for evaluating progress and actively assess the system.

The leadership team should consider both short-term and long-term outcome measures. Short-term outcomes may include "interim" measures, which serve as benchmarks along a career pathway. For example, interim measures could be mid-term grades, retention indicators such as class attendance, employability or soft skills attainment, or attainment of a digital literacy or high school equivalency certificate. Interim measures are useful for making program adjustments and are motivational markers for the learner in achieving a long-term goal.

The team should assess the types of measurements used on a regular basis to ensure the team is measuring what it needs to know. System outcomes focus on the impact that the career pathways approach is having on the overall community, as well as on the citizens and/or partners engaged within the system. There are varieties of outcome measures that help teams analyze systemic impact. Outcome measures can relate the effectiveness of education and training programs and provide teams with data they can use to improve programs and assess the effectiveness of different strategies employed for target populations.

COMPONENT 6.2: Identify the Data Needed to Measure the System, Program, and Participant Outcomes.

Following the identification of long- and short-term system, program, and participant outcomes, the leadership team and other subgroups must define the actual data to measure and evaluate outcomes. Most career pathways systems involve the use of resources from various Federal and state funding streams so close attention should be given to the data collection requirements of the particular programs being evaluated.

Data collection involves a cross-agency integrated approach requiring data sharing and matching of the participant outcomes. WIOA has established a set of common metrics that apply to the WIOA core partner programs. The state may apply these measures to other additional partners without incorporating the programs into a combined plan. WIOA participant measures are listed in the Career Pathways FYI text boxes on this page.

CAREER PATHWAYS FYI: WIOA Joint Performance Measures for Youth

(1) Percentage of participants in education, training, or unsubsidized employment 2nd quarter after exit;

(2) percentage of participants in education, training, or unsubsidized employment 4th quarter after exit;

(3) median earnings of participants in unsubsidized employment during the second quarter after exit;

(4) percentage of participants who obtain a recognized credential or secondary diploma (or equivalent) during participation or within one year after exit; and

(5) percentage of participants who, during a program year, are in an education or training program that leads to a recognized postsecondary credential or employment and who are achieving measureable skill gains toward such a credential or employment.

CAREER PATHWAYS FYI: WIOA Measures for Employer Participation

- All WIOA programs will be required to measure their effectiveness in serving employers.
- The specific measure(s) to be used will be developed by WIOA Federal agencies by June 2016.

CAREER PATHWAYS FYI: WIOA Joint Performance Measures for Adults

(1) Percentage of participants in unsubsidized employment 2nd quarter after exit;

(2) percentage of participants in unsubsidized employment 4th quarter after exit;

(3) median earnings of participants in unsubsidized employment during the second quarter after exit;

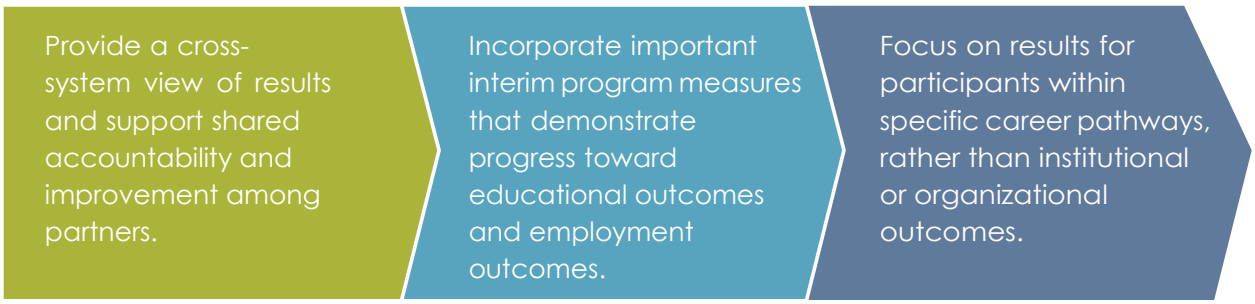
(4) percentage of participants who earned a recognized postsecondary credential or a secondary school diploma (or equivalent) during participation or within one year after exit; and

(5) percentage of participants who, during a program year, are in an education or training program that leads to a recognized postsecondary credential or employment and who are achieving measureable skill gain toward such a credential or employment.

The Alliance for Quality Career Pathways (AQCP), a project of the Center for Postsecondary and Economic Success at CLASP, has developed a framework for measuring career pathways innovation. The framework includes four components:

1. **Criteria** for high-quality systems and programs;
2. **Quality indicators** that signal how well the core elements of systems and programs support the achievement of desired participant outcomes;
3. **Interim participant outcome metrics** that mark progress toward achieving desired longer-term outcomes; and
4. **Performance outcome metrics** that are common across education, training, employment, and other public, private, and philanthropic systems involved in the career pathway system.

Career Pathways Should:



Career Pathways System, Program, and Participant Measures:

SYSTEM MEASURES

- Return on investment —overall cost of career pathways activities including increase in taxes paid due to employment and decrease in reliance on any form of public assistance;
- Increase in skills and credentials in the labor force;
- Increase in workforce participation rate;
- Employer engagement in career pathways system; and
- # of resources leveraged to sustain the system.

PROGRAM MEASURERS

- # of participants enrolled in program;
- # of participant completers;
- # of participants who receive some type of postsecondary credential;
- # of participants who receive some type of industry recognized-credential;
- # of participants entering employment;
- Employment retention rate;
- Earnings gain; and
- Employer engagement.

PARTICIPANT MEASURES

- Credit accumulation;
- License/certificate attainment/industry recoginzed credential;
- Degree attainment;
- Employment;
- Wage at initial employment;
- Employment retention rate;
- Employment progression along a career pathway; and
- Earnings progression.

PROMISING PRACTICE: Measurement Matters—Report Cards in New Jersey

New Jersey has a "consumer report card" website called New Jersey Training Opportunities that provides information on occupational training programs in the state. A results section displays information about former program participants. It shows employment rates, retention rates, and average earnings at six months, one year, and two years after graduation. New Jersey's state laws require training programs at for-profit, public two-year, and some public four-year schools that receive state or Federal workforce funding to submit records to the state for all of their students, and recently required for-profit schools to submit student records and disseminate results through a state website.

COMPONENT 6.3: Implement a Process to Collect, Store, Track, Share, and Analyze Data.

Determining how to measure system, participant, and program outcomes will likely involve many different stakeholders. The leadership team will determine desired goals and outcomes for the initiative while considering the existing requirements of Federal, state, and local funders. The challenge to teams will be figuring out how to measure outcomes as painlessly as possible across systems, using existing reporting requirements when feasible.

Ultimately, the leadership team (with validation from local employers and potentially from funders) will agree on what data to collect to measure the desired outcomes. It is important that the measures and the data definitions are common across all partners participating in the career pathways system. By integrating data systems and sharing data, the leadership team can evaluate system as well as program impact over longer periods. The leadership team should gather multi-year (longitudinal) data on progress over as many years as necessary to follow an individual across programs. Data of this kind is essential for establishing public accountability for career pathways programs. It is also necessary for determining how to improve programs by identifying which activities provided the best outcomes over time.

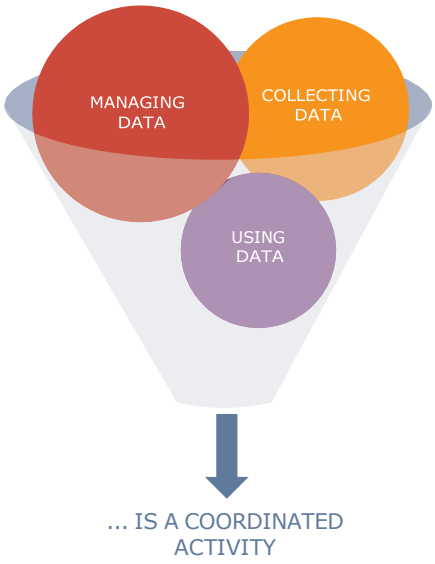
PROMISING PRACTICE: Kentucky Statewide Longitudinal System

The Kentucky Center for Education and Workforce Statistics (KCEWS) collects and links data to evaluate education and workforce efforts in the Commonwealth. This includes developing reports and providing statistical data about these efforts so policy makers, agencies, and the general public can make better informed decisions. The KCEWS maintains the Kentucky Longitudinal Data System (KLDS), a statewide longitudinal data system, as well as responds to requests for data and information, and provides reports on a number of topical areas including feedback about the performance of high school graduates after they go to college, developing the Kentucky County Profiles, and information about the outcome of teacher preparation, college, adult education, and other programs. Two examples of KLDS activities include:

1) Linking high school and college data together to better understand how high school experiences affect college going and success; and

2) Linking education and employment records to know if Kentucky graduates are entering the workforce and earning a reasonable wage, how well colleges are meeting the needs of industries, and what the return on investment is for education and training programs.

Collecting, managing, and using data needs to be carefully coordinated across participating agencies and systems. The leadership team has the responsibility for establishing a data and evaluation plan that aligns with the desired outcomes and provides formative and summative information. The team may want to work with an outside evaluator to provide system-wide evaluation of the initiative. If the team members decide not to work with an outside source, they may want to identify a lead agency that can coordinate data measurement efforts across agencies. Sometimes different agencies collect different components of the data, so it is important to make sure all partners are clear about their roles and responsibilities in collecting data.



It is important to develop and document a formal agreement for the collection of data in a MOU. A MOU lists all partners who will be collecting data, the process for collecting data, and what each agency is collecting. Typically, each agency partner is responsible for collecting data for the individuals it serves within the programs that are part of the career pathways system. Data on individuals enrolled in the career pathways programs are marked in some fashion to ensure that the data is included in the overall data collected. Common demographic information for participants (such as age, gender, race, income level, highest school grade attended, justice involved status, disability status, public assistance status) is tracked across programs to determine system outcomes for various target populations.

CAREER PATHWAYS FYI: Data Sharing Agreements specify

- Organizations/agencies involved;
- Data sets to be shared;
- Length of time access to data is available;
- The process for sharing data;
- Confidentiality agreements; and
- Liability information.

Because participants involved in the career pathways system move through different points of entry; access different supportive services; and exit at different points in the career pathway; tracking long-term performance outcomes requires a well-planned systematic approach that all agencies agree upon. Currently most agencies only collect information on an individual's progress through their own programs and services, and do not take into consideration what the individual achieves through participation with partner agencies. This makes some of the potential measurements, such as the number of individuals who transition from adult education to community colleges, difficult to capture. In addition, because an effective career pathways system allows individuals to move back and forth between education and employment over many years, evaluating the overall career pathways system, as well as some of the specific programs, requires coordination of data sources so that individual records can be tracked across programs over multiple years.

An ideal longitudinal data system tracks an individual from pre-kindergarten through postsecondary education and into the

workforce. Data covering this entire span allows each agency to determine how the services it provides to the individual will augment the services provided in prior years by previous agencies. An ideal system also has the ability to capture the progress of individuals moving in and out of training and work, as needed. A data system that is comprehensive, shared, and longitudinal helps agencies design better services and allows all the partner agencies to better align themselves to the goals of the career pathways system.

A shared database helps streamline data collection and analysis efforts. Frequently, a common database is not feasible due to cost constraints but it is important to design a method for extracting each of the multiple data sets from multiple data sources/systems for the information necessary to calculate and track the measures agreed upon. Aggregating data across agencies ensures that agency data from each aspect of the system contributes to the overall participant and system outcomes measures in order to assess the career pathways system.

Each state typically has its own data practice requirement along with the Federal data-sharing guidelines. Therefore, it is important for all partners to sign a data-sharing agreement. These agreements can specify the organizations/agencies sharing the data, the specific data sets shared, the purpose and use of the data, the length of time for access to the data, and the process in which the data will be shared/accessed. The agreement should also state the liable party for storing the data and granting access to the data.

Regular reviews of performance measures will ensure that agencies can make timely improvements to specific programs if necessary. Participant outcomes measure the ultimate success of the system when the participant enters employment with the skills/certificates/license required by employers at a family sustaining wage. Constant affirmation from employers is essential to keep the system demand-driven. The team should routinely celebrate the success of effective programs and services.

CAREER PATHWAYS FYI: Performance Data

Analysis of performance data will help determine whether individual programs are effective and whether progress is being made within the overall career pathways system.

It is equally important to assess unsuccessful program outcomes. Data-informed decision making and evaluation can help the system identify missing elements to the system that, if available, may have retained a participant along a career pathway. The leadership team can examine any unmet participant barriers, program deficiencies, and program relevancy to employer requirements. Data and information is essential to focus on key accountability issues in the box below:

HOW TO: Questions to Ensure Program Accountability

- Are the program and participant performance targets and goals being met?
- Are the results superior to traditional methods?
- Are agency (organization) partnerships strengthened or enhanced?
- Are career pathways components and design features being institutionalized and sustained as a result?
- Do business and industry partners value their involvement in the career pathways system and, as a result, realize skill level improvements of their job candidates?
- Are funds being used to maximize their efficiency and effectiveness. Or, is the ROI reasonable?

Accountability is the key to sustaining a comprehensive career pathways system.

COMPONENT 6.4: Design and Implement a Plan for Reporting System and Program Outcomes.

The measurement design process may include the development of a framework for measuring and understanding the net impact and ROI of the overall career pathways effort. An ROI framework should include a control group that compares program outcome participant data with subjects that did not participate in a career pathways program but have similar characteristics. Once the framework is established, the leadership team should have a strategy for communicating and disseminating the outcomes. The team should identify the various audiences for sharing summative data including state and local legislators, state and local policy makers, secondary and postsecondary educational institutions, employers, economic development organizations, potential program participants, and the news media. Reports generated for sharing ROI and program outcomes may include individual participant success stories. These compelling stories will provide a practical insight into the overall success of the career pathways initiative.

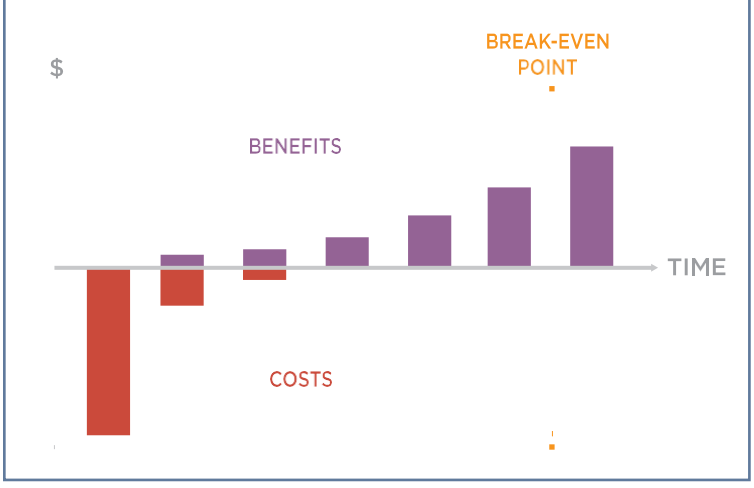
HOW TO:
Use Reporting Sytem Outcome data

- Identify best practices for replication;
- Improve upon system and program design;
- Increase employer engagement;
- Sustain system development and engage more partners;
- Apply for competitive funds based on evidence-based practices;
- Request for funding and support from state and local legislators;
- Encourage the development of future career pathways programs; and
- Encourage enrollment of participants in career pathways programs with proven results.

The graphic below provides an example of how to calculate ROI

ROI CALCULATION EXAMPLE

ROI = (BENEFITS – COSTS) / COSTS



EXAMPLE BENEFITS:

Change in:

- Earnings
- Fringe benefits
- Taxes paid
- Public assistance payments
- Medical payments
- Unemployment insurance payments
- Incarceration expense
- Worker productivity

EXAMPLE COSTS:

- Tuition
- Program operations
- Program administration
- Foregone earnings while in training
- Foregone taxes
- Other participant costs

http://www.gwdc.org/initiatives/roi/

ELEMENT SIX TOOLBOX

Team Tools

- Six Key Elements Readiness Assessment Tool (available in Section 2 of the Toolkit)

Reports and Publications

- *A Framework for Measuring Career Pathways Innovation.* Center for Law and Social Policy (CLASP), February 2013. http://www.clasp.org/resources-and-publications/files/CLASP-AQCP-Metrics-Feb-2013.pdf
- Anderson, Eyster, Lerman, Clymer, Conway, and Montes. The First Year of Accelerating Opportunity: *Implementation Findings from the States and Colleges.* Jobs for the Future. September 2014 http://www.jff.org/publications/first-year-accelerating-opportunity-implementation-findings-states-and-colleges
- Roberts, Brandon and Price, Derek. Statewide Data as a Lever for Systems Change: *Experiences and Lessons from Shifting Gears.* The Joyce Foundation, September 2010. http://www.joycefdn.org/shifting-gears/reports/
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- Schanker, Jennifer B. and Taylor, Judith C. Forging New Pathways: *The Impact of Breaking Through Initiative in Michigan.* Jobs for the Future, November 2012. http://www.jff.org/publications/forging-new-pathways-impact-breaking-through-initiative-michigan
- Smart Investments – Real Results: *A Net Impact Evaluation of Minnesota's Workforce Development System and Initial Findings.* Minnesota Department of Employment and Economic Development, January 2015. http://www.gwdc.org/initiatives/roi/
- U.S. Department of Labor, Employment and Training Administration, *Workforce Data Quality Initiative.* http://www.doleta.gov/performance/workforcedatagrant09.cfm
- U.S. Department of Education, Statewide Longitudinal Data Systems (SLDS). http://www2.ed.gov/programs/slds/factsheet.html
- U.S. Department of Human Services, Administration for Children and Families. *Innovative Strategies for Increasing Self-Sufficiency Study.* April 2014. http://www.acf.hhs.gov/programs/opre/resource/innovative-strategies-for-increasing-self-sufficiency-study
- U.S. Department of Labor, Employment and Training Administration, *Trade Adjustment Assistance Community College and Career Training (TAACCCT)* Grant Program, Data Elements for Individual-Level Participant Data Collection. http://www.doleta.gov/taaccct/resources.cfm
- DeRenzis, King, Prince, and Wilson. *Using Dashboards for State Workforce Planning,* National Skills Coalition, February 2015: https://www.nationalskillscoalition.org/resources/publications/file/sweap_using_dashboards_for_state_workforce_planning.pdf
- DeRenzis, King, Prince, and Wilson. *Who is Being Served Well? Using Pathway Evaluators for State Workforce Planning,* National Skills Coalition, February 2015: http://www.nationalskillscoalition.org/resources/publications/file/SWEAP_Pathway_ pathway

SECTION TWO
CAREER PATHWAYS TOOLS AND RESOURCES

Career Pathways Tools

The tools included in this section support the framework of the Six Key Elements and may be helpful to leadership teams interested in fostering and developing career pathways systems. This is not an exhaustive list of the career pathways-related tools that are available to policy makers and stakeholders. USDOL/ETA plans to release a companion workbook that includes additional tools and resources to assist states and local partners in the work of developing, implementing, and sustaining career pathways systems and programs.

