

Credential Resource Guide

The purpose of this Credential Resource Guide is to provide information on the types of credentials available to workforce program participants and explain how they can acquire and leverage these credentials to build lasting careers. This resource guide is organized into five sections.

- **Section 1 - Defining Credentials**
- **Section 2 - Understanding Credentials**
- **Section 3 - Tools for Identifying Credentials**
- **Section 4 - Acquiring and Leveraging Credentials**
- **Section 5 - Current Models of Industry-Recognized Stackable Credentials**

1.0 Defining Credentials

There are many different types of credentials offered or awarded by various types of organizations. This document is intended as a reference guide and glossary to further define these various types of credentials and also to provide links to online resources where listings of specific credentials are available within each type.

Overall description of credential. 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:

1. Educational diplomas, certificates and degrees;
2. Registered apprenticeship certificates;
3. Occupational licenses (typically awarded by State government agencies);
4. Personnel certifications from industry or professional associations; and
5. Other skill certificates for specific skill sets or competencies within one or more industries or occupations (e.g. writing, leadership, etc.).

These categories of credentials are further defined and described in the sections below.

1.1. Glossary of Educational Credentials/Awards

The terms most commonly used for educational credentials are: *diploma*, *certificate*, and *degree*. *Credit hours* are the building block components of these educational credentials.

High school diploma or recognized equivalent	A document certifying the successful completion of a prescribed secondary school program of studies, or the attainment of satisfactory scores on the General Educational Development (GED) test or another state specified examination.
Postsecondary award, certificate, or diploma (less than 1 academic year)	An award that requires completion of an organized program of study at the postsecondary level (below the baccalaureate degree) in less than 1 academic year (2 semesters or 3 quarters), or designed for completion in less than 30 semester or trimester credit hours , or in less than 45 quarter credit hours , or in less than 900 contact or clock hours , by a student enrolled full time.
Postsecondary award, certificate, or diploma (at least 1 but less than 2 academic years)	An award that requires completion of an organized program of study at the postsecondary level (below the baccalaureate degree) in at least 1 but less than 2 full-time equivalent academic years , or designed for completion in at least 30 but less than 60 semester or trimester credit hours , or in at least 45 but less than 90 quarter credit hours , or in at least 900 but less than 1,800 contact or clock hours , by a student enrolled full time.
Postsecondary award, certificate, or diploma (at least 2 but less than 4 academic years)	An award that requires completion of an organized program of study at the postsecondary level (below the baccalaureate degree) in at least 2 but less than 4 full-time equivalent academic years , or designed for completion in at least 60 but less than 120 semester or trimester credit hours , or in at least 90 but less than 180 quarter credit hours , or in at least 1,800 but less than 3,600 contact or clock hours , by a student enrolled full time.
Certificate	A formal award certifying the satisfactory completion of a postsecondary education program .
Post-baccalaureate certificate	An award that requires completion of an organized program of study equivalent to 18 semester credit hours beyond the bachelor's degree. It is designed for persons who have completed a baccalaureate degree, but does not meet the requirements of a master's degree .
Post-master's certificate	An award that requires completion of an organized program of study equivalent to 24 semester credit hours beyond the master's degree , but does not meet the requirements of academic degrees at the doctor's level.
First-professional certificate (post-degree)	An award that requires completion of an organized program of study designed for persons who have completed the first-professional degree (see next page). Examples could be refresher courses or additional units of study in a specialty or subspecialty.