There are many other useful tools for educators, workforce professionals, human service agencies, policy leaders, and businesses that align with the Six Key Elements of the career pathways framework. USED/USHH and USDOL engaged in a joint venture to catalog tools that promote actionable instructions on how to turn a commitment to career pathways into a reality. One of the results of that effort is the Career Pathways Tools Catalog, available at the following website: https://cpToolkitcatalog.peerta.acf.hhs.gov/

Six Key Elements Readiness Assessment Tool

Purpose: The Six Key Elements Readiness Assessment Tool is aligned with Section One of the Toolkit to aid state or local teams in assessing their state/local career pathways initiative in relationship to the components of each element that make up an optimal career pathways system. The tool helps state/local leaders assess their progress and design priorities and action steps to progress to an optimal stage.

Recommended User(s): Optimally, the state or local leadership team should complete the assessment tool. Team members complete the assessment together during a team meeting. The team should identify a facilitator to guide the process as well as someone to record issues and ideas that come up through discussion.

When to Use: Complete the initial assessment as a baseline when career pathways initiative efforts begin. The organization of the assessment tool follows the Six Key Elements of Career Pathways Framework. Repeat the assessment periodically (at least annually) to assess progress and determine priorities in annual plans.

How to Use:

- Check the indicators for each component of the Six Key Elements.
- Select two to three components under each key element the team identifies as the strengths of the state/local career pathways system (rating functional or optimal).
- Select two to three components to prioritize under each key element that the team identifies as the opportunities to improve the state/local career pathways system (rating minimal or emerging).
- Discuss the responses and prioritize a list of opportunities to improve.
- Write an action plan listing the priorities, responsible party, and date to accomplish (see Action Planning tool).
- Periodically (annually) evaluate the system by revisiting the assessment tool and Action Planning tool to chart progress.

Career Pathways: Six Key Elements *Readiness Assessment Tool*

Optimal Alignment: Leadership vision and strategy is operational. System focuses on targeted sector strategy, engages employers, and reflects clear pathways educational components. State-level policies support long-term sustainability with federal and/or state funding plans. Metrics and outcomes reflect evidence-based evaluation processes and continuous improvement.

Functional Alignment: Shared decision-making and accountability exist between state-level or local-level team members and defined roles exist in an MOU. Partners map and identify funding resources. Curricula design includes components/educational strategies of career pathways that align with industry needs. Team is identifying metrics and outcomes. State-level policy levers and opportunities are utilized.

Emerging Alignment: State- or local-level team agrees to adopt Federal framework for career pathways systems. The results of the readiness self-assessment instrument shapes the development of a strategic plan. A formal steering committee creates a vision with partner roles delineated. Senior-level government and business leaders engage to form a MOU. Labor market research is in place and targets industry sectors with some business engagement. State-level analysis is underway to determine if there are state-level policy barriers that exist.

Minimal Alignment: No cohesive, integrated strategy for career pathways exists. No formal team structure exists to coordinate efforts and align resources. Senior leader's engagement is minimal. Business engagement and labor market research is minimal. No formal assessment of assets or system resources has been conducted.

	Minimal Align	Emerging Align	Functional Align	Optimal Align
1) Build cross-agency partnerships and clarify roles.				
A. WIOA Core Partners:				
o Title 1B Adult, Youth, and Dislocated Workers				
o Title II Adult Education and Literacy				
o Title III Wagner-Peyser Act Employment Services				
o Title IV Rehabilitation Act of 1973 Title I				
B. WIOA Additional Partners:				
o Postsecondary Education				
o State Human Services Agency (TANF)				
o Supplemental Nutrition Assistance Program (SNAP)				
o Supplemental Nutrition Assistance Program (SNAP Employment & Training)				
o Trade Readjustment Assistance Program (Trade Act of 1974)				
o Veterans Employment & Training				
o Unemployment Compensation				
o Older Worker Programs (Senior Community Service Program)				
o HUD Employment & Training (Housing & Urban Development)				
o Community Service Block Grant				
o Second Chance Act of 2007 (ex-offenders)				
C. A leadership team (or steering committee) guides the process of developing career pathways systems.				
D. Partners create a shared vision, mission, goals, and strategies for state and local/regional career pathways systems.				
E. Defined roles and responsibilities of partners exist.				
F. An MOU exists governing the partnership.				
G. A work plan exists for the partnership.				
2) Identify industry sectors and engage employers.				
A. Labor market analysis targets high-demand, and growing industries that support family sustaining wages.				
B. Industry leaders and sector partnerships engage in the development of the system.				

	Minimal Align	Emerging Align	Functional Align	Optimal Align
C. Clarify and define employers' role in program development and operations.				
o Affirm the set of foundational academic, work readiness, and technical skills, abilities, and knowledge.				
o Affirm the required certificates and credentials.				
o Help design education and training programs.				
o Assist in instruction.				
o Provide on-site training space.				
o Provide real equipment, supplies, or tools.				
o Make real industry-based projects.				
o Co-invest resources in program development and/or implementation.				
o Assist in developing certification/credentialing process.				
o Provide mentoring or work-based learning opportunities.				
o Hire completers.				
D. Identify existing training systems within industry and career ladders/lattices.				
E. Identify the skill competencies and associated training needs needed in a given career ladder.				
F. Implement a process to sustain and grow business partnerships.				
3) Design education and training programs.				
A. Identify potential "education, training, and service partners", including secondary education.				
B. Identify target populations, entry points, and recruitment strategies for target populations.				
C. Review or modify competency models with employers to ensure they meet industry standards.				
D. Build career ladders and lattices with employers that lead to industry-recognized credentials				
E. Modify existing program offerings to mirror competency models and career ladders/ lattices and meet industry recognized and/or postsecondary credentials.				

	Minimal Align	Emerging Align	Functional Align	Optimal Align
F. Analyze education and training institutions' capacity to respond to industry demands *(i.e., classrooms and lab space; educational staff; work-based learning sites, training spaces, and equipment/tools, materials/supplies; credentialed instructors; and technology, etc).*				
G. Design and promote work-based learning opportunities *(e.g., workplace simulations, school-based enterprises, cooperative work and study programs, internships (paid or unpaid), on-the-job training (OJT), job shadowing, apprenticeships, fellowships, short-term employment, and other paid or unpaid work experiences).*				
H. Design programs that apply integrated, accelerated, and contextualized strategies to build skills that are industry-recognized.				
I. Consider credit for prior learning in all program design and allow participants to progress at their own pace along a career pathways program.				
J. Embed academic content *(e.g., reading, writing, mathematics)* within curricula that is relevant to real workplace tasks.				
K. Design curriculum to allow for multiple entry/exit points.				
L. Design self-paced curriculum to allow participants to progress based on their abilities and time commitment *(e.g., class scheduling; e-learning; work-based learning; computer-based or web-based lessons).*				
M. Provide participants with appropriate financial aid information to include state grant programs, Federal financial aid, and program eligibility for special populations.				
N. Provide career assistance, assessment, and develop a student-specific academic plan *(select a career pathway)* and assist participant in navigating the system.				
O. Provide academic support, school adjustment and retention services to include tutors and ELL services.				
P. Arrange for and select an organization to provide case management services.				

	Minimal Align	Emerging Align	Functional Align	Optimal Align
Q. Arrange for or provide supportive services to include childcare, transportation, housing, financial assistance, life management skills, and money management skills.				
R. Provide employment assistance for participants to include job referrals, job seeking skills training, and retention services (e.g., job coach).				
4) Identify funding needs and sources.				
A. Identify system start-up and maintenance cost and associated funding sources.				
B. Identify program development and maintenance cost and associated funding sources.				
C. Identify participant cost and associated funding sources.				
o Tuition, fees, books, and supplies *(training-related tools and equipment)*				
o Academic support and tutoring				
o Career counseling, advising, and planning				
o Case management and coaching *(including navigation of financial aid options and educational programs, and support services)*				
o Mentoring services for youth				
o Assessment services				
o Work experience and work-based learning opportunities.				
o Supportive services *(e.g., transportation, childcare, living expenses, etc.)*				
D. Explore and secure public or private sources *(student aid programs-Pell grants, Ability to Benefit grants and state grant programs; WIOA funding; employer- paid tuition reimbursement programs; and/or scholarships; WIOA Title I and IV, TANF, and TAA/TRA and SNAP/E&T)* to offset participant training fees and other direct customer costs.				
E. Identify and commit funds from partner agencies to apply to each of the core components of career pathways systems. Determine gap funding and seek other related public and private resources to fill the gaps.				

	Minimal Align	Emerging Align	Functional Align	Optimal Align
o DOL WIOA Title IB: Youth, Adult, and Dislocated Workers.				
o DOL WIOA Title III: Employment Services (Wagner-Peyser).				
o DOL Trade Adjustment Assistance.				
o DOL Registered Apprenticeship and Pre-Apprenticeship.				
o ED WIOA Title II: Adult Education and Family Literacy Act.				
o ED Carl D. Perkins Career and Technical Education.				
o ED Pell Grants.				
o ED WIOA Title IV: Vocational Rehabilitation Services.				
o HHS Temporary Assistance for Needy Families (TANF).				
o USDA: Supplemental Nutrition Assistance Program Employment And Training.				
o HUD Employment & Training.				
o Second Change Act of 2007 (ex-offenders).				
o Veterans Employment & Training.				
o Unemployment Compensation.				
o Older Worker Programs (Senior Community Service Program).				
o Community Service Block Grant.				
F. Develop a business plan that documents revenue and expenses to continue the operation and improvement of the career pathways system for long-term sustainability.				
5) Align administrative policies and programs.				
A. Identify state statutory and regulatory barriers to implementing a state or local career pathways system.				
B. Reform state/local policy to align with vision and implementation of a coordinated system for youth and adults.				
C. Align and braid funding for activities that support the state and/or local system.				

	Minimal Align	Emerging Align	Functional Align	Optimal Align
D. Develop policies and procedures that incentivize local/regional career pathways systems by awarding discretionary resources when available.				
E. Build in career pathways strategies in your state and local unified/combined plan.				
F. Address any statutory barrier issues with the Governor's office and attempt to move changes forward through legislatures.				
G. Implement new policies and procedures and communicate across agencies.				
6) Measure system change and performance.				
A. Identify, develop, and define short-term and long-term system, program and participant outcomes not just categorical program outcomes.				
B. Designate in a MOU the data that agencies will collect, store, track, share, and report on.				
C. Report career pathways program outcomes that reveal total resources leveraged and total aggregate impact on system (not simply categorical funding streams). Aggregate outcomes may include # of participants served; of those, # receiving postsecondary credentials, # entering employment including earnings received, # retained in employment; and employer engagement measures.				
D. Agree upon a process/methodology to report system return on investment (ROI) measures and consider measures as change in earnings, reduction in public assistance payments, taxes paid, etc.				
E. Communicate and disseminate outcomes as a system rather than an agency or program.				

Next Steps Action Planning Tool

Purpose: This flexible action planning tool can help the team carry out prioritized action steps identified in the Six Key Elements Readiness Assessment Tool.

Recommended User(s): Members of the leadership team.

When to Use: Use to capture action steps prioritized in the Six Key Elements Readiness Assessment tool. The tool may be a stand-alone document for strategic planning. Regularly revisit and update based on the progress that occurs between planning meetings.

How to Use:

- Review and discuss the tam's key priorities. If the team has completed the Readiness Assessment Tool, they may use this to review priorities.
- List the prioritized activities or indicators in the "Objectives" column.
- Discuss and list the tactics or actions the team will conduct to implement each strategy in the "Tactics/Activities" column.
- Enter the name or initials of the person or persons (or organization) responsible in the "Lead" column.
- Discuss and enter the "expected outcomes" of the actions in the fourth column.
- Enter the timeline for each activity in the fifth column.
- Use the tool to track progress. Enter relevant updates and information about progress and any modifications in the "Progress & Adjustments" column.

Links to Tool:

1. Action Planning Tool with instructions https://learnwork.workforce3one.org/view/2001120642119875739/info

2. Action Planning Tool template https://learnwork.workforce3one.org/view/2001126551586034594/info

NEXT STEPS ACTION PLANNING TOOL **KEY ELEMENT:**					
Priority Objectives *What we will do?*	Tactics/Activities *How we will do it?*	Lead *Who is responsible?*	Expected Outcomes *What is the result?*	Due Date *When will we do it?*	Progress & Adjustments *What have we accomplished?*

Service Mapping Tool

Purpose: Community service mapping is a proven, non-threatening process for identifying each partner's WIIFMs (What Is In It For Me)—the benefits that the organization or agency needs to accrue in order to make collaboration worthwhile. Team members leave the service mapping session with an understanding of partner services and activities; their targeted populations, goals, and objectives; and how they do business. The team member gains information of what skills and workforce development services are necessary within the community to serve the universal and targeted populations. They also learn how to analyze service gaps and duplication in services among participating organizations.

Recommended User(s): A representative from each partner agency providing services in the state/local area. Each representative knows the funding streams of their agency and the purpose and use of the funding.

When to Use: Conduct a service mapping session to gather the baseline data needed for carrying out a service gap analysis for the state/region. The team completes a service-mapping tool for support services and for workforce development services separately.

How to Use:

1. Complete the Agency Criteria Collection Form. Each agency representative completes this form prior to attending the meeting.
2. Identify services. The facilitator should review the list of services around which the partners will provide data.
3. Define services. Discuss and come to consensus on the definition of each service on which data is collected.
4. Review data. Review the data (and the definition of each) that will be collected for each service.
5. Complete the charts. Each partner then completes their personal charts as appropriate for each service:

- List funding sources: Each representative lists in the first column each funding source his or her agency receives that it uses to provide services (one per row). If the agency has more than two funding sources, the representative will need to have multiple sets of the form in order to complete one row for each funding source.
- Populations served:
  - Universal—Highlight universal if the funding source does not have any specific limitations on who may be served with the funds.
  - Targeted— Highlight if funding source limits service to specific groups or population(s) that the service is specifically designed to serve. Partners only make entries for targeted populations if the services are designed to exclusively serve one or more targeted populations with the funding source they are recording.
- How services are provided:
  - Self-service, staff assisted, or both – Highlight as appropriate.
  - Individualized, in groups or both – Highlight as appropriate.
  - Standalone – If the customer can receive the service without enrolling into a program or funding source, highlight "Stand Alone." If the customer can receive the service once enrolled into a program or funding source, leave blank.

  - Language – List in what language(s) other than English the service is offered.
- **Schedule:** Include information about when each service is available.
  - Days/hours per week: Enter the days and hours.
  - Walk-in or appointment – Highlight as appropriate.
- **Fee or free:** Highlight whether this service is free or has a fee.
- **Service area:** Enter the service area (zip code/neighborhood) where the service is offered. If the service is restricted to residents of a service area (zip code/neighborhood) list that in the Target box and highlight "Target" in the first box under the service.

6. **Complete forms:** Once the partners have completed their forms, take the first page from each partner and tape the pages on the wall in a column. Repeat with each page.

- Divide the group into teams (one team for each page column). Have each team review the highlights and determine the gaps, duplications, and augmentations by using the information below. Gaps are those services that are not being provided currently, or do not have enough provided to meet the current need. (Gaps would have no highlights for a column, or would have some highlights but only for targeted populations, with no agency providing for the general population).
- Duplications are those services for which availability exceeds need. (Duplications would have multiple funding sources/agencies highlighting a service and serving the same population or populations).
- Augmentations are those services that are being provided by multiple agencies in order to meet the current demand. (The group would see augmentations as services with multiple highlights for the same service, but provided to different populations, or provided at different times or within different zip codes or in different languages in order to meet community needs.)

7. **Determine gaps:** Discuss the gaps, duplications, and augmentations that are discovered and determine how the gaps and duplications will be addressed.

Links to Tool:

1. Service Mapping Tool with instructions https://learnwork.workforce3one.org/view/2001126552554540652/info

2. Service Mapping Tool template https://learnwork.workforce3one.org/view/2001126552554540652/info

SERVICE MATRIX TEMPLATE PAGE 2 Agency Name_____

Agency/ Funding Source	LABOR MARKET INFORMATION DISTRIBUTION - The process of gathering and disseminating information on current and future job opportunities, including current job openings, local businesses, career information, high demand occupations lists, UI rates, labor force characteristics, and employer information.	TRAINING PROVIDER INFORMATION DISTRIBUTION - The process of gathering and disseminating information on agencies that provide training, including their locations and contact information, costs/fee structures, entrance requirements, application processes, available financial aid opportunities, curriculum and current courses offered, and performance data.	SUPPORT SERVICE INFORMATION DISTRIBUTION - The process of gathering and disseminating information on vendors and providers of support services, including childcare, transportation, healthcare (medical, dental, vision and substance abuse assistance), legal, domestic violence, food, clothing, housing, or utilities, that are necessary to enable an individual to participate in career pathways services and/or to get and keep a job.	SUPPORT SERVICE INFORMATION DISTRIBUTION - The process of gathering and disseminating information on vendors and providers of support services, including childcare, transportation, healthcare (medical, dental, vision, and substance abuse assistance), legal, domestic violence, food, clothing, housing, or utilities, that are necessary to enable an individual to participate in career pathways services and/or to get and keep a job.
	Universal Target Tar: Tar: Self Staff Both Ind Group Both Stand Alone Lang: Days/Hrs: Walk in Appt Both Fee Free Ser Area:	Universal Target Tar: Tar: Self Staff Both Ind Group Both Stand Alone Lang: Days/Hrs: Walk in Appt Both Fee Free Ser Area:	Universal Target Tar: Tar: Self Staff Both Ind Group Both Stand Alone Lang: Days/Hrs: Walk in Appt Both Fee Free Ser Area:	Universal Target Tar: Tar: Self Staff Both Ind Group Both Stand Alone Lang: Days/Hrs: Walk in Appt Both Fee Free Ser Area:
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A Federal Funding Toolkit for State and Local/Regional Career Pathways Partnerships, Funding Options Worksheet

Purpose: CLASP's career pathways funding Toolkit is designed is to help interagency state teams identify and use Federal resources to support career pathways models. The latest edition includes program profiles reflecting WIOA legislative and administrative changes to key Federal programs.

Recommended User(s): Members of the leadership team at the state or local level

When to Use: Periodically to identify and/or capture resources from Federal sources that the partnership has not leveraged.

How to Use:

- Review the key tasks for building career pathways in the funding options worksheet.
- Review the Federal program summaries and appendix on support services and complete the worksheet with specific information.
- Identify policy changes or actions needed to remove barriers to supporting career pathways or to encourage wider use of Federal resources to support these approaches.

Link to Tool: http://www.clasp.org/documents/Toolkit-pdfs/worksheet.pdf

Sample Partner Agreements

Purpose: The purpose of a partner agreement (also known as a Memorandum of Understanding) is to outline the roles and responsibilities of each of the state/local players within the state/local career pathways system.

Recommended User(s): Partners committing resources in the form of time, money, personnel, etc. that have a stake in the state or local career pathways system.

When to Use: Initially when career pathways teams are established and agreements made pertaining to the roles and responsibilities of each partner. The partner agreement should be updated periodically, whenever roles and responsibilities change or new partners join the team. Financial agreements should always be in writing.

How to Use: Reference the link below to see a sample of a completed partner agreement. Typically, a partner agreement should include the following information. A state or local leadership team can use the sample and this outline to help develop their own partnership agreement.

I. Partner agency and corresponding funding sources
II. Partner agency and a list of their roles and responsibilities
III. Partner agencies' joint responsibilities
IV. Intermediary, if agreed upon
V. Intermediary roles and responsibilities
VI. Resolution of Disagreement if present
VII. Amendment to agreement if changed
VIII. Duration of agreement
IX. Merger with previous agreements
X. Signature page

Link to Tool: https://learnwork.workforce3one.org/view/2001126942046585407/info

Competency Model Clearinghouse

Purpose: To help business, educators, and workforce professionals identify the essential knowledge, skills, and abilities necessary to complete job tasks that are essential to an occupation within a business or industry sector. The competency model clearinghouse allows one to add to existing competency models already vetted with employers, to edit an existing model to account for changing industry requirements, or to delete a competency model that is no longer valid.

Recommended User(s): Businesses, educators, and workforce professionals

When to Use: Whenever a business, educator, and/or workforce professional explores the essential functions of a job and wishes to validate those functions against industry standards in order to develop training programs for a specific job or group of related jobs within an industry.

How to Use: The website provides step-by-step directions on how to build a competency model.

Link to Tool: http://www.careeronestop.org/competencymodel/

Career Pathways Resources

In addition to the tools referenced in Section 2.1, there are a variety of career pathways related resources available online. The following resources were identified as helpful by the developers of the Toolkit, Federal staff, and/or state and local partners who provided input into the Toolkit during its development. Each resource is categorized by type (e.g., report, webinar recording) and includes a brief description of the resource and a link to the website where the resource can be found.

Career Pathways Catalogs and Clearinghouses

Career Pathways Toolkit Catalog

U.S. Department of Health and Human Services, Administration for Children and families

https://cpToolkitcatalog.peerta.acf.hhs.gov/

The Departments of Education, Health and Human Services, and Labor engaged in a joint venture to catalog tools and Toolkits that promote actionable instructions on how to turn a commitment to career pathways into a reality. Toolkits were selected for this catalog because they provide clear action steps for starting a career pathways initiative and help different sectors—education, workforce, human services, industry, and policy—learn to communicate with each other about their resources and priorities.

CTE Clearinghouse: Business Partnerships and Community Involvement

Association for Career and Technical Education (ACTE).

https://www.acteonline.org/clearinghouse_partnerships/#.VLLN6NLF-So

Through business and community partnerships, CTE programs help students prepare for the workforce and use their expertise to help the local community and those in need. The following resources include articles, policy papers and peer-reviewed research as well as electronic media on how to effectively partner with businesses and community organizations.

National Coalition of Certification Centers

http://www.nc3.net/

The National Coalition of Certification Centers (NC3) was established to address the need for strong industry partnerships with educational institutions in order to develop, implement, and sustain industry-recognized portable certifications that have strong validation and assessment standards. The NC3 provides comprehensive curriculum development and access to skill-standard certifications. Curriculum is developed collaboratively with industry experts and educators and the certifications validate skill sets required to meet performance standards.

Reports and Publications

A Resource Guide to Engaging Employers

Jobs for the Future, January 2015
http://www.jff.org/publications/resourceguide-engaging-employers

This resource guide presents working models of successful employer engagement and lessons for securing and sustaining partnerships with employers. It was written to help education and training providers fully realize the value of strategic, long-term, and intensive partnerships with employers. The resource leads readers through a continuum of activities supporting these partnerships, with each level involving deeper engagement and integration of employers into the work.

Braided Funding Toolkit

Jobs for the Future, 2014
http://application.jff.org/braided_funding_Toolkit/

In Accelerating Opportunity, braided funding, the weaving together of various state, Federal, and private funding streams, along with funding strategies, is critical to implementing integrated career pathways. The Braided Funding Toolkit provides Accelerating Opportunity state teams and colleges with resources to identify the major Federal and state funding streams that may be available to support integrated career pathways and their students. The Toolkit, built in part from the Center for Law and Social Policy's Federal Funding for Integrated Service Delivery Toolkit, is designed to support state and college teams through the complex process of developing a comprehensive, sustainable funding model for integrated pathways.

Career and Technical Programs of Study: A Design Framework

U.S. Department of Education, Carl D. Perkins Career and Technical Education Act of 2006
http://cte.ed.gov/initiatives/programs-of-study

This brief outlines the career and technical programs of study design framework developed by the Office of Career, Technical, and Adult Education in order to receive Perkins funds. The framework identifies a system of 10 components that, taken together, support the development and implementation of effective programs of study.

Career Ladders for the Hard to Employ

Social Policy Research Associates, September 2010
Commissioned by U.S. Department of Labor
http://www.careerladdersproject.org/docs/Issue%20Brief.pdf

Based on the successful practices employed by a range of career pathways programs for low-skill, unemployed individuals, this presents a set of six principles that should be the basis for the development of any program intending to use career ladder strategies as a means of bringing hard-to-place individuals into the workforce and keeping them there.

Creating Career Pathways for Frontline Health Care Workers

Jobs for the Future, January 2011
http://www.jff.org/publications/creating-career-pathways-frontline-health-care-workers

An effective, efficient workforce is essential to addressing rising costs in the health care industry. Nevertheless, effective investments in career advancement for frontline health care workers are limited. Creating Career Pathways for Frontline Health Care Workers focuses on promising practices drawn from Jobs to Careers. At 17 sites around the country, the initiative explores new ways to help frontline health care workers get the skills they need to provide quality care and build a sustainable career. It helps health care providers improve the quality of patient care and health services by building the skills and careers of their frontline employees.

Effective Case Management: Key Elements and Practices from the Field

Mathematica Policy Research, June 2011. Commissioned by U.S. Department of Labor
http://www.mathematica-mpr.com/~/media/publications/PDFs/labor/case_management_brief.pdf

This issue brief provides examples of key elements and practices for effective case management in the workforce system. It provides examples of state and local tools, processes, and policies designed to create or improve case management. An annotated list of relevant case management resources is also included.

Employer Resource Networks - Uniting Businesses and Public Partners to Improve Job Retention and Advancement for Low-Wage Workers

Mathematica Policy Research, June 2010. Commissioned by U.S. Department of Labor
http://www.mathematica-mpr.com/~/media/publications/PDFs/labor/WIRED_brief1.pdf

This issue brief describes the Employer Resource Network (ERN), an innovative, employer-based model that pulls together a consortium of small- to mid-size businesses to provide job retention services, work supports, and training opportunities for entry-level employees, many of whom are receiving public assistance. ERNs also include strong partnerships with other service delivery systems and organizations such as social service agencies, workforce development agencies, chambers of commerce, and community and technical colleges. To date, this particular employer-based service model has been implemented at six sites within four counties in Michigan, involving 45 employers. The following description is intended to provide an overview of key features of the ERN model so that other employers and government agencies—most notably workforce development agencies—may consider whether and how ERNs or a similar approach might be used to develop new services or enhance existing ones in their own local communities.

The First Year of Accelerating Opportunity: Implementation Findings from the States and Colleges

Jobs for the Future, September 2014
http://www.jff.org/publications/first-year-accelerating-opportunity-implementation-findings-states-and-colleges

Beginning in 2012, the Accelerating Opportunity initiative provided $1.6 million in grants to five states. The grants were to help community colleges create career pathways programs to enroll students with low basic skills into for-credit career and technical education courses to improve their educational and employment outcomes. A rigorous and comprehensive evaluation of Accelerating Opportunity includes a non-experimental impact study, an implementation study, and a cost-benefit analysis. This first report provides key findings on the pathways, students, resources, partnerships, culture shifts, and policy developments from the first year of implementation of the initiative.

Framework for Measuring Career Pathways Innovation

Center for Law and Social Policy (CLASP), February 2013
http://www.nationalresourcenetwork.org/en/Document/305891

This working paper examines three elements of career pathways metrics development and provides an overview of what state and local/regional career pathways systems have done in relation to those elements.

Funding Career Pathways and Career Pathway Bridges: A Federal Policy Toolkit for States

Center for Law and Social Policy, February 2015
http://www.clasp.org/issues/postsecondary/pages/funding-career-pathways-and-career-pathway-bridges-a-Federal-funding-Toolkit-for-states

Earlier editions of this funding Toolkit were widely cited and used at the Federal, state, and local levels. This new edition includes revised program profiles reflecting the Workforce Innovation and Opportunity Act legislative and administrative changes to key Federal programs. Of all the elements of career pathways, support services are among the most important to student success; they are also the most difficult to fund. An updated appendix identifies 10 Federal funding sources that can be used to provide a wide range of support services for participants in career pathways.

Innovative Strategies for Increasing Self-Sufficiency Study

U.S. Department of Health and Human Services, Administration for Children and Families, April 2014
http://www.acf.hhs.gov/programs/opre/resource/innovative-strategies-for-increasing-self-sufficiency-study

This summary is an easy-to-read overview of the Innovative Strategies for Increasing Self-Sufficiency project: a major national effort to evaluate the effectiveness of nine career pathways programs using an experimental design. The summary includes the framework for career pathways programming, the promise of these programs, and a list of the nine programs being evaluated in the study.

Leveraging Funding Opportunities for Disadvantaged Populations: Strategies and Sources

Social Policy Research Associates, September 2010. Commissioned by the U.S. Department of Labor
http://www.mathematica-mpr.com/~/media/publications/pdfs/labor/wired_brief2.pdf

In this information and resources are provided that are intended to help strategic leaders in the workforce and career development fields—as well as their counterparts in education and social services—leverage funding to support the comprehensive needs of disadvantaged populations. Readers will find four key elements: strategies for leveraging funding to support services for disadvantaged populations; tips for locating funding and for navigating websites containing Federal grant information; an index of existing Federal grants relevant to agencies, organizations, and alliances providing services; and systems development to reach and support disadvantaged populations.

Pathways to Prosperity Network: A State Progress Report, 2012-2014

Jobs for the Future, August 2014
http://www.jff.org/sites/default/files/publications/materials/Pathways-to-Prosperity-for-Americas-youth-080514.pdf

The Pathways to Prosperity Network includes eight state members—California, Georgia, Illinois, Massachusetts, Missouri, New York, Ohio, and Tennessee—doing significant work in creating career pathways in grades 9-14. Two more states, Arizona and Delaware, joined the Network in June 2014. This report is a letter to the field about what's been accomplished to date. As is often the case in such initiatives, the results thus far are due to a combination of good luck, good timing, deep knowledge of implementation, and a simple but urgent message and strategy. The unique stories of the developments in each state are included in this report, as well as observation and description of key aspects of this work across the states in the Network as a group.

Policy to Performance Toolkit

U.S. Department of Education, 2012
https://lincs.ed.gov/professional-development/resource-collections/profile-187

The Policy to Performance Toolkit is designed to provide state adult education staff and key stakeholders with guidance and tools to use in developing, implementing, and monitoring state policies and their associated practices that support effective state ABE to postsecondary transition systems. It is based on the processes and findings from the Policy to Performance project. The tools and practices utilized in the project were compiled into a comprehensive and interactive Toolkit that provides users with guidance and strategies for strengthening existing or developing new ABE state transition systems. The Policy to Performance Toolkit offers users downloadable resources and writable tools, as well as provides examples of how participating states applied the tools and processes discussed in the Toolkit.

Policy Meets Pathways: A State Policy Agenda for Transformational Change

Jobs for the Future, December 2014
http://www.jff.org/publications/policy-meets-pathways-state-policy-agenda-transformational-change

Policy Meets Pathways: A State Policy Agenda for Transformational Change argues that campuses and states must do more than establish metrics for success, change transfer policies, provide better academic advising, and support pilots targeting specific student subgroups. Community colleges need to redesign pilot projects and ad hoc interventions into structured or guided pathways that reshape every step of the student experience. States need to redouble their efforts to modernize policies, and develop more effective approaches that support campuses and build capacity to strengthen implementation.

The Promise of Career Pathways Systems Change and Initiatives

Jobs for the Future, July 2012. Commissioned by the U.S. Department of Labor
http://www.jff.org/publications/promise-career-pathways-systems-change

This paper, written for the U.S. Department of Labor by Jobs for the Future, 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.

Relationship Between WIOA Performance Measures and Alliance for Quality Career Pathways Metrics

Center for Law and Social Policy, January, 2015
http://www.clasp.org/resources-and-publications/publication-1/Relationship-between-WIOA-Performance-Measures-and-AQCP-Career-Pathway-Metrics-1.pdf

This paper looks at the relationship between the WIOA performance measures and the metrics developed by the Alliance for Quality Career Pathways. WIOA includes common performance measures, or "primary indicators of performance," for its six core programs (Title I Youth program, Title I Adult program, Title I Dislocated Worker program, Title II Adult Education and Family Literacy program, Title III Employment Service, and Title IV Rehabilitation Services program). While there are variations in the Title I Youth program and Title III Employment Service, most measures are consistent across all six programs. This is the broadest application to date of common measures across the workforce system; it signals Congressional intent to promote more integrated programming and accountability at the state and local levels.

Shared Accountability in WIOA and Career Pathways

Center for Law and Social Policy, December 2014
http://www.clasp.org/resources-and-publications/publication-1/WIOA_sharedaccountability.pdf

In order to broaden the discussion about "shared accountability" across various programs, this paper provides a working definition and outlines WIOA provisions that encourage greater integration of accountability policies. It also describes the policy components that comprise a performance management system. The paper then presents a proposed framework for how shared accountability could be implemented through these policy components; it includes six distinct levels of progressively greater policy integration. This framework is based on discussions that took place during the development of the Alliance for Quality Career Pathways (AQCP) participant metrics. Finally, the paper includes questions to guide further

discussion of shared accountability.

Shared Vision, Strong Systems: The Alliance for Quality Career Pathways Framework Version 1.0

Center for Law and Social Policy, June 2014
http://www.clasp.org/resources-and-publications/files/aqcp-framework-version-1-0/AQCP-Framework.pdf

The AQCP 1.0 Framework is a concrete resource to assist with the Alliance's goal and objectives. The framework includes three parts: a) definitions and a conceptual model, b) criteria and indicators for quality career pathways systems, and programs, and c) career pathways participant metrics.

State Sector Strategies Coming of Age: Implications for State Policy Makers

National Governor's Association, January 2013
http://www.nga.org/cms/home/nga-center-for-best-practices/center-publications/page-ehsw-publications/col2-content/main-content-list/state-sector-strategies-coming-o.html

This paper offers a snapshot of sector strategies, an overview of what makes them different from traditional workforce and economic development programs, and a description of actions that state administrators and policymakers can take as part of a policy framework to support the strategies' creation and effective operation.

Statewide Data as a Lever for Systems Change: Experiences and Lessons from Shifting Gears

The Joyce Foundation, September 2010
http://www.joycefdn.org/shifting-gears/reports/

As part of their work to make state education and skills development systems work better for low-skilled adults, states in the Shifting Gears initiative are using data to better understand and document low-skilled adult education and skills-development issues, and to help build awareness and support for improved public policies as well as institutional and systems change. This paper describes how each of the Shifting Gears states are using data to foster improvements in policy and practices and highlights the "lessons learned" from the work that has been done to date.

Strengthening State Systems for Adult Learners: An Evaluation of the First Five Years of Shifting Gears

The Joyce Foundation, December 2014
http://www.joycefdn.org/shifting-gears/reports/

An evaluation of five years of investments in six states to significantly increase the number of low skilled adults with the education and skills they need to succeed in the 21st century economy. The overarching evaluative questions answered by this report from the first five years of Shifting Gears are: 1)To what extent did states began to adopt and implement an innovative strategy to improve transitions from adult basic education into community and technical colleges, including serving participants in these new ways? 2) What are the factors that influenced progress in the states to adopt and implement these innovative strategies during the initiative?