Degree	An award conferred by a college, university, or other postsecondary education institution as official recognition for the successful completion of a program of studies.
Associate's degree	An award that normally requires at least 2 but less than 4 years of full-time equivalent college work.
Bachelor's degree	An award (baccalaureate or equivalent degree, as determined by the Secretary, U.S. Department of Education) that normally requires at least 4 but not more than 5 years of full-time equivalent college-level work. This includes all bachelor's degrees conferred in a 5-year cooperative (work-study) program . A cooperative plan provides for alternate class attendance and employment in business, industry, or government; thus, it allows students to combine actual work experience with their college studies. Also includes bachelor's degrees in which the normal 4 years of work are completed in 3 years.
Master's degree	An award that requires the successful completion of a program of study of at least the full-time equivalent of 1 but not more than 2 academic years of work beyond the bachelor's degree . Some of these degrees, such as those in Theology (M.Div., M.H.L./Rav) that were formerly classified as " first-professional ", may require more than two full-time equivalent academic years of work.
First-professional degree	An award that requires completion of a program that meets all of the following criteria: (1) completion of the academic requirements to begin practice in the profession; (2) at least 2 years of college work prior to entering the program; and (3) a total of at least 6 academic years of college work to complete the degree program, including prior required college work plus the length of the professional program itself. First-professional degrees may be awarded in the following 10 fields: <ul style="list-style-type: none"> Chiropractic (D.C. or D.C.M.) Dentistry (D.D.S. or D.M.D.) Law (L.L.B. or J.D.) Medicine (M.D.) Optometry (O.D.) Osteopathic Medicine (D.O.) Pharmacy (Pharm.D.) Podiatry (D.P.M., D.P., or Pod.D.) Theology (M.Div., M.H.L., B.D., or Ordination) Veterinary Medicine (D.V.M.)
Doctor's degree	The highest award a student can earn for graduate study. The doctor's degree classification includes such degrees as Doctor of Education, Doctor of Juridical Science, Doctor of Public Health, and the Doctor

of Philosophy degree in any field such as agronomy, food technology, education, engineering, public administration, ophthalmology, or radiology.

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System Glossary at: <http://nces.ed.gov/ipeds/glossary/>.

1.2. Apprenticeship Certification or Certificate

The Registered Apprenticeship system offers two types of credentials for workers: 1) certificate of completion of an apprenticeship program, and 2) interim credentials, introduced in October 2008 with the final rule revising regulations for Labor Standards for Registration of Apprenticeship programs (29 CFR part 29). Certificates of completion of apprenticeship are issued by the U.S. Department of Labor (DOL) or a State Apprenticeship Agency. Currently, interim credentials are issued by DOL.

Apprenticeship Certification or 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 met 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.

Apprenticeship interim credential means a credential issued by the Registration Agency, upon request of the appropriate sponsor, as certification of competency attainment by an apprentice. See Appendix 1 for additional background information on Apprenticeship credentials.

Source: Excerpts from Apprenticeship Regulations, 29 CFR part 29, Labor Standards for Registration of Apprenticeship Programs (as amended October 28, 2008).

1.3. Occupational Licenses

Characteristics of occupational licenses include that they typically are:

- Granted by Federal, state or local governmental 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 - occupational licenses must be renewed based on meeting on-going requirements to maintain the license; and
- Violation of the terms of the license can result in legal action.

1.4. Personnel Certifications

A personnel certification indicates that the individual has acquired the necessary knowledge, skills and sometimes personal attributes 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 examinations that have been determined to be fair, valid and reliable) and re-affirmed (re-certification) at a designated interval (such as every three years). The certificate that is given is owned by the certification body and can be taken away from the certified person for reasons of unethical or incompetent behavior after an appropriate due process.

Characteristics of personnel certifications include:

- Granted by third-party non-governmental agencies - usually associations, and by companies;
- Intended to set professional standards for qualifications, such as a certification for a crane operator, or a Novell Network Certified Engineer;
- The standards for certifications are not defined by government laws or regulations;
- Usually require successful completion of an examination or assessment, which indicates mastery of competencies as measured against a defensible set of standards;
- Standards are set through a defensible, industry-wide process of job analysis or role delineation that results in an outline of required knowledge and skills
- Usually require a set amount of work experience or professional/practical experience;
- Usually must be renewed in some way after a certain time period based on meeting certain requirements for renewal;
- Voluntary - although state licensure boards and employers may specify certification as part of their requirements; and
- Violation of standards or requirements can result in suspension or revocation of certification.

1.5. Other skill certificates typically are:

- Issued after an individual attends or participates in a particular meeting or course (certificate of completion); or
- Attest to knowledge attainment rather than competency.

2.0 Understanding Credentials: Attributes, Types and Examples

Since credentials come in many different forms and are issued by a wide variety of entities, they defy easy classification. In addition, various credentials have different characteristics and determining the value of specific credentials can also be challenging. For example, in some cases the value is very clear, such as when a credential is required in order to work in a certain industry or occupation (nursing licenses, for example). In other cases, however, the value added from holding a credential is less clear-cut, such as when they contribute to a hiring advantage, higher earnings, enhanced job security, or advancement along a career pathway. This section provides an overview of the most significant characteristics of credentials in relation to the goal of equipping workers with career-enhancing credentials.