Using Dashboards for State Workforce Planning

National Skills Coalition, February 2015
https://www.nationalskillscoalition.org/resources/publications/file/sweap_using_dashboards_for_state_workforce_planning.pdf

This report explains how states can create dashboards to help state policymakers assess key outcomes across their state's education and workforce programs, and in turn, set workforce policies that help residents get jobs while providing employers with skilled workers. A small handful of states have created highly functional, easily accessible, and comprehensible dashboards with rich content about a wide array of workforce and education programs and their outcomes. Drawing on the experience of some of these states, this report describes the steps that states can take to create dashboards, and how they can be used for state workforce planning and policymaking.

Using Pathway Evaluators for State Workforce Planning

National Skills Coalition, February 2015
http://www.nationalskillscoalition.org/resources/publications/file/SWEAP_Pathway_Evaluator_Report.pdf

This report explains how states can create and use "pathway evaluator" tools to better understand what pathways achieve the best labor market outcomes for which groups of people. The paper discusses the basic pieces of information necessary to create pathway evaluators, including: choosing populations of interest; defining cross-program participation; and identifying shared outcomes. It also describes the data systems required to create pathway evaluators and the policy issues that must be addressed to support such data systems. It explains how pathway evaluators can be used to inform career pathway policies and practices, providing examples from Washington State and Texas. While pathway evaluator findings thus far have mostly been presented in a static, report format, this paper describes the next generation of pathway evaluator tools that are web-based and interactive. This paper concludes with a list of considerations for policymakers and analysts who want to create pathway evaluator tools.

Relevant Federal Websites and Initiatives

Advancing CTE in State and Local Career Pathways Initiative

U.S. Department of Education, Office of Career, Technical and Adult Education (USED/ OCTAE), October, 2012
http://cte.ed.gov/initiatives/advancing-cte-in-state-and-local-career-pathways-system

The Office of Career, Technical, and Adult Education (OCTAE) launched a three year project in October 2012 to advance career and technical education (CTE) in state and local career pathways systems, which are designed to prepare students to transition into careers and college. The initiative builds on the U.S. Department of Labor's (DOL) Career Pathways Technical Assistance Initiative, and is designed to help states integrate CTE programs of study into broader career pathways system development efforts already underway. In January 2013, five states were selected for participation through a competitive process: Colorado, Kansas, Massachusetts, Minnesota, and Oregon. Each state team has a coach and subject matter experts available to help them develop and implement their action plan and achieve their goals. A contract was awarded to Jobs for the Future to lead the state coaches using key elements, strategies, and tools presented in the Career Pathways Toolkit: Six Key Elements for Success. The coaches and experts will adapt and augment the strategies in the Toolkit to meet the personalized needs of the states. The state teams will receive technical assistance through online and face-to-face meetings and by sharing information, resources, and ideas with other participating state teams via a web presence. In August 2013, the U.S. Department of Transportation (USDOT) invested funds to support activities that focus on Transportation Career Pathways.

Forging New Pathways: The Impact of the Breaking Through Initiative in Michigan

Jobs for the Future, November 2012
http://www.jff.org/publications/forging-new-pathways-impact-breaking-through-initiative-michigan

The Michigan Center for Student Success commissioned this study to determine whether strategies employed to improve adult students' success at 41 Breaking Through colleges nationwide have taken root at Michigan's original colleges and spread beyond them. A statewide survey revisited four of the colleges profiled in previous publications, and the research looked more closely at two additional colleges that have experimented with Breaking Through-type programs.

From the Ground Up: Creating Sustainable Partnerships between Public Housing Authorities and Workforce Investment Boards

U.S. Department of Housing and Urban Development and U.S. Department of Labor, Spring 2014
http://portal.hud.gov/hudportal/documents/huddoc?id=14_dol_publication.pdf

This partnership encourages Public Housing Authorities (PHAs) to work collaboratively with Workforce Investment Boards (WIBs) and the American Job Center network (formally known as the One-Stop Career System or One-Stop locations) in identifying opportunities to train and place public housing residents into jobs created by PHAs' capital improvement projects.

Joint Career Pathways Letter

U.S. Departments of Education, Labor, and Health and Human Services, April 2012
http://wdr.doleta.gov/directives/attach/TEN/ten_36_11_att.pdf

A joint letter from three Federal agencies committing to an on going partnership to build strong state and local career pathways systems.

Office of Apprenticeship

U.S. Department of Labor
http://www.doleta.gov/OA/

The U.S. Department of Labor's Office of Apprenticeship offers employers in every industry the tools to develop a highly skilled workforce to help grow their business. For workers, the Office of Apprenticeship offers opportunities to earn a salary while learning the skills necessary to succeed in high-demand careers. The link includes more information for both employers and workers, as well as information about grant funding opportunities to support employers and workers.

Pathways for Youth Employment: Federal Resources for Employers

The White House, February 2015
https://www.whitehouse.gov/sites/default/files/docs/pathways_for_youth_employment_Federal_resources_for_employers_feb_2015.pdf

This handbook outlines a number of Federal resources available to organizations that offer entry-level opportunities to young adults, including at-risk youth. Many of these resources are available to all employers, including private businesses, non-profits, faith and secular community-based organizations, public agencies, Indian tribes, labor organizations and academic institutions. Additional resources may be available on a state and regional level.

Statewide Longitudinal Data Systems (SLDS)

U.S. Department of Education, November 2005
http://www2.ed.gov/programs/slds/factsheet.html

The program provides grants to states to design, develop, and implement statewide P-20 longitudinal data systems to capture, analyze, and use student data from preschool to high school, college, and the workforce

Workforce Data Quality Initiative

U.S. Department of Labor, 2010
http://www.doleta.gov/performance/workforcedatagrant09.cfm

In 2010, the U.S. Department of Labor (DOL) launched round one of WDQI to fund development of state workforce longitudinal databases—a joint undertaking with the U.S. Department of Education (ED) that will build on the Statewide Longitudinal Data Systems (SLDS) initiative that ED has underway—to encourage the development of state education and workforce longitudinal administrative databases. Collecting these and other data sources longitudinally will provide a comprehensive picture of workers' earnings throughout their careers. Through analysis, these data will demonstrate the relationship between education and training programs, as well as the additional contribution of the provision of other employment services.

State and Local Program Profiles, Resources, and Tools

Career Clusters Guidance

Kansas State Department of Education, 2014
http://www.ksde.org/Portals/0/CSAS/CSAS%20Home/CTE%20Home/Career_Cluster_Pathway/2014-2015%20Cluster%20Handbook.pdf

Career cluster pathways are designed to provide a smooth transition from postsecondary education (community colleges, technical colleges, and universities), apprenticeship opportunities, the military, and/or the workplace. Stakeholders from education, business, and industry developed the courses that enable the transition. Kansas has developed 36 pathways that address the needs for high skill, high wage, and high demand careers in the 21st century.

Career Pathways Roadmap Portfolio

Portland Community College
http://www.pcc.edu/career/pathways/RoadMapPortfolio.html

Roadmaps are user-friendly, visual representations of the interaction between educational programs, and labor market information that assist students with their career and educational decision-making. Common elements of roadmaps include skill set breakdowns, labor market forecasts, occupational information, and college courses associated with certificates, credentials, and degrees leading to employment in the particular field. Portland Community College in Oregon has assembled a variety of roadmaps for careers and educational programs in areas such as accounting, computer information systems, gerontology, and retail management.

Kentucky Center for Education and Workforce Statistics

http://kcews.ky.gov/

The Kentucky Center for Education and Workforce Statistics (KCEWS) collects and links data to evaluate education and workforce efforts in the Commonwealth. This includes developing reports and providing statistical data about these efforts so policymakers, agencies, and the general public can make better informed decisions.

Implementing the Colorado Blueprint through Regional Sector Partnerships

Collaborative Economics and the Woolsley Group on behalf of the Colorado Workforce Development Council, 2014
http://www.sectorssummit.com/Toolkit/

The Sectors Summit Toolkit has been assembled to help interested organizations and individuals implement sector partnerships. Inside the Toolkit users find a number of valuable resources, specially designed to support efforts to expand regional workforce, education and economic development partnerships with industry for Colorado.

Ohio Stackable Certificate: Models for Success

Community Research Partners, February 2008
http://www.workingpoorfamilies.org/pdfs/Ohio_Stackable.pdf

Based on the research findings, CRP developed a proposed framework for Ohio's system of stackable certificates that is most likely to produce success for adults, employers, and education programs. The framework, which builds upon and augments existing Ohio program models, is designed to deliver pre-college academics and for-credit job training to adults whose math, reading, writing, or language skills fall somewhere between a sixth grade level and a high school credential. These are the adults with the greatest barriers to moving to a level of the postsecondary education system where they can earn college credits.

Oregon Career Pathways Web Tool Open Source Mapping Software

The Oregon Department of Community Colleges and Workforce Development (USDOL/ETA)
http://oregon.ctepathways.org

USDOL/ETA (working in partnership with Oregon's 17 community colleges through the Oregon Pathways Alliance) developed the Career Pathways Roadmap Web Tool to provide visual maps using web technology for students and citizens to learn more about education, training, occupations, careers, and the labor market in Oregon. State agencies, educational institutions, and organizations are welcome to download the source code to develop a comparable Web Tool for the students and citizens in their state or region. The Web Tool was developed with funds from the US Department of Labor, Employment and Training Administration (USDOL/ETA) and the Oregon Community College.

Oregon Student Persistence and Completion Initiatives

http://ccwd.oregon.gov/studentsuccess/default.aspx

A graphic that describes Oregon's journey in implementing career pathways. It provides milestones and momentum points from pre-college courses to certificate degree completion. The website also lists links to 27 best practices from Oregon.

Self-sufficiency Calculator for Washington State

Workforce Development Council of Washington State, 2013
http://thecalculator.org/

The calculator measures how much income is needed for a family of a given composition—ranging from a one-person household to a large family—in a given place, to adequately meet its basic needs without any public or private assistance.

Smart Investments – Real Results: A Net Impact Evaluation of Minnesota's Workforce Development System and Initial Findings

Minnesota Department of Employment and Economic Development, January 2015
http://www.gwdc.org/initiatives/roi/

A net impact evaluation measures the outcomes of program participants compared against a control group of similar non-participants. It uses advanced statistical techniques to account for factors like participant demographics, work history, and local economic conditions, seeking to isolate the impact of the program itself.

Webinars and Training Videos

Best Practices for Career Pathways and Credentials: the Minnesota and Kansas Models

U.S. Department of Labor. Webinar held January 10, 2014
https://careerpathways.workforcegps.org/announcements/2015/02/18/12/22/Best_Practices_for_Career_Pathways_and_Credentials

States and local areas across the country are developing career pathways models to better align education and training programs with employer needs. This archived webinar highlights two of those models to provide specific "how to" information for others interested in developing career pathways initiatives.

Career Pathways Initiative: Building Cross-Agency Partnerships

U.S. Department of Labor and Social Policy Research Associates Webinar held March 2011
https://www.workforce3one.org/view/5001104843457641130/info

This webinar provides an introduction of the elements of cross-agency partnerships, with highlights of three promising partnerships. For career pathways to succeed, multiple organizations must collaborate to support career entry and job advancement in the target sector. Career pathways partnerships often involve educational entities, workforce and economic development organizations, community organizations, and employers. While the composition and roles in an actual partnership will depend on the goals of the effort, the pre-existing relationships among the prospective partner organizations and the capacities and resources of each provide the building blocks of a career pathways system.

Dollars and Sense: Using Federal Resources to Fund Career Pathways and Bridges

Center for Law and Social Policy, November 2010
http://www.clasp.org/resources-and-publications/webinar-dollars-and-sense-using-Federal-resources-to-fund-career-pathways-and-bridges

This webinar provides information about how interagency state teams can "braid" together Federal funds to create a customized career pathways funding strategy. Program directors talk about their state's funding strategy and how they're using career pathways to help low-skilled adults and youth attain postsecondary credentials and achieve economic mobility.

Train-the-Trainer at West-Mec, Phoenix, Arizona

National Center for Career Certification Centers, March 2015
https://www.youtube.com/watch?v=e_svey34dbg

A video created during a train-the-trainer session for college level instructors, which demonstrates the power and importance of creating stackable credentials for students with curriculum that is employer-vetted and approved by industry. The video was produced by the National Center for College and Career Transitions (NC3T).

Your Career, Your Future
Wisconsin Technical Colleges, 2013
https://www.youtube.com/watch?v=xNh26wXJySQ
A video prepared to aid students in selecting a career field that is in demand in their local labor market.

SECTION THREE
CAREER PATHWAYS REFERENCES

Career Pathways Glossary

Ability to Benefit (ATB): Students who lack a high school diploma or High School Equivalency certification can qualify for Pell Grants by demonstrating their capacity to succeed in a higher education program either through passing a government-approved test or through satisfactory completion of six credit hours towards a certificate of degree.
For more info see: http://www2.ed.gov/policy/highered/reg/hearulemaking/2009/atb.html

Academic Credit: The unit of measurement an institution awards when the determined course or subject requirement(s) is fulfilled.

Accredited: The goal of accreditation of educational programs is to ensure that the education provided by institutions of higher education meets acceptable levels of quality. The U.S. Department of Education maintains a website on "Accreditation in the United States" at http://www2.ed.gov/admins/finaid/accred/index.html that provides lists of regional and national accrediting agencies recognized by the US Secretary of Education as reliable authorities concerning the quality of education or training offered by the institutions of higher education.

Adult Basic Education (ABE): Also referred to as ABS (Adult Basic Skills). Refers to pre-college, non-credit instruction in reading, writing, mathematics, and English language skills, to help adult learners obtain a High School Equivalency (HSE) credential or enroll in postsecondary education.

Apprenticeship: Apprenticeship is a combination of on-the-job training and related instruction in which workers learn the practical and theoretical aspects of a highly skilled occupation. Apprenticeship programs can be sponsored by individual employers, joint employer and labor groups, and/or employer associations. The Department of Labor's role is to safeguard the welfare of apprentices, ensure equality of access to apprenticeship programs, and provide integrated employment and training information to sponsors and the local employment and training community.

Apprenticeship Certificate: The Registered Apprenticeship system offers two types of credentials:

- Certificate of completion of an apprenticeship program; and
- Interim credentials.

The Apprenticeship Certificate means documentary evidence that the Office of Apprenticeship has approved a set of National Guidelines for Apprenticeship Standards developed by a national committee or organization, joint or unilateral, for policy or guideline use by local affiliates, as conforming to the standards of apprenticeship set forth in 29 CFR part 29.5: a registration agency has established that an individual is eligible for probationary employment as an apprentice under a registered apprenticeship program; a registration agency has registered an apprenticeship program as evidenced by a certificate of registration or other written indicia; a registration agency has determined that an apprentice has successfully meet the requirements and demonstrated the acceptable skill levels to receive an interim credential; or a registration agency has determined that an individual has successfully completed an apprenticeship.

Assessment: The use of standardized instruments, interviews, or other means to determine factors that may contribute to the success of students in career and technology programs. These factors may include interest, aptitude, academic achievement, work experience, learning style, work values, and other traits. Assessment may also be administered to determine progress attained by students during training or areas of need to address through remediation.

AA (Associate of Arts) Degree: The Associate of Arts degree normally requires at least two, but less than four, years of full-time equivalent college work and can be applied toward a Bachelor of Arts degree.

AAS (Associate of Applied Science) Degree: The AAS degree (with the occupational field specified) prepares an individual to enter skilled and/or paraprofessional occupations or to upgrade or stabilize their employment. Certain courses/certificates within the degree or the entire AAS degree apply towards a baccalaureate degree at some four-year institutions.

AS (Associate of Science) Degrees: The Associate of Science Degree normally requires at least two, but less than four, years of full-time equivalent college work and can be applied toward a Bachelor of Science Degree.

Basic Skills: Basic academic and tutorial services designed to increase literacy levels, upgrade literacy, and improve listening and speaking skills.

Braided Funding: Braided funding is a funding and resource allocation strategy that taps into existing categorical funding streams and uses them to support unified initiatives in as flexible and integrated a manner as possible. Braided funding streams remain visible to program operators but invisible to the participants benefiting. Braided funding maximizes the strengths of each partner and builds an overall more effective system. Each public funder maintains responsibility for tracking and accountability of its funds.

Bridge Programs: Programs designed for individuals whose skills do not meet minimum requirements for degree certificate programs. Bridge programs allow learners to start from their current skill level and develop the basic skills they need to begin the training program that is their ultimate goal. Pre-college "bridge" programs provide low-skilled adults with "on-ramps" (entry points) to postsecondary education and training. These are generally accelerated or contextualized programs that integrate adult basic education (including, as appropriate, English language learners) with occupational skills training and result in credit-bearing certificates and degrees that are valued by employers and can be applied toward additional education or training.

Career Academies: Operating as schools within schools, career academies are small learning communities, which are organized around such themes as health, business and finance, computer technology, and the like. Academy students take classes together, remain with the same group of teachers over time, follow a curriculum that includes both academic and career-oriented courses, and participate in work internships and other career-related experiences outside the classroom. Over time, improving the rigor of academic and career-related curriculum has become an increasingly prominent part of the career academies agenda.

Career Awareness: Activities designed to help students understand the role of work, one's own uniqueness, and basic knowledge about different occupations.

Career Technical Education (CTE): Career and technical education is a term applied to schools, institutions, and educational programs that specialize in career-focused programs that prepare students both for college and careers. Career and technical education programs offer both academic and career-oriented courses, and many provide students with the opportunity to gain work experience through work-based learning, such as internships, on-the-job training, and industry-certification opportunities. Career and technical education programs provide a wide range of learning experiences spanning many different career fields and industry sectors. Career and technical education may be offered in middle schools, high schools, vocational-technical schools, or through community colleges and other postsecondary institutions and certification programs.

Career Clusters: A group of occupations and broad industries based on common knowledge and skills.