2.1. Attributes of Career-Enhancing Credentials

Four attributes of educational and workforce credentials that strengthen the value of credentials to individuals are *industry-recognition*, *stackability*, *portability* and *accreditation*. Accreditation by an independent quality review body is a valuable attribute, but at present, the majority of certain types of credentials are not accredited.

- **Industry-Recognized:** 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. The hundreds of certifications that exist within the information technology (IT) industry are a very good example. There are multiple industry associations, and there are multiple product vendors that offer personnel certifications. The workforce investment system operating in a local area needs to interface with employers to determine what IT credentials are in demand by local employers that are hiring.
- **Stackable:** 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. Information on identifying career ladders and lattices and related credentials is

covered in a later section of this paper, along with examples of some existing industry sectors that are working to identify stackable credentials.

- **Portable:** 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.
- **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 U.S. Secretary of Education as reliable authorities concerning the quality of education or training offered by the institutions of higher education or higher education programs they accredit. Students using federal financial aid must enroll in institutions or programs that are accredited by the appropriate regional or national accrediting agency.

Accreditation exists in the realm of personnel certification but is less common. There are two main organizations that accredit personnel certifications or certificates.

- The American National Standards Institute provides accreditation of personnel certifications and certificates and maintains a Directory of Accredited Personnel (ANSI/ISO/IEC 17024) Certification Bodies, Applicants and Suspended Certification Bodies available online at: <https://www.ansica.org/wwwversion2/outside/PERdirectory.asp?menuID=2>.
- The Institute for Credentialing Excellence (ICE)/ National Commission for Certifying Agencies (NCCA) provides accreditation of personnel certifications and certificates and maintains a listing of Accredited Certification Programs at: <http://www.credentialingexcellence.org/NCCAAccreditation/AccreditedCertificationPrograms/tabid/120/Default.aspx>. ICE/NCCA also has recently begun a program to accredit Personnel Certificates, see <http://www.credentialingexcellence.org/AccreditationServices/CertificateProgramAccreditation/tabid/392/Default.aspx>.

Industry-recognized, portable, and stackable credentials provide a valuable return on investment for workforce system customers, because they allow customers to work towards both short- and long-term employment and career goals.

2.2. Stackability and Portability of Different Types of Credentials

Every career pathway and career ladder is founded on initial attainment of a high school diploma or GED. For adults who do not have either, or obtained them many years prior, assessment and remediation may be needed to ensure they have the necessary academic

fundamentals in literacy, numeracy, English language fluency, and science, as applicable for their chosen career field. Employability skills and soft skills are also necessary prerequisites for work. Once an individual has these foundational credentials, he or she can start to develop specialized skills for an industry and occupation (or sequence of jobs and occupations) and embark on a career path. Hence, individuals often need to accumulate or “stack” a series of credentials in order to build their career path or career ladder over time. Credentials can vary significantly in terms of the degree to which they are industry-recognized, stackable and portable.

2.2.1 Educational certificates and degrees from accredited institutions are typically portable throughout the United States. The stackability of educational awards varies based on the field of study and may not be as simple as first obtaining an associate’s degree and then adding two more years to attain a bachelor’s degree. However, an associate’s degree from a junior or community college may not always be equivalent to the first two years towards a bachelor’s degree. For example, some associate’s degree programs that are occupation-specific may not always include all of the general education requirements required for full transfer credit to a Bachelor’s degree. Also if an individual changes the concentration or major field of study between the time they attain the associate’s degree and then go on to earn a bachelor’s degree in another major, there may be prerequisites or other core requirements that need to be fulfilled that will require more than two years of additional postsecondary study in order to earn that bachelor’s degree.

Educational credentials of various lengths are usually expressed in terms of credit hours. A credit hour is defined by the National Center for Education Statistics as, “A unit of measure representing the equivalent of an hour (50 minutes) of [instruction](#) per week over the entire term. It is applied toward the total number of [credit](#) hours needed for completing the requirements of a [degree](#), [diploma](#), [certificate](#), or other formal award.”

There are limitations on the stackability of educational credit hours. Accumulating credit hours outside of an accredited program leading to a formal educational award may mean that not all of the hours will be counted toward an eventual educational award. In other words, if an individual earns educational credits for various courses at different institutions, not all of the credits may be accepted toward a certain degree - so stacking of educational credits depends on a number of variables, the subject matter, how recently they were earned, whether they fulfill core program requirements, and various other factors that all can impact their potential stackability.