Career Interest Inventory: Carefully constructed questionnaires that enable an individual to identify preferred activities that are then correlated to career clusters

Career Ladder/Career Lattices: Career ladders and lattices consist of a group of related jobs that make up a career. They often include a pictorial representation of job progression in a career, as well as detailed descriptions of the jobs and the experiences that facilitate movement between jobs. Career ladder/lattices are not necessarily organization-specific; they frequently span multiple organizations because movement within one organization may not be possible. Career ladders display only vertical movement between jobs. In contrast, career lattices contain both vertical and lateral movement, and may reflect more closely the career paths of today's work environment.

Career Pathways: The term "career pathway" means a combination of rigorous and high-quality education, training, and other services that:

- Aligns with the skill needs of industries in the economy of the state or regional economy involved;
- Prepares an individual to be successful in any of a full range of secondary or postsecondary education options, including registered apprenticeships;
- Includes counseling to support an individual in achieving the individual's education and career goals;
- Includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster;
- Organizes education, training, and other services to meet the particular needs of an individual in a manner that accelerates the educational and career advancement of the individual to the extent practicable;
- Enables an individual to attain a secondary school diploma or its recognized equivalent and at least one recognized postsecondary credential; and
- Helps an individual enter or advance within a specific occupation or occupational cluster.

Carl D. Perkins Career and Technical Education Act of 2006: Federal legislation approved in 2006 with the purpose to more fully develop the academic, career, and technical skills of secondary and postsecondary education students who elect to enroll in career and technical education programs. Perkins funds provide limited resources for the development, improvement, and operation of CTE programs. For more information see: http://www2.ed.gov/policy/sectech/leg/perkins/index.html

Case Management: Case Management is the responsibility for directing and managing a student's participation in the program, which typically includes non-instructional activities such as recruitment, retention, program component navigation, life skill or life issue assistance, academic, career or personal counseling, financial aid guidance, and other supportive services.

Certificate: A formal award certifying the satisfactory completion of a postsecondary education program.

Certification/Personnel Certification: A certification indicates that the individual has acquired the necessary knowledge, skills, and sometimes personal attributes (based on a formal study) to perform a specific occupation or skill. The certification process is based on a formal study

that has validated the necessary knowledge, skills, and sometimes personal attributes that have been assessed (through examinationsthat have been determined to be fair, valid, and reliable) and affirmed (re-certification) at a designated interval. The certificate that is given is owned by the certification body and can be taken away from the certified person for reasons of unethical behavior or incompetence after an appropriate process.

"Chunked" Curriculum: Also referred to as modularized curriculum. Curriculum that is divided into more manageable "chunks" or modules with the purpose of improving degree completion rates among non-traditional learners. Generally, each chunk leads to employment and connects to the next chunk, eventually leading to completion of an industry-recognized professional-technical degree. Chunking is one element in a comprehensive career pathways system.

Core Academic Subjects: The term core academic subjects means English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography.

Competency-based Curriculum: A program of study based on competency models that identify the knowledge, skills, and abilities necessary to successfully perform critical work functions in an industry or occupation.

Contextualized Instruction: Instruction that embeds traditional academic content (e.g., reading, writing, mathematics) within content that is meaningful to students' daily lives and/or interests. Information is usually related to general workplace skills or a specific field or trade.

Credentials: There are many different types of credentials offered or awarded by various types of organizations. Within the context of education, workforce development, and employment and training for the labor market, the term credential refers to a verification of qualification or competence issued to an individual by a third party with the relevant authority or jurisdiction to issue such credentials (such as an accredited educational institution, an industry-recognized association, or an occupational association or professional society).

The range of different types of credentials includes:

- 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, etc.).

Some of these credentials are further defined and described in this glossary.

Credit for Prior Learning or Work Experience: Another type of assistance that the workforce system can leverage to help individuals attain credentials is to explore all avenues to help them attain credit for prior learning and work experience. Gaining postsecondary educational credit for prior learning or experience can help individuals earn credentials more quickly and can reduce total tuition or training costs since an individual may not be required to take certain courses. The Council on Adult and Experiential Learning (CAEL) catalogs an array of technical assistance on prior learning assessment resources to support the granting of credit for prior learning or work experience.

Credit Hours: Credit hours are the building block components of educational credentials (diploma, certificate, and degree).

CTE Program Advisory Committee: A CTE program advisory committee is a group of individuals whose experience and abilities represent a cross section of a particular occupational area. The primary purpose of the CTE program advisory committee is to assist educators in establishing, operating, and evaluating the CTE program—which serves the needs of the students, the community, and the business/industry partners—and to provide expertise and insight about current/future industry and technological changes.

Curriculum Mapping: Aligning or "mapping" curriculum to standards to ensure all students arrive at the final destination: mastery of core knowledge.

Customized Training: designed to meet the special requirements of an employer or group of employers, conducted with a commitment by the employer to employ all individuals upon successful completion of training. The employer must pay for a significant share of the cost of the training.

Degree: An award conferred by a college, university, or other postsecondary education institution as official recognition of the successful completion of a program of study.

Dual Enrollment/Dual Credit: Postsecondary enrollment option that allows secondary students to enroll in courses at institutions of higher education. The intent of the program is two-fold: (1) to provide students with opportunities for additional academic challenges and rigor, and (2) to offer an alternative educational setting, which may stimulate interest and motivation in learning.

English Language Acquisition Program: Designed to help eligible individuals who are English language learners achieve competence in reading, writing, speaking, and comprehension of the English language; and that leads to attainment of a secondary school diploma or its recognized equivalent; and transition to postsecondary education and training or employment.

English Language Learner: An individual whose national language is a language other than English, or who lives in a family or community environment where a language other than English is the dominant language.

Fast-Track Programs: Fast-Track programs are accelerated programs that allow non-traditional learners to pace themselves according to their time availability and skill level. Fast-Track programs are designed to learn basic skills like literacy and math in the context of their career interest, making learning more relevant. Fast-Track programs are paced to meet the time commitments of non-traditional learners and may be offered on different schedules than conventiaonal courses, thereby addressing their barriers to attending traditional course shedules. The goal of any Fast-Track program is for the learner to obtain some type of industry-recognized credential.

Faculty: Faculty includes the professors, teachers, and lecturers of a university or college. Generally, the faculty is responsible for designing and disseminating the plans of study offered by the institution. The term is also used at the secondary system.

High-demand Occupations: Occupations having more than the median number of total (growth plus replacement) openings for statewide or a particular region.

High School Diploma or Rcognized Equivalent: A document certifying the successful completion of a prescribed secondary school program of studies, or the attainment of satisfactory scores on state specified examinations.

High-skill Occupations: Occupations requiring postsecondary training or higher. Also occupations requiring long-term on-the-job training or related work experience.

Individual with a Disability: An individual with a disability is a person who has:

- A physical or mental impairment that substantially limits one or more major life activities; and
- A record of such an impairment; and
- Is regarded as having such an impairment.

Industry Clusters: Geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region.

Industry Competency Model: A collection of competencies (knowledge coupled with skilled tasks) that together define successful performance in a particular job family. Competency models designate the industry requirements that are essential components to designing training curriculum.

Industry Sectors: Refers to industries organized according to the Standard Industrial Classification (SIC) codes or North American Industry Classification System (NAICS) classification schemes.

Industry or Sector Partnership: A workforce collaborative convened by or acting in partnership with a state board or local board that:

- Organizes key stakeholders in an industry cluster into a working group that focuses on the shared goals and human resources needs of the industry cluster and that includes, at the appropriate stage of development of the partnership, a broad base of representatives including businesses, institutions of higher education, representatives of government, workforce agencies, labor organizations, and workforce boards.
- May also include representatives of state or local government; state or local boards, state or local economic development agencies, state workforce agency other state or local agencies, business or trade associations, economic development organizations, nonprofit organizations, community-based organizations, philanthropic organizations, and industry associations.

Industry-recognized Credentials: An industry-recognized credential is one that either is developed and offered by, or endorsed by a nationally recognized industry association or organization representing a sizeable portion of the industry sector, or a credential that is sought or accepted by companies within the industry sector for purposes of hiring or recruitment, which may include credentials from vendors of certain products. Consumer should be aware that in some industry sectors there may be more than one major industry association and that they may endorse or promote different credentials, and that the credentials that are sought by individual companies in an industry can vary by geographic region, by company size, or based on what product or equipment the company uses and needs workers to be able to operate. This is merely to point out that there may not be a single readily identifiable national credential for all industry sectors or occupations.

Industry-Skill Standards: The knowledge and skills needed for employment at various levels within specific industries. Industry employers or boards usually identify and define these skills.

Integrated Resource Team (IRT) Model: Brings together relevant public and private service agencies on behalf of the customer to coordinate services and resources in a comprehensive manner.

Internships: A temporary employment opportunity in which an individual can acquire experience in an occupation, profession, or pursuit. These positions may be paid or unpaid and are usually temporary and employment at the completion of an internship is not guaranteed.

Job Readiness Skills: Also referred to as soft skills, employability skills, or work readiness skills. Job readiness skills are a set of skills and behaviors that are necessary for any job such as, social competence, job-seeking, and interview skills, etc.

Job Shadowing: A career awareness/exploration opportunity in which a student observes or "shadows" a worker for a designated period of time to learn about that worker's career.

License/Occupational License: An occupational license is typically granted by a Federal, state, or local government agency, is mandatory in the relevant jurisdiction, is intended to set professional standards and ensure safety and quality of work, is required in addition to other credentials, is defined by laws and regulations, and is time-limited. Violation of the terms of the license can result in legal action.

Literacy: An individual's ability to read, write, and speak in English; compute; and solve problems at levels of proficiency necessary to function on the job, in the family, and in society.

Location Quotient: The relative concentration of employment in an area compared to a larger area (state versus nation).

Mentoring: A more complex relationship between an individual and an experienced employee. The mentor observes the mentee's performance and will routinely comment on it and make suggestions, teach, coach, or give constructive feedback.

On-the-Job Training: Training by an employer that is provided to a paid participant while engaged in productive work in a job that—

- Provides knowledge or skills essential to the full and adequate performance of the job; is made available through a program that provides reimbursement to the employer of up to 50 percent of the wage rate of the participant, except as provided in section 134(c)(3)(H), for the extraordinary costs of providing the training and additional supervision related to the training; and
- Is limited in duration as appropriate to the occupation for which the participant is being trained, taking into account the content of the training, the prior work experience of the participant, and the service strategy of the participant, as appropriate.

Occupational License: An occupational license is typically granted by Federal, state, or local government agencies; mandatory in the relevant jurisdiction; intended to set professional standards and ensure safety and quality of work, such as medical licenses for doctors; required in addition to other credentials (educational awards, apprenticeship, or certification); defined by laws and regulations; time-limited (must be renewed based on meeting on going requirements to maintain license); and violation of the terms of the license can result in legal action.

Portable Credential: A credential is considered portable when it is recognized and accepted as verifying the qualifications of an individual in other settings - either in other geographic areas, at other educational institutions, or by other industries or employing companies.

Program of Study: Incorporates secondary and postsecondary elements; includes coherent and rigorous content aligned with challenging academic standards and relevant career and technical contents in a coordinated, non-duplicative progression of courses that align secondary to postsecondary education; may include opportunity for secondary education students to gain postsecondary education credits through dual or concurrent enrollment programs or other means; and leads to an industry-recognized credential or certificate at the postsecondary level or an associate or baccalaureate degree. See http://cte.ed.gov/initiatives/programs-of-study

Progressive and Modularized: The education/training program is structured so that each course builds upon the next, with individuals moving through competency sets, building and attaining new skills as they go. Modules are taught in manageable "chunks" so individuals with varying levels of proficiency can accomplish them. A chunked curriculum is one that has been broken down into smaller units, each of which is stackable and linked to other modules in a series that culminates in an industry-recognized credential.

Recognized Postsecondary Credential: A credential consisting of an industry-recognized certificate or certification, a certificate of completion of an apprenticeship, a license recognized by the state involved or Federal government, or an associate or baccalaureate degree.

Return on Investment (ROI): As it relates to career pathways, ROI is a measure of the net economic impact of an employment and training program. The ROI considers all the costs associated with design and implementation of the career pathway program, including costs to the participant, and compares the sum of those costs to the economic benefits achieved by all participants upon exiting the program and/or over time.

Sector Strategies: Regional, industry-focused approaches to workforce and economic development that improve access to good jobs and increase job quality in ways that strengthen an industry's workforce. Although not a new approach, it is gaining national momentum as a proven framework for addressing skill gaps and engaging industry in education and training. The new Workforce Innovation and Opportunity Act (WIOA) makes significant changes to the nation's workforce development system, expressly incorporating the sector strategies approach throughout and requiring regional planning and alignment with local labor market needs for in-demand sectors and occupations.

Supplemental Nutrition Assistance Program (SNAP): To help recipients meet work requirements, and to gain the skills, training, or experience to increase their ability to obtain regular employment. The program is administered on the Federal level by the U.S. Department of Agriculture's Food and Nutrition Service (FNS).

Supportive Services: Services such as transportation, childcare, dependent care, housing, and needs-related payments, which are necessary to enable an individual to participate in activities authorized under WIOA.

Stackable Credential: A credential is considered stackable when it is part of a sequence of credentials that can be accumulated over time to build up an individual's qualifications and help them to move along a career pathway or up a career ladder to different and potentially higher-paying jobs. For example, one can stack a high school diploma, an associate's degree, and then typically obtain two more years of appropriate postsecondary education to obtain a bachelor's degree. An individual can also stack an interim career/work readiness or pre-apprenticeship certificate, then complete an apprenticeship, and later earn a degree or advanced certification.

Stakeholders: Individuals, groups, or organizations that have a stake in the outcomes of preK-16 education. This includes, for example, students, parents, employers, economic and workforce success, society in general.

Temporary Assistance for Needy Families (TANF): The Temporary Assistance for Needy Families (TANF) program is designed to help needy families achieve self-sufficiency. States receive block grants to design and operate programs that accomplish one of the purposes of the TANF program. The Act provides temporary financial assistance while aiming to get people off that assistance, primarily through employment.

Ticket to Work Program: Is a free and voluntary program that can help Social Security beneficiaries go to work, get a good job that may lead to a career, and become financially independent, all while they keep their Medicare or Medicaid. Individuals who receive Social Security benefits because of a disability and are age 18 through 64 may qualify for the program.

Transcript: The official school record of a student's performance showing all course work completed, including course titles, course hours, grades or other evaluations earned, and grading scale.

Transitional Jobs: Time-limited jobs that are work experiences that are subsidized for individuals with barriers to employment who are chronically unemployed or have an inconsistent work history. These jobs may be in the public, private, or non-profit sectors.

U.S. Department of Labor (USDOL) Employment and Training Administration (ETA): The mission of the Employment and Training Administration is to contribute to the more efficient functioning of the U.S. labor market by providing high quality job training, employment, labor market information, and income maintenance services primarily through state and local workforce development systems. USDOL/ETA provides formula grants to states and tribes to carry out the mandates in the Workforce Innovation and Opportunity Act. It also solicits applications and awards competitive grants to eligible states, localities, and tribes to innovate and improve outcomes for participants. ETA provides policy, guidance, and oversight of the workforce system from the Federal perspective.

Work-based Learning: Work-based learning enables participants to gain or enhance their skills while employed or while engaged in an experience that is similar to employment. Examples: workplace simulations, career academies, school-based enterprises, cooperative work and study programs, on-the-job-training, incumbent worker training, job shadowing, pre-apprenticeship, apprenticeships, fellowships, and paid or unpaid work experience.

Workforce Development Board: An oversight board responsible for overseeing WIOA core programs including the development of a state plan. The membership of the board is appointed by the Governor with the majority being business representatives and the remaining representing diverse interests to include: state legislators, leadership of core programs under WIOA, representatives of community-based organizations that deliver employment and training programs and serve populations with barriers to employment, and economic development organizations.

Workforce Innovation and Opportunity Act (WIOA): The Federal statute that establishes Federal policy direction and appropriates Federal funds for employment and training programs. WIOA is designed to help job seekers access employment, education, training, and support services to succeed in the labor market and to match employers with the skilled workers they need to compete in the global economy. WIOA was signed into law on July 22, 2014. WIOA brings together, in strategic coordination, the core programs of Federal investment in skill development:

- Employment and training services for adults, dislocated workers, and youth and Wagner-Peyser employment services administered by the Department of Labor (DOL) through formula grants to states; and
- Adult education and literacy programs and vocational rehabilitation state grant programs that assist individuals with disabilities in obtaining employment administered by the Department of Education (ED).

  WIOA also authorizes programs for specific vulnerable populations, including the Job Corps, YouthBuild, Indian and Native Americans, and Migrant and Seasonal Farmworker programs as well as evaluation and multistate projects administered by DOL. In addition, WIOA authorizes other programs administered by ED and the Department of Health and Human Services. WIOA replaces the Workforce Investment Act of 1998 and retains and amends the Adult Education and Family Literacy Act, the Wagner-Peyser Act, and the Rehabilitation Act of 1973.

Workforce-Readiness Standards: Guidelines for the skills needed to be successful in the workplace. This includes basic workplace skills such as workplace norms, communication skills, technology skills, and the ability to learn on the job.

Workforce Recruitment Program (WRP): A recruitment and referral program that connects Federal and private sector employers nationwide with highly motivated college students and recent graduates with disabilities who are eager to prove their abilities in the workplace.

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Legislative Summary & Analysis

Strengthening Career and Technical Education for the 21st Century Act (Perkins V)

Legislative Background

On July 23, 2018, on a unanimous voice vote, the Senate approved a bill to reauthorize the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins) by taking up H.R. 2353, the House-passed Perkins reauthorization bill and then adopting a substitute amendment offered by Senator Alexander (R-TN). The substitute amendment contains the text of S. 3217, which was the Senate's bill to reauthorize Perkins. The bill was approved under unanimous consent and no other amendments were considered on the floor. Later that same week, on July 25, 2018 the U.S. House of Representatives took up the Senate-passed version of H.R. 2353 and also approved it by voice vote. With both chambers of Congress approving the same bill, no conference committee was needed. The bill was forwarded to the President for signature, and was signed into law on July 31, 2018.

Editorial Note:

Please note that citations contained in this document are based on current law (the Carl D. Perkins Career and Technical Education Act of 2006) as amended by H.R. 2353, The Strengthening Career and Technical Education for the 21st Century Act. We are referring to this new law as Perkins V, despite the lack of the word Perkins in its legislated title.

Authorization Period and Levels (Sec. 9)

Perkins V will take effect on July 1, 2019. This date will also mark the beginning of the one-year transition period, which allows eligible agencies to submit a one-year transition plan. Perkins V would reauthorize the federal investment for a total of six years, covering FY 2019 through FY 2024 (July 1, 2019 through June 30, 2025). For the Title I Basic State Grant program, the bill would authorize $1.229 billion for FY 2019 and gradually increase this authorization level to $1.318 billion in FY 2024, which represents a 10.57 percent increase over the course of the Act compared to the amount Congress allocated to the Perkins Basic State Grant program in FY 2018. The existing Title II program of the law known as "Tech Prep," and section 118, known as the Occupational and Employment Information program, are eliminated; neither program has been funded in recent years.

It is important to note that authorization levels are a suggestion, not a guarantee of funding levels because Congressional appropriators must develop and pass separate funding legislation annually. Then, the President must sign such legislation in order for these funding levels to be realized.

State Eligible Agency and Governance Structure

Perkins V retains the state governance structure of current law, whereby the state will identify an eligible agency to receive and administer the funds received from the Perkins Basic State Grant. General responsibilities for the agency, such as state plan development and local grantee oversight,

largely stay the same. However, some of these processes change significantly (please see below for additional details on these changes).

State Allotment (Sec. 111) and Within-State Allocations (Sec. 112)

The current federal-to-state formula determining state allocations for the Perkins Basic State Grant would largely stay in place in Perkins V with one exception: a significant change to the hold harmless provision as described below. In addition, the overall percentages for distributing funding within the state also remain largely unchanged, with up to 5 percent for state administration, 10 percent for state leadership, and 85 percent for local program distribution. Eligible agencies also retain the responsibility to determine the percentage of funds for local program distribution that is directed to the secondary and postsecondary levels (i.e., the secondary and postsecondary split). A few changes within these areas are noted below.

Hold Harmless

The hold harmless provision in current law is removed. Instead, a provision is added that ensures no state shall receive a Basic State Grant that is less than the amount received in FY 2018. This amount is referred to as a "foundational grant." If Congress appropriates an amount for the Basic State Grant that is less than the amount appropriated in FY 2018, every state would receive an allotment that is ratably reduced (e.g., if Congress reduced the overall appropriations for Perkins by five percent, every state would receive a five percent reduction in funds from the amount they received in FY 2018). If Congress appropriates an amount for Perkins that is greater than the amount they provided in FY 2018 in subsequent years, the formula for "additional funds" from current law will be used to allocate the additional funds.

State Administration

The existing 5 percent State Administration set-aside (Sec. 112(a)(3)), including the state match requirement (Sec. 112(b)) and related responsibilities described in current law (Sec. 121), all remain unchanged under this proposal.

State Leadership

While the 10 percent State Leadership set-aside (Sec. 112(a)(2)) itself stays the same under Perkins V, there are two significant changes made to this section of the bill:

Set-Aside for Recruiting Special Populations to Enroll in CTE Programs

Perkins V adds a new provision to require an amount that is the lesser of two options: 1) 0.1 percent or 2) $50,000, to be used for the recruitment of special population to enroll in CTE programs. The legislative language does not specify, as the corrections set-aside does, that this is a percentage of the Basic State Grant. Therefore, the determination should be interpreted as 0.1 percent (or $50,000, whichever is less) of the State Leadership set-aside.

State Institutions Set-Aside

Perkins V increases the allowable state set-aside (Sec. 112(a)(2)(A)) to serve individuals in state institutions from 1 percent to 2 percent of the total amount of the Perkins Basic State Grant (but these funds come out of the amount allowed for State Leadership, which is consistent with current law), and specifically adds juvenile justice facilities to the types of institutions where these funds can be used. Also, an investment in individuals in State institutions is now a required use of funds under Section 124.

Reserve Fund

The allowable "reserve fund" (Sec. 112(c)) has been increased from 10 percent to 15 percent. The reserve fund is an option available to eligible agencies to distribute funds to eligible recipients

through an alternative method. The criteria for using these funds are similar to current law (high numbers or percentages of CTE students or rural communities), but one additional option is added: areas with disparities or gaps in performance among population groups. Eligible agencies have a lot of flexibility in how to direct reserve fund resources; however, the new law specifies that they should spur innovation or support programs of study or career pathways aligned with State-identified high-skill, high-wage, or in-demand occupations or industries.

State-to-Local Formula and Eligible Recipients/Institutions

The current state-to-local formulas (Secs. 131 & 132) determining local grant allocations and the minimal allocations ($15,000 for eligible recipients at the secondary level and $50,000 for eligible recipients at the postsecondary level) would remain unchanged. Additionally, local education agencies, area career and technical education schools, and community/technical colleges remain the primary recipients (called eligible recipients) of local Perkins funding under this proposal. However, Indian Tribes, Tribal organizations, and Tribal educational agencies are added as eligible recipients at the secondary level, and at the postsecondary level as well, along with tribally controlled colleges or universities.

It is also important to note that while the statute re-orders the listing of entities under the "eligible institution" definition to list consortia at the beginning of the list rather than at the end, this change has no meaningful effect other than to more directly highlight consortia as an option.

Highlighted Definitional Changes (Sec. 3)

Perkins V contains 55 definitions compared to 34 definitions in current law. Many of these definitions are new, but several definitions in current law were amended. Some of the new definitions were added in an effort to align terminology with the Workforce Innovation and Opportunity Act (WIOA) and the Every Student Succeeds Act (ESSA). Highlights of the changes and additions are included below (with definitions directly related to the accountability provisions of the law featured in the following section).

Area Career and Technical Education School

This term largely stays the same, but the number of required occupational fields needing to be offered has been reduced from five to three. There is additional emphasis on occupational fields offered in "in-demand" industry sectors or occupations, but this does not constitute a new requirement.

Career and Technical Education

Significant changes were made to the definition of Career and Technical Education (CTE), and, as with current law, this definition determines what activities can be funded. The new definition specifies that content must be aligned with ESSA's state-identified academic standards at the secondary level and with rigorous academic standards at the postsecondary level. There is a new emphasis on "in-demand" industry sectors and occupations, although this does not constitute a new requirement. The definition also references the WIOA term "recognized postsecondary credential," which includes a spectrum of credentials, but limits the list for the purposes of this law to industry-recognized credentials, certificates, or associate degrees to ensure funding remains focused on sub-baccalaureate credentials. The definition also includes new references to work-based learning, career exploration, and secondary-postsecondary connections, although none are specifically required.

CTE Participant

A CTE participant is defined as an individual at either the secondary or postsecondary level who completes at least one CTE course in a CTE program or program of study. This definition is not used

with regard to accountability requirements. It is referred to in the reserve fund, national activities, and elements of the local application and local uses of funds.

Credit Transfer Agreement

This new definition encompasses formal agreements among and between secondary and postsecondary education institutions that grant transcripted postsecondary credit. The definition specifically points out that these credits include those granted to students through a variety of means, such as dual or concurrent enrollment programs, credit granted on the basis of performance on technical assessments and more. This definition is referenced within the definition of an articulation agreement and in the secondary performance indicator of program quality.

Eligible Entity

This term is defined as a consortium that includes 1) representatives of at least two of these categories of entities : local education agencies, education service agencies, area career technical education schools, Indian Tribes or organizations, institutions of higher education or state educational agencies, 2) representatives of at least one business or industry partner and 3) one or more stakeholders (which may include parents and students, representatives of local agencies serving out-of-school youth, homeless children and youth and at-risk youth, Indian Tribes or Tribal organizations, minority serving institutions, special populations, representatives of adult CTE providers, or other relevant community stakeholders). This definition is referenced only in regard to the competitive grant program in the National Activities section; it will not impact which entities are eligible for funding under the Basic State Grant.

Professional Development

A new, formal definition of Professional Development is introduced in Perkins V. This definition is modeled off the professional development definition in ESSA, but contains more CTE-relevant language. Professional development is defined as activities that are an integral part of strategies for providing educators with the knowledge and skills needed to enable students to succeed in CTE, and that are sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused, to the extent practicable evidence-based. A long list of possible topics is also included (but none are required).

Programs of Study

A new, formal definition for CTE programs of study is introduced here and is emphasized throughout the legislation. The term uses some of the existing language from current law, defining a CTE program of study as a coordinated, non-duplicative sequence of academic and technical content at the secondary and postsecondary level that incorporates challenging, state-identified academic standards; addresses academic and technical knowledge, as well as employability skills (a purposefully undefined term in the bill); is aligned to the needs of industries in the state, region, Tribal community, or local area; progresses in content specificity; has multiple "entry and exit points" that allow for credentialing; and ultimately culminates in the attainment of a recognized postsecondary credential.

Special Populations

Two new categories of special population students (homeless individuals and youth with parents on active duty in the armed forces) are added to the current definition to reflect changes made under ESSA. Special Populations are now defined as:

(a) individuals with disabilities;
(b) individuals from economically disadvantaged families, including low-income youth and adults;
(c) individuals preparing for non-traditional fields;
(d) single parents, including single pregnant women;

(e) out-of-workforce individuals;
(f) English learners;
(g) homeless individuals;
(h) youth who are in, or have aged out of, the foster care system; and
(i) youth with parents on active duty in the armed forces.

Work-based Learning

A new, formal definition of work-based learning is included. It emphasizes sustained interactions with industry or community professionals in real workplace settings where possible, but includes simulated environments as well. Under the definition, work-based learning must foster in-depth, first-hand engagement with the tasks required of a given career field and be aligned to curriculum and instruction.

ESSA-Adopted Terminology

Perkins V adopts a number of terms from ESSA. References to dual or concurrent enrollment, early college high schools, English learners, evidence-based, high school, paraprofessionals, specialized instructional support personnel and services, and universal design for learning all take on the meanings as defined in ESSA. An online version of this Act is available here.

WIOA-Adopted Terminology

As with ESSA, there are also a number of terms from WIOA incorporated into this law. References to career pathways, in-demand industry sectors or occupations, industry or sector partnerships, local and state workforce development boards, out-of-school youth, and recognized postsecondary credentials all take on the meanings as defined in WIOA. An online version of this Act is available here.

Accountability—Definitions, Core Indicators, Performance Targets, and Improvement Plans (Sec. 113)

Significantly, Perkins V would introduce formal definitions for CTE concentrators.

CTE Concentrator

This definition is the primary unit of analysis for Perkins V's accountability framework.

(a) At the secondary level, a concentrator is defined as a student who completes at least two courses in a single program or program of study.
(b) At the postsecondary level, a concentrator is defined as a student who earns 12 credits in a single CTE program or program of study or completes a CTE program if that program encompasses fewer than 12 credits.

Secondary Core Indicators of Performance

Indicators listed below are based on the secondary concentrator definition, as defined above.

1. Graduation rates (based on the ESSA four-year rate with an option to also use the extended-year rate should a state choose to do so).
2. Academic proficiency (largely the same as current law and based on ESSA state-identified academic standards and related assessments).
3. Two quarters after exiting from secondary education, student placement in postsecondary education or advanced training, military service, a service program, the Peace Corps or employment.
4. A measure of "CTE program quality," whereby the state must pick one of the following three:
    a. student attainment of recognized postsecondary credentials;
    b. student attainment of postsecondary credits in their CTE program/program of study; or

c. percentage of students participating in work-based learning.

Note: In addition to selecting one of the three quality indicators above, an eligible agency may also include a second quality indicator defined as any other measure so long as it is statewide, valid, reliable, and comparable across the state. This is where technical skills assessment (TSA) would fall, if the state chose to continue to set performance targets for TSA attainment.

5. The percentage of CTE concentrators in CTE programs that lead to nontraditional fields.

Postsecondary Core Indicators of Performance

All postsecondary indicators are based on CTE concentrators, as defined above. The first two indicators are inspired by WIOA youth measures, but not fully aligned.

1. The percentage of CTE concentrators who, during the second quarter after program completion, remain enrolled in postsecondary education, are in advanced training, military service, a service program, the Peace Corps or are placed or retained in employment.
2. The percentage of CTE concentrators who receive a recognized postsecondary credential during participation in or within 1 year of program completion.
3. The percentage of CTE concentrators in CTE programs that lead to nontraditional fields.

Performance Targets

Under Perkins V, eligible agencies will have the ability to set state determined levels of performance for each of the indicators listed above without the need to enter into negotiations with the U.S. Department of Education (USDE). Eligible agencies will set these state determined levels of performance in their state plan, meaning an eligible agency will set all four years of targets in their state plan submitted to the U.S. Secretary of Education (Secretary) for approval (note: this is referring to the four-year plan, not the one-year transition plan). As with current law, these state determined levels of performance must be expressed in a percentage or numerical form.

Perkins V also introduces the following new requirements for eligible agencies to abide by in setting the state determined levels of performance. These state determined levels of performance must:

1. Require the State to continually make meaningful progress toward improving the performance of all CTE students, including subgroups and subpopulations. This language is similar to but not the same, as current law, which requires States to continually make progress. The differences between current law and the new language are uncertain; we are seeking clarification from Committee staff.
2. Be subject to a public comment process. Perkins V requires the eligible agency to develop the state determined levels of performance in consultation with the stakeholders (defined as the stakeholders specified in Sec. 122 – State Plan) involved in the state plan development process and then provide the public with the opportunity to submit written comments on the state determined levels of performance at least 60 days before the plan is submitted (although the comment period does not have to extend the full 60 days). The comments received must be included in the state plan and the eligible agency must include a written response to these comments in the state plan.
3. Take into account the extent to which the state determined levels of performance advance the accomplishment of the goals identified in the state plan.
4. If adjusted, take into account how the state determined levels of performance involved compare to those established by other states, considering factors including the characteristics of actual CTE concentrators (as opposed to anticipated) when CTE concentrators entered the program and the services or instruction to be provided.
5. If adjusted, be higher than the average actual performance of the two most recently completed program years.

Adjustment of Targets for Subsequent Years: Eligible agencies may revise their state determined levels of performance prior to the third program year covered by the state plan, but such levels must still meet all of the requirements (as listed above) for state determined levels of performance, including the required stakeholder input and public comment process.

Waiver: In the case of unanticipated circumstances or changes or improvements in data or measurement approaches, the eligible agency may submit adjusted state determined levels of performance at the end of a program year. In this case, the adjusted levels must meet all of the requirements for state determined levels of performance (including being subject to the public comment process), except the requirements that the adjusted levels be higher than the average of the actual performance of the two previous years and that the adjusted levels take into account the levels of other states or consider the characteristics of actual CTE concentrators (as opposed to anticipated) when CTE concentrators entered the program.

Secretary Approval: Despite the removal of the federal-to-state performance negotiation process, the Secretary would still have the authority to disapprove state plans based on the state determined levels of performance included in such plans. This is because the state determined levels of performance are considered to be part of the "requirements of the Act" and, as such, are in the purview of reasons why the Secretary may choose to disapprove a state plan (more on this in the next section).

Local Performance Targets: Perkins V would maintain the requirement that local grant recipients adopt the state determined levels of performance for each of the core indicators of performance or individually negotiate with the eligible agency to develop local levels of performance. Under either option, the local performance levels must meet the requirements outlined above and also take into account how those levels compare among other eligible recipients in the state, local economic conditions, the extent to which the levels advance the accomplishment of the goals outlined in a local application, and the eligible recipient's ability to collect and assess data.
State and Local Reports: Additionally, eligible agencies would continue to be required to publicly report and share widely their actual performance on the core indicators of performance, with the additional requirement that these reports be in easily accessible formats and languages, as determined by the eligible agency. State and local reports would maintain the requirements in current law and continue to require the reporting and disaggregation of data. Perkins V also requires additional disaggregation occur for each core indicator by CTE program or program of study (and if this level of reporting is impractical, the data may be disaggregated by career clusters of CTE concentrators). This level of disaggregation would not be required in cases in which the number of students in a category is insufficient to yield statistically reliable information or would reveal personally identifiable information about a student. Disaggregation is also required for the two placement indicators, if data is available. This reflects current practice, but was not included in prior statute.

Improvement Plans and Sanctions (Sec. 123)

As with current law, if a state fails to meet at least 90 percent of its state determined level of performance for any of the core indicators, it must implement an improvement plan. When under such an improvement plan, the state may not adjust performance levels. USDE may withhold funding from a state that fails to implement an improvement plan or if the state had been implementing an improvement plan for any specific indicator and fails to meet at least 90 percent of the state determined level of performance for that indicator for two consecutive years after being identified for improvement. It is important to note that all of these changes are mirrored at the state-to-local level. While the legislative language is different, functionally there is no difference in the timeline for sanctions as compared to current law.

State Plan (Sec. 122)

As with current law, each eligible agency would still be required to submit a plan to USDE in order to receive its allocation. Notably, Perkins V reduces the period of time covered by the state plan to four years (from six years) in an effort to align it with the state plan length in WIOA. There is also a new option for the eligible agency to submit a four-year state plan to the Secretary 120 days prior to the end of the four-year plan initially submitted under this Act. Eligible agencies retain the option to submit annual revisions, as they do under current law.

Overall, Perkins V requires eligible agencies to develop two plans during the authorization period: a one-year transition plan, and a four-year plan. Then, the eligible agency decides whether to submit a second four-year plan, which will cover the last year of this authorization and three additional subsequent years, or to submit annual revisions.

Eligible agencies retain the two options under current law to submit a plan—a "single plan," or a "combined state plan" as outlined in WIOA. The decision to incorporate the Perkins V plan into a combined state plan with WIOA resides with the Perkins eligible agency. Perkins V lists the "combined plan" first under the options for submitting a state plan, however this does not have meaningful impact or signal a preference.