2.2.2 Apprenticeship addresses stackability in several ways: 1) through the introduction of interim credentials; 2) the transition from apprentice status to journeyworker status; 3) through attainment of educational credit for portions of apprenticeship programs; and 4) through attainment of related occupational licenses or personnel certifications as part of an apprenticeship program.

Apprenticeship Interim Credentials. Issuance of interim credentials will be determined by the apprenticeship program sponsor’s choice of approach for an apprentice’s progression through that program. There are three approaches: competency-based, time-

based, or a hybrid of the two. Program sponsors must identify and define all interim credentials in the program standards that are registered with the Registration Agency. Interim credentials may be issued only for industry-recognized components of an apprenticeable occupation. Therefore, if an apprenticeship program's standards do not include provisions for issuance of interim credentials for specific components of an apprenticeable occupation, the Registration Agency with which the program is registered may not issue interim credentials to apprentices registered with that program.

Interim credentials are issued by the Registration Agency, upon request of the appropriate sponsor, as certification of an apprentice's attainment of competency. Furthermore, the regulations do not require program sponsors to include interim credentials in their program standards, nor do they require sponsors to request that a Registration Agency issue interim credentials to apprentices registered in their apprenticeship programs. The Department also recognizes that some Registration Agencies may find the issuance of interim credentials to be unduly burdensome and beyond their capabilities. Therefore, Registration Agencies, other than the Office of Apprenticeship, may opt not to offer this additional service.

The DOL Office of Apprenticeship has concluded that the revised regulatory framework regarding interim credentials does not detract from the overall goal of the National Apprenticeship System to support and enable apprentices to complete an apprenticeship program. Through the authorization of interim credentials, the National Apprenticeship System recognizes that some industries and occupations are more amenable to an incremental recognition of an apprentice's increasing skills, knowledge, and abilities. In such industries the use of interim credentials can afford multiple opportunities for apprentices to grow and expand their knowledge and their capacity to meet current, new, and emerging industry advances. Use of interim credentials also recognizes the fact that not all apprentices will complete their apprenticeship programs and offers opportunities for recognition of what these individuals have learned. Therefore, interim credentials will also enable apprentices to obtain portable credentials commensurate with the skills and competencies acquired and demonstrated throughout an apprenticeship. Notwithstanding the value of interim credentials, the issuance of a certificate of completion of apprenticeship, and the associated journeyworker status, remains the ultimate goal for the National Apprenticeship System.

Journeyworker Status

Individuals who have completed a Registered Apprenticeship program are often referred to as "journeyworkers." As defined in apprenticeship regulations, journey worker means a worker who has attained a level of skill, ability and competency recognized within an industry as having mastered the skills, abilities and competencies required for the occupation. (Use of the term may also refer to a mentor, technician, specialist or other skilled worker who has documented sufficient skills and knowledge of an occupation, either through a formal apprenticeship or through practical on-the-job experience and formal training.)

Apprenticeship and Occupational Licenses or Certifications

During an apprenticeship or after an individual completes an apprenticeship, he or she may pursue additional certification from another credentialing body. These certifications are not a requirement of Registered Apprenticeship. However, in many construction occupations, such as plumber, electrician, and solar panel installer, in order for an individual to legally practice that occupation, he or she must also be licensed. As part of the qualifications, State licensing laws or regulations often require the individual to demonstrate that he or she has completed a Registered Apprenticeship program by providing a copy of the Certificate of Completion of Apprenticeship issued by DOL or an SAA.

2.2.3 Occupational licenses are required by government entities, typically state regulatory bodies, before an individual is allowed to be employed in and practice a trade, profession or other occupation. Although most occupational licenses are granted by state governments, some are granted by certain Federal agencies. State licenses often are not portable since states tend to have different licensing standards. Some states do have reciprocity agreements to recognize licenses from other states, often only for specific occupations and specific states, but reciprocity is not universal and needs to be determined on a case-by-case basis for each occupational license.

The portability of occupational licenses can be a particular issue for veterans, separating military members and military spouses, as well as dislocated workers who relocate from one state to another. Since licenses are specific to an occupation they are not really stackable, except to the extent that experience in that occupation serves as a prerequisite or a step up to another occupation in a career ladder. However, the new occupation may also require its own occupational license with its own specific requirements. For many occupations, an individual can continue to stack certifications and other training on top of a license. Licensed nurses, for example, can gain additional credentials beyond the initial license. Also, some licenses require annual training as part of continuous learning in order to maintain the license in good standing.

A couple of examples may help to illustrate the circumstances that pertain to occupational licenses. First, there are approximately 65 federally licensed occupational titles, mostly from Federal Aviation Administration and the Federal Communications Commission and these Federal occupational licenses would typically be portable within the U.S. At the state level there are some occupations that are licensed in virtually every state and some that are licensed in only a few states. As the title implies, the occupation of Licensed Practical Nurse is licensed in virtually every state, although the title used in some States is Licensed Vocational Nurse. Home Health Aides on the other hand are licensed in only nine states. There may be slight variations in the licensure requirements among these nine states that have an impact on the portability of the credential among them. However, if they are moving to a state that does not license Home Health Aides, portability will not be a concern. (There are also national personnel certifications available for Home Health Aides.)

2.2.4 Personnel certifications indicate that an individual has acquired the necessary knowledge, skills and sometimes personal attributes to perform a specific occupation/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 examinations that have been determined to be fair, valid and reliable) and re-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 due process.

Certifications issued by national industry or occupational/professional associations are typically portable, although there can be differences in regional economies or employer preferences. In addition, in some cases there is more than one similar association offering credentials in a career field that again may be preferred in different areas or by different employers. Most personnel certifications require work experience and can only be earned by stacking learning experiences and work experiences and then taking a certification examination and submitting documentation of the pertinent work experience.

In addition, personnel certifications often include work experience components that count toward attainment of the certification.

3.0 Tools for Identifying Credentials

The definition of credentials in Section 1 indicated the wide range of different types of skill and workforce credentials. These credentials are also numerous, so it is not possible for an individual jobseeker or a workforce investment system professional to know all of the potential credentials. Furthermore, new credentials are developed and others become obsolete. Therefore, the best way to disseminate information on credentials is through electronic databases that are available online. This section describes the major public sources of such information.

3.1. Educational Programs

There are several useful online tools to identify educational programs available in a geographic area.

- National Center for Education Statistics—College Navigator site:
<http://nces.ed.gov/collegenavigator/>.
- ETA's CareerOneStop Short-Term Training Finder:
<http://www.careeronestop.org/EducationTraining/Find/Short-TermTraining.aspx>
- Career and Technical Education Credentials: The Carl Perkins Career and Technical Education Act of 2006 emphasizes programs of study in career clusters and pathways, which link what students learn in school with the knowledge and skills they need for success in college and careers. Career and Technical Education (CTE) career clusters and pathways and their curriculum frameworks provide for curriculum integration and contextual learning opportunities that reflect the career goals and interests of a wide range of learners and ensure that they achieve the standards required to be successful as they transition to

postsecondary education and future careers. The National Association of State Directors of Career and Technical Education Consortium (NASDCTEc) provides information on the 16 CTE Career Clusters on their website www.careerclusters.org. This site contains a number of resources to help promote the goals of the Career Clusters and Pathways initiative, including Plans of Study and Knowledge and Skills Charts. NASDCTEc has recently added related credentials listings to these cluster resources at: <http://careerclusters.org/credentials.php>. All listings were reviewed by the Career Clusters leaders and/or the National Advisory Committee members and new credentials were added based on their recommendation. The credentials listed by NASDCTEc are samples of existing credentials and are not meant to be exhaustive listings.

The listings are divided into three primary sections:

- Education and Industry Licenses;
- Education and Industry Certificates; and
- Postsecondary Degree Options.

3.2. Apprenticeship Programs

On the Office of Apprenticeship Sponsors website at <http://www.doleta.gov/oa/links.cfm> visitors can find information on the occupations and sponsors of registered apprenticeship programs in their state.

3.3. Occupational Licenses

CareerOneStop provides a searchable Licensed Occupations database at http://www.careerinfonet.org/licensedoccupations/lois_keyword.asp?nodeid=16&by=keyword. This online tool contains federal and state-provided information including: Licensing agency name, address, and contact information, including Internet links if available; license description and applicable fees; and examination requirements, if applicable.

3.4. Personnel Certifications

The CareerOneStop electronic tool supported by the Employment and Training Administration provides a Certification Finder tool to identify industry or occupational personnel certifications at http://www.careerinfonet.org/certifications_new/default.aspx. This tool provides information including the certifying organization's name, address, and related Web links; certification description; and certification details such as examination and/or work requirements. Information about occupational and industry certifications associated with particular industry competency models also is available through the Competency Model Clearinghouse within CareerOneStop, through the Find Resources search tool, at: <http://www.careeronestop.org/competencymodel/search.aspx>.