State Plan Development

As is currently the case, the eligible agency would be required to consult with a number of entities within the state, including the Governor, on state plan development. Perkins V's list expands upon current law to now include:

- Representatives of secondary and postsecondary CTE programs, including eligible recipients and representatives of 2-year minority-serving institutions and historically Black colleges and universities and tribally controlled colleges or universities in States where such institutions are in existence, adult career and technical education providers, and charter school representatives in States where such schools are in existence, which shall include teachers, faculty, school leaders, specialized instructional support personnel career and academic guidance counselors, and paraprofessionals;
- Interested community representatives, including parents, students and community organizations;
- Representatives of the State workforce development board established under section 101 of the Workforce Innovation and Opportunity Act (29 U.S.C. 3111);
- Members and representatives of special populations;
- Representatives of business and industry (including representatives of small business), which shall include representatives of industry and sector partnerships in the State, as appropriate, and representatives of labor organizations in the State;
- Representatives of agencies serving out-of-school youth, homeless children and youth, and at-risk youth, including the State Coordinator for Education of Homeless Children and Youths established or designated under section 722(d)(3) of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11432(d)(3));
- Representatives of Indian Tribes and Tribal organizations located in, or providing services in, the State; and
- Individuals with disabilities.

Notably, there is a new requirement for the eligible agency to meet with officials from the Governor's office during the development of the state plan and prior to the submission of the state plan, as well as deliver the state plan to the Governor for signature 30 days before submitting the state plan to the

Secretary. If the Governor does not sign the plan within 30 days of receiving it, the eligible agency must submit the plan without the Governor's signature. While Perkins V maintains the requirement that eligible agencies conduct public hearings on the state plan, it now specifies that the public comment period be at least 30 days. This public comment period must occur after the eligible agency makes the state determined levels of performance available for public comment, as required by section 113 (details above). This is because responses to the public comments must be incorporated into the state plan and the state determined levels of performance are to be included in the state plan.

The eligible agency still determines the "split" of the state's Perkins grant between secondary, postsecondary and adult CTE. However, Perkins V directs eligible agencies to consult with the state agency responsible for adult education when determining this split of funds, in addition to the state education agency and the state agency responsible for overseeing two-year postsecondary institutions (which were required in current law).

State Plan Contents

Perkins V changes some of the content requirements for the state plan in comparison to current law. The number of components is reduced from 20 to 14, but many components are expanded in scope. In brief, the plan must include:

1. a summary of the state's workforce development activities and the degree to which CTE programs in the state both align to them and address the needs of employers identified by the State workforce development board;
2. the state's strategic vision and goals for preparing an educated and skilled workforce;
3. a strategy for joint planning, alignment, coordination and leveraging of funds between CTE programs with the state's workforce development system to achieve the goals listed above—this element of the state plan requires that CTE align with other federal programs, including the state's core programs in WIOA, ESSA, and the Higher Education Act (HEA);
4. detailed descriptions for how CTE programs and programs of study will be developed, supported, improved, and approved (including the criteria used to assess how local applications will promote continuous improvement, expand access to CTE for special populations and support the alignment of employability skills) and for how the eligible agency will include opportunities for secondary students to participate in early postsecondary opportunities;
5. how the eligible agency will approve local eligible recipients for funding;
6. how the eligible agency will support the recruitment and retention of CTE teachers, faculty, and administrators, including professional development that provides the knowledge and skills needed to work with and improve instruction for special populations;
7. a description for how the eligible agency plans to spend its state leadership resources;
8. how the eligible agency will determine the "split" between secondary and postsecondary CTE systems;
9. a description of the eligible agency's program strategies for special populations, including how individuals who are members of the special populations will be provided with appropriate accommodations and instruction and work-based learning opportunities in integrated settings that support competitive, integrated employment;
10. a description of how the eligible agency will determine levels of performance for the core indicators of performance described above, including a description of the public comment process, an explanation for the levels and how these levels set align with the levels, goals and objectives of other federal and state laws;
11. a description of how the eligible agency will address disparities or gaps in performance in each of the plan years; and if no meaningful progress has been achieved before the third program year, the additional actions the eligible agency will take to eliminate these disparities or gaps. It is important to note that the Committee staff indicated that their intent behind this state plan requirement (and the similar local application requirements) is to require the

eligible agency to share its process for reviewing data, determining disparities and gaps and determining activities to address them. It was not the intention of the staff to include the gaps or address disparities in the initial state plan.

12. a description of how the eligible agency will involve stakeholders in the planning, development, implementation and evaluation of CTE programs;
13. assurances that the eligible agency will comply with the legal requirements of the Act; and
14. a description of the opportunities for public to comment on the state plan in person and in writing.

State Plan Approval

The Secretary is required to approve the state plan so long as it "meets the requirements of the Act." A state plan is also deemed approved if the Secretary has not responded within 120 days. As mentioned earlier, the Secretary still retains the ability to disapprove a state plan if it does not meet the requirements of the Act, which includes the requirement that the state determined levels of performance meet the criteria specified in the Act. Should the Secretary elect to disapprove the state plan for any reason, USDE must notify the eligible agency in writing, provide justification for its disapproval, and grant the eligible agency a hearing. However, the steps that would be taken following a hearing are not specified.

State Leadership (Sec. 124)

As noted earlier, Perkins V maintains the current 10 percent set-aside for State Leadership activities. In current law there are nine required uses of funds and 17 permissible uses. Perkins V changes these requirements to five required uses of funds and 25 permissible uses of funds. The required State Leadership uses of funds include:

1. support for preparation for non-traditional fields in current and emerging professions, support for programs for special populations, and other activities that expose students, including special populations, to high skill, high wage and in-demand occupations;
2. individuals in State institutions, such as State correctional institutions, including juvenile justice facilities, and educational institutions that serve individuals with disabilities;
3. recruiting, preparing, or retaining of CTE teachers, faculty, specialized instructional support personnel, or paraprofessionals, such as pre-service, professional development, or leadership development programs;
4. providing technical assistance to local eligible recipients; and
5. reporting on the effectiveness of this funding stream in achieving the state's strategic vision and goals for "preparing an educated and skilled workforce" as well as meeting the state's state determined levels of performance for the core accountability indicators and reducing disparities or performance gaps in those levels.

There are a total of 25 permissible uses of funds under this section, which vary greatly in scope and feasibility. In brief, they are:

- developing statewide programs of study;
- approving locally developed programs of study;
- establishing statewide articulation agreements;
- establishing statewide sector or industry partnerships;
- high-quality comprehensive professional development;
- supporting eligible recipients in eliminating inequities in student access to high-quality programs of study and effective instructional personnel;
- awarding incentive grants to eligible recipients;
- supporting the adoption and integration of recognized postsecondary credentials and work-based learning into programs of study, and for increasing data collection associated with recognized postsecondary credentials and employment outcomes or consultation with other State agencies on licenses or certifications;

- pay for success initiatives leading to a recognized postsecondary credential;
- supporting CTE programs for adults and out-of-school youth;
- supporting competency-based curricula;
- supporting programs of study or career pathways in areas declared to be in a state of emergency;
- partnering with qualified intermediary organizations;
- improving career guidance and academic counseling programs;
- supporting the integration of employability skills into CTE programs and programs of study;
- supporting programs and activities that increase access, student engagement, and success in science, technology, engineering, and mathematics fields (including computer science, coding, and architecture), supporting the integration of arts and design skills, and supporting hands-on learning, particularly for students who are members of groups underrepresented in such subject fields;
- supporting career and technical student organizations (CTSOs);
- establishing and expanding work-based learning opportunities;
- integrating and aligning programs of study and career pathways;
- supporting the use of CTE programs and programs of study aligned with in-demand industry sectors or occupations;
- making all forms of instructional content widely available;
- developing valid and reliable assessments of competencies and technical skills and enhancing data systems to collect and analyze data on secondary and postsecondary academic and employment outcomes;
- supporting accelerated learning programs that are part of a program of study;
- supporting career academies; and
- other State leadership activities that improve CTE.

Local Application (Sec. 134)

The local plan as it exists in current law is renamed the "local application" for purposes of Perkins V, and is restructured into three pieces: the actual application components, the comprehensive needs assessment and consultation requirements.

Application Components

Each eligible recipient must submit a local application to be eligible for funding, and the local application should cover the same time period as the state plan—four years. Eligible agencies can add additional requirements (as under current law), but the following specific requirements for the application are delineated in the bill:

1. a description of the results of the comprehensive needs assessment;
2. information on the CTE course offerings and activities to be provided with Perkins funds, which shall include at least State-approved one program of study;
3. a description of how the eligible recipient, in collaboration with local workforce development boards and other local workforce agencies, one-stop delivery systems, and other partners, will provide a series of career exploration and career guidance activities;
4. a description of how the eligible recipient will improve the academic and technical skills of students participating in CTE programs by strengthening the academic and CTE components of such programs through integration;
5. a description of how the eligible recipient will provide activities to prepare special populations for high-skill, high-wage, or in-demand occupations that will lead to self-sufficiency; prepare CTE participants for non-traditional fields; provide equal access for special populations to CTE courses, programs, and programs of study; and ensure that members of special populations

will not be discriminated against on the basis of their status as members of special populations;
6. a description of the work-based learning opportunities that the eligible recipient will provide to students participating in CTE programs and how the recipient will work with representatives from employers to develop or expand work-based learning opportunities for CTE students, as applicable;
7. a description of how the eligible recipient will provide students participating in CTE the opportunity to gain postsecondary credit while still attending high school, as practicable;
8. a description of how the eligible recipient will coordinate with the eligible agency and institutions of higher education to support the recruitment, preparation, retention, and training, including professional development, of teachers, faculty, administrators, and specialized instructional support personnel; and
9. a description of how the eligible recipient will address disparities or gaps in performance between groups of students in each of the plan years, and if no meaningful progress has been achieved prior to the third program year, a description of the additional actions that will be taken to eliminate these disparities or gaps.

Comprehensive Needs Assessment

The comprehensive needs assessment is the largest addition to this section of the law. This new process must be completed by the eligible recipient at the beginning of the grant period and updated at least once every two years. The needs assessment should include reviews of at least five elements:

1. student performance on the performance indicators, including the performance of special populations and subgroups;
2. whether programs are of sufficient size, scope, and quality to meet the needs of all students served by the eligible recipient and are meeting labor market needs;
3. progress toward the implementation of CTE programs and programs of study;
4. how the eligible recipient will improve recruitment, retention, and training of CTE professionals, including underrepresented groups; and
5. progress toward implementation of equal access to high-quality career and technical education courses and programs of study, for all students.

Consultation Requirements

The local recipient is required to consult with a number of groups during the needs assessment process and development of the local application, an expansion of the consultation process that is included in current law related to the local plan. These groups include secondary and postsecondary educators, administrators and other support staff; state or local workforce development boards; business and industry representatives; parents and students; representatives of special populations; representatives of agencies serving out-of-school youth, homeless children and youth, and at-risk youth; representatives of Indian Tribes and Tribal organizations in the State (where applicable); and any other stakeholders required by the eligible agency.

In addition, continued consultation is required with these groups, with specific parameters determined by the eligible agency. This continued consultation may address updates to the needs assessment, ensure that programs remain responsive to labor market and employer needs, give employers opportunities to provide input into programs, identify work-based learning opportunities, and ensure funding is coordinated with other local resources.

Local Uses of Funds (Sec. 135)

One of the most significant changes to the local uses of funds section is the link to the local needs assessment, and the requirement that the allocation of resources be aligned with the results of that

assessment. Specifically, the section requires that funds be spent "to develop, coordinate, implement, or improve career and technical education programs to meet the needs identified in the comprehensive needs assessment described in section 134(c)."

The other significant change is that the uses of funds are streamlined. The majority of the current uses of funds are still covered, although some have fewer explicit clauses. There are also no longer discrete "required" and "permissive" uses of funds subsections, but instead, many of the former "permissive" uses are included as options under required activities.

In addition to the overall requirement that local funds be used to support CTE programs of sufficient size, scope and quality to be effective, the bill includes six new "required" activities:

1. provide career exploration and career development activities through an organized, systematic framework;
2. provide professional development for a wide variety of CTE professionals;
3. provide within CTE the skills necessary to pursue high-skill, high-wage or in-demand industry sectors or occupations;
4. support integration of academic skills into CTE programs;
5. plan and carry out elements that support the implementation of CTE programs and programs of study and that result in increased student achievement; and
6. develop and implement evaluations of the activities funded by Perkins.

Key activities such as purchasing equipment and supporting CTSOs, work-based learning, and dual and concurrent enrollment, among numerous others (20 in total), are included under the elements that support implementation of programs and programs of study.

In addition, the option for local recipients to pool funds with other recipients that exists in current law was maintained in Perkins V, but only related to professional development activities. This is also explicitly referenced in the State Leadership permissible uses of funds section as an option that can be incentivized by the eligible agency. Finally, and in line with current law, the 5 percent limit on administrative costs at the local level has been carried over in Perkins V.

National Activities (Sec. 114)

Significant changes were made to the elements included under the national activities section of the bill. First, the Director of the Institute of Education Sciences (IES) is brought in as a partner in administering data collection, research and evaluation activities.

Specific language is added to the section to now require the Secretary to carry out the research and evaluation activities in this section. The single plan for these activities and advisory panel are maintained from current law, with a few additional stakeholders required.

The national assessment of CTE is reconfigured as a national "evaluation" under this set of activities, with a series of grants, contracts or cooperative agreements awarded competitively. Reports from the evaluation are due every two years after the law's enactment.

There is no longer a requirement for a specific "national research center" as under current law, although nothing in the bill would preclude USDE from establishing one or more centers, and research remains a key component of this section. Research grants must also be awarded competitively to institutions of higher education or consortia of one or more institutions of higher education and one or more private nonprofit partners and a variety of research activities are outlined.

In addition, a new innovation and modernization grant program is added to the section. Under this program, USDE would award competitive grants to eligible entities, eligible institutions or eligible recipients to identify, support and rigorously evaluate evidence-based and innovative strategies and activities to improve and modernize CTE and align workforce skills with labor market needs.

This section, as in current law, has a funding stream separate from the Basic State Grant program authorized elsewhere under Title I of Perkins, and now includes specific authorization levels for these activities. In FY 2019 this section would be authorized at $7.651 million, which would grow over time to $8.202 million by FY 2024. Much like authorization levels contained elsewhere in Perkins V, Congress must pass separate appropriations legislation for these funding levels to be realized. It is also important to note that Perkins V requires the research and evaluation components as outlined above, but notes that the innovation and modernization program is an option for which up to 20 percent of the overall allocation for this section can be spent.

Fiscal Provisions: Supplement-not-Supplant and Maintenance of Effort (Sec. 211)

Current supplement-not-supplant requirements stay intact under Perkins V.

While Perkins V maintains the current 100 percent state fiscal effort requirement that compels eligible agencies to maintain the same fiscal effort, on an aggregate or per-pupil basis, as they did the year before, it also introduces some new flexibility.

First, Perkins V allows the eligible agency to exclude additional CTE-related expenditures including competitive or incentive-based programs (in addition to currently allowed capital expenditures, special one-time project costs, and the cost of pilot programs), at the request of the eligible agency. It is important to note that it is at the eligible agency's discretion to include or exclude any of these expenditures.

Second, the new maintenance of effort (MOE) language affords eligible agencies the one-time-only opportunity to "reset" their existing MOE baseline level for the first full fiscal year following the law's enactment date (which would be FY 2020 should Perkins V become law). However, eligible agencies may still elect to maintain their existing baseline should they choose to do so. If reset, the new baseline must be at least 95 percent of prior year expenditures. The waiver language is also amended to remove the option for the Secretary to waive the requirements of 5 percent of expenditures for one year, but maintains waivers in the event of exceptional or uncontrollable circumstances.

Miscellaneous Provisions and Conforming Amendments

Middle Grades Change (Sec. 215)

Perkins V removes a restriction from current law that prohibited funding to provide CTE programs to students below the seventh grade, instead replacing it with a prohibition on funding below the "middle grades." This provision specifies that "middle grades" is defined as it is in ESSA, which includes grades 5-8.

New GAO Study (Sec. 219)

Perkins V would require the Government Accountability Office (GAO) to conduct a study to evaluate the "strategies, components, policies, and practices" used by eligible agencies and local eligible recipients to ensure that all students, including specific subpopulations, are able to pursue and complete CTE programs of study aligned to high-skill, high-wage occupations. The study would also assess any challenges associated with the replication of these approaches, and require a specific focus

on subgroups that may be underrepresented in such occupations. In conducting this study, the GAO must consult with students and parents, eligible agencies and recipients, teachers and faculty and other educators, Indian Tribes and Tribal organizations, special populations, and representatives of business and industry. The study would be submitted to the House Committee on Education and the Workforce and Senate HELP Committee and would not be binding.

Wagner-Peyser Alignment

The Workforce and Labor Market Information System under Wagner-Peyser (Title III of WIOA) is amended through Perkins V to ensure that the labor market information produced under Wagner-Peyser can be readily accessed and used by the Perkins eligible agency and in turn, local eligible recipients.

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Practical Guidance for Aligning Career Pathways to Labor Market Data in the Time of COVID-19

Introduction

A marker of a high-quality career pathway is its alignment to high-skill, high-wage, in-demand occupations, as evidenced by state, regional and/or local labor market information (LMI). Such alignment is a win-win proposition — it ensures that learners have the greatest opportunities waiting from them after completing their career pathways and that industry can find the talent it needs to thrive. It is therefore no surprise that in recent years states and local institutions have increased their focus on ensuring strong alignment between their career pathways and labor market demand to meet the dual purposes of supporting learners and industry. These efforts have been further amplified and accelerated by the Strengthening Career and Technical Education for the 21st Century Act (Perkins V), which includes several new requirements aimed to advance such alignment.

Many states and communities now have systems in place to regularly consult LMI and have developed criteria for identifying high-skill, high-wage and in-demand occupations.[1] States and regions have also encouraged and supported local leaders and practitioners in accessing LMI by providing user-friendly websites or tools. State and local leaders, such as state agencies, mayors' offices and local workforce boards, have been working to convene stakeholders, review data, and make determinations about the fit of current career pathways to the labor market and whether modifications to career pathway offerings are needed.