3.5. Skills Transferability Tool

CareerOneStop has introduced a new online tool, www.mySkillsmyFuture.org, to assist dislocated workers and others who have work experience but may need to change careers to find employment. A user enters their current or a previous job title to find the closest occupation. The mySkills myFuture tool uses information on occupational competencies, from the Occupational Information Network (O*NET) system, and labor market information to return related occupations that use some of the same knowledge and skills. When the user selects an alternative occupation to explore, the tool then displays for the target occupation related education, training, occupational licenses, and certifications if they exist, as well as local job openings.

4.0 Acquiring and Leveraging Credentials

This section provides an overview of resources to help accelerate credential attainment and accumulate credits and credentials to build on existing knowledge and competencies to attain more specialized or advanced career credentials.

4.1. Credit for Prior or Other Learning or Work Experience

Adult learners often face challenges in obtaining credentials because of competing demands on their time from work, family responsibilities, and continued learning. It can take a long time to accumulate credits and credentials in order to build a career pathway when education and training are being pursued on a part-time or intermittent basis. 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.

National

- **American Council on Education (ACE) College Credit Recommendation Service (CREDIT)** connects workplace learning with colleges and universities by helping adults gain access to academic credit for formal courses and examinations taken outside traditional degree programs. ACE provides reliable course equivalency information to facilitate credit award decisions. Participating organizations include corporations, professional and volunteer associations, schools, training suppliers, labor unions and government agencies.
<http://www.acenet.edu/AM/Template.cfm?Section=CCRS>
- **ACE National Guide to College Credit for Workforce Training** publishes credit recommendations for formal instructional programs offered by non-collegiate agencies, both civilian employers and the military.
<http://www2.acenet.edu/credit/?fuseaction=browse.main>

Credit by Examination

- **The College Level Examination Program® (CLEP)** gives individuals the opportunity to receive college credit by earning qualifying scores on any of 34 examinations for knowledge acquired through independent study, prior course work, on-the-job training, professional development, cultural pursuits, or internships. <http://www.collegeboard.com/student/testing/clep/about.html>
- **Advanced Placement (AP) Exams** are a series of tests, initially for AP High School courses with 34 exams in 19 subject areas. <http://www.collegeboard.com/student/testing/ap/about.html>
- **DSST Credit by Exam Program (formerly known as the DAN TES Subject Standardized Test Program)**. These exams test knowledge of both lower-level and upper-level college material through 38 exams. DAN TES is the Defense Activity for Nontraditional Education Support, designed to assist military personnel in obtaining civilian educational credit for military training. <http://www.getcollegecredit.com/>
- Excelsior College Examination Program, (formerly, Regents College Exams or ACT/PEP Exams), offered by Excelsior College, New York. https://www.excelsior.edu/Excelsior_College/Excelsior_College_Examinations

Local

- Experiential Learning Assessments: also known as individualized student portfolios or interviews.
- Evaluation of Local Training: program evaluations done by individual colleges of non-collegiate instructional programs.
- Challenge Exams: local tests developed by a college to verify learning achievement.

CAEL also has resources to assist educational institutions in incorporating prior learning to help their students achieve certificate and degree completion. This includes an online Prior Learning Assessment Certificate Program for educational institutions.

http://www.cael.org/online_pla_certificate_program.htm

4.2. Using Credential Attainment to Map Career Pathways and Ladders

There are literally thousands of different credentials. As a result, it can be a challenge for the workforce system and its individual customers to identify ways to build a career pathway or career ladder by formulating a plan to accumulate a specific set of stackable credentials. The tools described in the previous section can help identify credentials. This section describes some of the tools that workforce investment professionals operating in regional economies can use to try to document and provide a guide to existing career pathways by using and recording information on occupations and stackable credentials, including approaches that state and local workforce professionals can leverage to increase credential attainment among public workforce program participants.

On-Line Career Competency Mapping Tools: The section on the portability and stackability of credentials described how various credentials can be linked to the framework of an industry competency model to indicate how the credentials might be

sequenced or combined. An industry competency model identifies and communicates industry sector skill needs to the public workforce investment system and its strategic partners in education and economic development. The models identify cross-cutting competencies—sets of knowledge, skills, abilities and attributes—required by workers in an industry. These models clarify the foundational, academic, workplace, and industry technical competencies required to progress up a career ladder or move along a career lattice.