*A **career pathway** is a progressive sequence of at least three courses that is aligned to a high-skill, high-wage, in-demand occupation; spans secondary and postsecondary; reinforces academic learning with related work-based learning experiences; and embeds opportunities for students to earn both related postsecondary credit in a degree-granting program and industry-recognized credentials.*

These efforts, which aim to instill confidence in the quality and economic returns of career pathways, were struck with uncertainty in 2020, as the COVID-19 (coronavirus) pandemic caused an economic crisis and major disruptions to the workforce and labor market.

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In just a matter of months, from February to April 2020, the pandemic drove the United States unemployment rate up from 3.5 percent to 14.7 percent, with individuals of color, women and other marginalized individuals disproportionately affected.[2] As summer turned into fall, the unemployment rate lurched downward to 6.7 percent in November — a significant improvement, but one that masks vastly discrepant effects on different sectors of the economy and across race, age and education levels.[3] By the end of 2020, almost 70 million Americans, or about 40 percent of the labor force, had filed for unemployment benefits during the pandemic.[4] There is ongoing discussion and analysis of which jobs will come back and what those jobs will look like when they do come back.

The crisis raised complex questions for those responsible for developing and supporting career pathways that aim to prepare learners for further education and family-sustaining careers, such as: What can we expect? Has this crisis changed the economy for good? How can we equitably prepare learners for the evolving economy? Can and should we trust what labor market projections are showing in a time of constant upheaval?

This brief draws from current research and interviews with leaders from across the country. It aims to provide practical advice for state and local leaders on how to design and support the career pathways that best prepare learners for resiliency and lifelong success, while continuing to meet industry's needs.

What the Research Says

Even before the pandemic, the United States economy was undergoing a strong shift — what some call the Fourth Industrial Revolution.[5] Digital technology was disrupting and changing systems at a pace never seen before. Artificial intelligence (AI), e-commerce, automation and the demand for virtual work skills were already affecting the job market and overall economy. The virus has simply intensified their influence.

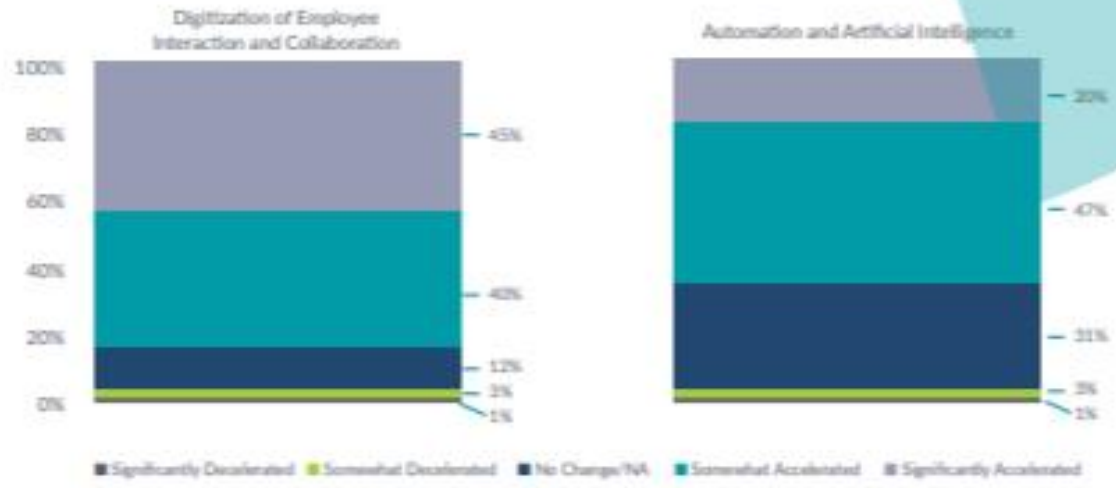
As states and communities assess their existing career pathways and any plans to develop new ones, the current research points to two major themes:

- The increasing importance of foundational and transferable skills that can apply across all industries and occupations; and
- The continuation of pre-coronavirus trends — but at an accelerated pace.

Equity Implications of Digital Skills

Thirty-one percent of American workers today have limited or no digital literacy skills, and workers of color are disproportionately affected by digital literacy skill gaps. Among Black workers, 50 percent have limited or no digital literacy skills, and 57 percent of Latinx workers have limited or no digital literacy skills. As state and local leaders attend to these critical skills, they must do so with an equity lens to ensure that they are reaching and supporting historically marginalized learners.[6]

SINCE THE START OF COVID-19, HOW HAS YOUR COMPANY'S ADOPTION OF THESE TECHNOLOGIES CHANGED?



The Importance of Foundational and Transferable Skills

One clear finding from the research is the increasing importance of skills that can ensure resiliency and adaptability in the workplace. There is a large research base around the competencies that are increasingly demanded and valued in the workforce. An analysis completed pre-pandemic found that the top in-demand cognitive competencies were (1) communication, (2) teamwork, (3) sales and customer service, (4) leadership, and (5) problem solving and complex thinking, with communication having the highest demand across all occupations.[7]

Similarly, research by Burning Glass and the Business-Higher Education Forum identified a set of foundational skills that will be critical to workers' success in the new digital economy:

- *Human skills:* Critical thinking, creativity, communication, analytical skills, collaboration and relationship building;
- *Digital building block skills:* Analyzing and managing data, software development, computer programming, and digital security and privacy; and
- *Business enabler skills:* Project management, business process, communicating data and digital design.[8]

Importantly, these foundational skills are at low risk of automation and therefore are of particular importance for learners to gain through their career pathways to ensure resiliency in the workforce.

While these studies preceded the coronavirus, there are strong reasons to believe these skills will be only more valuable going forward, especially the focus on digital skills. Digital skills are both cognitive and technical, and they are increasingly necessary for carrying out work tasks. Remote work practices such as the use of online meeting and collaboration tools

> "I can't even answer whether we need to pivot right now, but we'll have conversations based on the data, and discuss whether the changes are temporary or permanent."
>
> *State Leader*

and effective online communication have become common and will likely continue to be standard practice.[9] Digital skills are also vital for success in both college and careers.[10] Applying to and attending postsecondary programs now requires digital skills, as does searching, applying and even interviewing for jobs. The pandemic has made clear that those without these skills and access to technology are disadvantaged as never before, which is why it is so critical that all individuals have "the awareness, skills, agility, and confidence to be empowered users of new technologies and adapt to changing digital skill demands."[11]

The Continuation of Trends — With Some Acceleration

What has not changed during the coronavirus pandemic are long-term job projections and the trend toward automation. In just the past 50 years, there has been a sharp shift from blue-collar employment (down from 40 percent of American workers in 1970 to 21 percent in 2019) to professional and technical occupations (from 27 to 44 percent of employment). This trend is expected to continue. More broadly, the importance and value of education and training beyond high school will only increase in the years to come. One projection predicts that 70 percent of all jobs will require workers to have at least some postsecondary credential or training beyond high school by 2027, an increase from 65 percent in 2017.[12] The same projection predicts that 30 percent of all jobs will require a credential other than a four-year degree.[13]

The occupations projected to grow the most from 2019 to 2029 include those in health care (such as nurse practitioners, occupational therapy assistants and physician assistants) and information technology (due to growing demand for security, digitization and software development), building on the trends from the previous decade.[14]

A growing body of research demonstrates that the pandemic further accelerated shifts to automation. One report found that 44 percent of all work activities have the potential to be automated between 2016 to 2030. In May 2020, McKinsey and Company found that consumer and business digital adoption had advanced five years over just eight weeks at the beginning of the pandemic.[15] This finding was further supported by a survey McKinsey and Company conducted of 800 global employers that revealed that 67 percent of companies have accelerated automation and AI since the beginning of the coronavirus pandemic.[16] This result has great implications for career pathways and which ones will continue to have labor market demand in the future.

How States and Communities Can Move Forward

Given the messiness of real-time labor market data, which may show wild swings in employment within sectors and reflect short-term realities that will eventually ebb once the country returns to its "new normal," using LMI may feel complicated and uncertain. However, it is critical that states and local leaders continue the work of scaling up career pathways aligned with careers that are truly in demand and valued in the economy — and scaling down those that no longer align with good opportunities. With this lens in mind, four major themes emerged from conversations with national, state and local leaders regarding their efforts to ensure that their career pathways and other Career Technical Education (CTE) programs continue to align to their state and local labor markets:

- Remain committed to using labor market data and making data-driven decisions;

- Continue ongoing and regular engagement with key industry and workforce partners to enhance the data;
- Be intentional about how labor market data is communicated; and
- Accelerate efforts to build critical foundational skills across career pathways and to develop career pathways in emerging sectors.

Remain Committed to Using Labor Market Data and Making Data-Driven Decisions

One major takeaway from the interviews and research is to not over-react to the short-term spikes but to consider the data in the context of pre- and post-pandemic trends. While pivoting career pathways based on the short-term data may be tempting, states and communities should do so only when reliable data is driving that decision.

Many states have been using and disseminating LMI to inform career pathways development and implementation for some time, which puts them in a strong position to monitor and weather the current storm. For example, the **Kentucky** Center for Statistics, or KYSTATS, was created in 2012 to house the state's longitudinal data system. The system incorporates data from multiple Kentucky agencies, including labor market data. Starting in 2015, the Kentucky Office of Career and Technical Education partnered with other state agencies, including the Cabinet for Economic Development and the Kentucky Workforce Investment Board, to review all the career pathways in the state for labor market alignment. The process included touring the state to meet with local workforce boards to assess their agreement with the LMI and with school districts to determine alignment between career pathways standards and content and the LMI. By the end of 2018, numerous career pathways were modified or phased out, and 100 percent of career pathways were aligned with high-skill, high-wage and in-demand occupations.[17]

This prior work on data-driven program review positioned Kentucky well for the uncertain times of the pandemic. The state has a one-stop shop for data sources and processes in place to determine if changes are needed to career pathways and what those changes should be. Leaders are now consulting the data on a monthly basis and will stay the course of supporting and funding only those career pathways identified as aligned to good careers until the data directs them otherwise.

In **Michigan**, the Bureau of Labor Market Information and Strategic Initiatives (BLMISI), which is part of the state's Department of Technology, Management, and Budget, has also made labor market data accessible for some years. BLMISI provides an online, annual "Ten-Year Regional Career Outlook" and monthly "Job Demand Snapshots" for each of the state's Prosperity Regions. BLMISI contracts work with CTE leaders from the individual regions to help interpret and analyze the data. The data has been an important component of state-level approval of new career pathways. Like Kentucky, Michigan is not yet seeing dramatic shifts in the data that might prod changes in career pathways going forward. Rather, it is seeing an affirmation of where the state needs to support CTE pathways. The state's priority industry sectors — agriculture, construction, energy, health care, information technology and manufacturing — have remained the same.

South Carolina has been reviewing its LMI and enrollment data with an eye toward equitable participation and outcomes. For example, having reviewed its enrollment in science, technology, engineering and math programs, which is nearly 80 percent male and about two-thirds White

> "We are definitely dipping into the data more frequently than ever before"
>
> *State Leader*

learners at the secondary level, the state has expanded its credential offerings to provide more options for learners. South Carolina is also in the process of conducting a landscape report focused on computer science, reviewing the past five years of enrollment data, outcome data and labor market demand to identify strategies for increasing the pipeline in high school career pathways for female, Black, Latinx and other historically marginalized populations.

Regularly Engage Key Industry and Workforce Partners to Enhance the Data

Even absent the current uncertainty, LMI is not always completely reliable and comprehensive, which is why it is critical for career pathways leaders to engage stakeholders and partners to understand the full picture. Having regular engagement with key partners provides opportunities to not only fill in gaps but also ensure that all stakeholders are on the same page regarding how the LMI can and should be used in the short term, particularly at the regional or local level.

Kentucky has multiple venues for incorporating the knowledge and expertise of industry partners into decision making on career pathways. The Kentucky Workforce Innovation Board provides regular input and updates, even more so during the pandemic. The state has also established Business and Education Alignment Teams that meet annually. There are currently teams for 11 different industry areas (agriculture, automotive and transportation, business and marketing, computer science/information technology, construction, engineering/aviation, family consumer sciences/teaching and learning, health science, law and public safety, manufacturing and media arts). The teams include national and regional business and industry representatives and instructors, who review the career pathways being offered in their field as well as career pathway content, curricula and related certifications to ensure relevance to the labor market and raise awareness about shifts in competencies or technical knowledge needed.

In **South Carolina**, regions completed their Comprehensive Local Needs Assessment (CLNA) for Perkins V in April 2020 with the original intent that the CLNAs would serve as maps for career pathways programming for the following two years.[18] However, the South Carolina Office of Career and Technical Education decided to re-engage the state's 12 regions to see if the pandemic was necessitating any revisions and hired a new business and industry liaison — in partnership with the Department of Employment and Workforce — to help facilitate those discussions. A number of regions revamped their career pathways and supports based on updated data and input from their industry and workforce partners. Rock Hill Schools, for example, decided to add a drone remote pilot certification program, which is a new four-course career pathway, as well as an aerospace career pathway after re-engaging in the CLNA process and reviewing data with an eye toward recession-proof opportunities. The state has also decided to expand its health science offerings to add a program in public health in response to the pandemic and robust interest from both learners and industry partners.

Be Intentional About Communicating Labor Market Data

As the local workforce intermediary based in **Indianapolis, Indiana**, EmployIndy aims to increase access to and success in career pathways for Marion County residents, while supporting employers' talent needs. In this role, EmployIndy has a history of providing labor market studies and reports on key sectors. The current focus, in light

> "The trends will be similar, but the stories behind the trends will be different. ... [LMI] is an art rather than a science."
>
> *Local Workforce Leader*

of the coronavirus pandemic, is to build out the data tools and capacity to make the information as actionable as possible to both industry and education partners. From the partners' perspective, the labor market data collected last year — through a variety of national and state sources — was not particularly useful and sent mixed messages about the long-term career opportunities in the region and state. As such, EmployIndy has invested in its internal capacity to collect LMI and conduct its own research to better communicate what the LMI says with regards to the changes in the jobs themselves and the competencies demanded within those jobs.

By starting with the data and then engaging employers and other key partners, EmployIndy plans to add more nuance and explanation to the data, enabling the organization to help both education and industry partners better leverage the data to support learners, career pathways development, hiring and training.

Accelerate Efforts to Build Critical Foundational Skills and Emerging Career Pathways

Even before the pandemic, many efforts were underway to develop and strengthen career pathways in digital career fields, as well as to better incorporate digital skills across all career pathways. For example, **South Carolina** was spurred to pursue new career pathways in AI fields by a recent report showing high workforce exposure to AI in South Carolina relative to other states.[19] Thus, South Carolina is developing an AI-focused career pathway that can be piloted as early as the 2021-22 school year. But because AI potentially spans all Career Clusters®, the state is also exploring how to add content and instruction in AI to all career pathways.

As another example, **Kentucky** has an existing career pathway in automation engineering, which has not been widely offered across the state. Now, the Department of Education is collecting job-posting data for automation engineers across Kentucky to share with the Workforce Innovation Board and industry partners to determine if and how the program should be scaled.

> "Production operator is on our list of top occupations and has been in demand for a long time. ... [T]he change is what that operator does today versus five years ago and in the future."
>
> *Local Workforce Leader*

Final Thoughts

2020 was a time of great upheaval in the nation's economy. It is still unknown to what degree some of the shifts seen in industries and workplaces — where people work and how they work — will be temporary or permanent. Still, the research and individuals consulted for this brief offer a steady path forward. State and local leaders should:

- Continue to **make data-informed decisions** about which career pathways to build and support and which ones to transform or phase out. In the face of major economic upheaval, while responding to real-time changes may be tempting, focusing on the longer-term trends and consulting multiple data sources and stakeholders are critical. This is a key time to focus on those career pathways in sectors that will reliably provide good opportunities for learners and scale down the career pathways aligned with jobs that were hard hit in the pandemic and are unlikely to return.
- **Address equity within any LMI tools, supports and decisions.** As states and institutions invest in their labor market systems and platforms, presenting the data with an equity lens is critical to better inform investments and arm

learners with actionable information. For example, learners and other key stakeholders should be able to understand the value and outcomes of career pathways offered within their communities, such as job placement and wages, and how those outcomes might differ based on a learner's race or ethnicity, gender, educational background or other demographics.

- Take this opportunity to **streamline existing labor market data** to make it more usable and accessible for policymakers, local partners, instructors and learners themselves. Many states and communities draw on multiple sources, and this is an ideal time to build consensus over which LMI is trusted and how it will be used within and across regions. New Skills *ready network* sites Indianapolis, Indiana, and Dallas, Texas, are both undertaking efforts to streamline multiple LMI sources into a more coherent model.
- Build **capacity within the system** to improve labor market data literacy. With the complexities of labor market data and increased frequency of the data being reviewed at the state, region and community levels, leaders at all levels — including counselors and advisers — need a better understanding of what they are looking at and how they should interpret the data to best support learners.

This resource was developed through JPMorgan Chase & Co.'s *New Skills ready network*, a partnership of Advance CTE and Education Strategy Group.

New Skills ready network, launched by JPMorgan Chase & Co. in 2020, bolsters the firm's efforts to support an inclusive economic recovery, as part of both their $350 million, five-year New Skills at Work initiative to prepare people for the future of work and their new $30 billion commitment to advance racial equity. Advance CTE and Education Strategy Group are working with sites to improve student completion of high-quality career pathways in six US communities.

The six *New Skills ready network* sites are: Boston, Massachusetts; Columbus, Ohio; Dallas, Texas; Denver, Colorado; Indianapolis, Indiana; and Nashville, Tennessee. These sites are formulating new partnerships between local school systems, higher education, employers and government entities to develop pathways and policy recommendations that give underserved students access to higher education and real-world work experiences that lead to high-wage, in-demand jobs.

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