Industry competency models can be a valuable resource for workforce development professionals. Specifically, the models can be used to: 1) identify industry-specific workforce development needs; 2) conduct labor pool analyses; 3) build career paths, ladders, and lattices; 4) develop competency-based apprenticeship programs; and 5) support business human resources services and functions, including hiring, recruitment, writing job descriptions, etc.

There are currently 15 industry competency models, which can be found on the Competency Model Clearinghouse (CMC) at <http://www.careeronestop.org/CompetencyModel/>. A selection of related credentials are displayed at the bottom of the pyramid graphic depicting the model and certification and curriculum resources can be searched for by industry or occupation under the Find Resources link at <http://www.careeronestop.org/competencymodel/search.aspx>.

The CMC site also has two online interactive tools that can be used to 1) build customized competency models for regional economies or specific industry sub-sectors, and 2) to build and document career ladder/lattice progressions, including an indication of credentials needed along the way. On the CMC Web site link (under the Build a Model link) the CMC provides two interactive tools: Build a Competency Model and Build a Career Ladder/Lattice.

- **The Build a Competency Model Tool:** Enables workforce development professionals to customize one of the national industry competency models to reflect specific workforce needs in a region. For example, a user can start with the framework for Advanced Manufacturing and customize it to reflect the competencies for manufacturing wind turbines or pharmaceuticals or other specific products. This tool can support the work of state and local policymakers as they design regional workforce development strategies for specific industries. The tool will allow them to work with employers and local training and education providers to design industry-specific workforce development strategies. For example, a California company engaged in wind turbine manufacturing and installation, customized the Advanced Manufacturing Competency Model to reflect the workforce skill needs for that company. Intended to be used within the company, the model was validated by company managers and employees. The model is used for skill gap analysis, as a framework for developing training materials, and targeting training. They also reported that the foundational competencies were useful for performance counseling with employees.

- **The Career Ladder/Lattice Tool:** Enables workforce development professionals to start with a national or customized industry competency model and then employ the Career Ladder/Lattice tool to display the sequence of jobs or occupations within specific careers in that industry. The tool results in a graphic that illustrates the progression and advancement potential in the career ladder/lattice and also contains documentation of the requirements for each job as well as the critical developmental experiences needed to move among them. A sample graphic for a Career Ladder/Lattice within the Energy sector is shown at http://www.careeronestop.org/competencymodel/careerpathway/ReviewCareerPathways/Energy_CPW.pdf. The model itself provides additional detail. This tool can support the work of case managers and other frontline staff as they counsel individuals on the types of training and education they need to advance along a career pathway.

5.0 Current Models of Existing Industry-Recognized Stackable Credentials

Many regional economies have identified targeted industry clusters for which their region has some type of locational advantage. Economic development agencies, educational institutions, and the workforce development system can work together to promote economic growth by preparing skilled workers for industry clusters. Registered Apprenticeship is industry-recognized by its very nature and due to the collaborative manner in which apprenticeships are developed and set up. In addition, associations within certain industry sectors are also working to identify a series or sequence of stackable credentials that can assist in preparing a local or regional workforce for employment in the industry.

Two industry groups in particular are in the forefront of using industry competency models as a framework for identifying a national system of stackable credentials—advanced manufacturing and energy. These are described below for the benefit of local WIBs or One-Stop Career Centers that are targeting workforce development efforts for those industries in their own regional economies. In addition, other regional efforts may be underway, as in the example of Bio-science below, or similar efforts could be started to develop these approaches for other industry sectors

- **Advanced Manufacturing:** An initiative has been undertaken by the Manufacturing Institute to develop career ladders within the manufacturing sector by identifying and endorsing a set of stackable credentials. The Manufacturing Institute has endorsed a Manufacturing Skills Certification System that they intend to be implemented through community colleges to enable participants to advance along a career pathway in manufacturing, beginning at entry level work readiness and employability skills up into specific technical competencies associated with specific types of manufacturing. The system begins with basic skills required for entry-level workers in all sectors of manufacturing, from alternative energy and computers to aerospace and pharmaceuticals. The skills certifications address personal effectiveness competencies, foundational academic competencies, general workplace skills and manufacturing industry-wide technical skills. Entry-level science, technology, engineering and math (STEM) skills are included in the system. See depictions of the career pathways and

stackable credentials at

http://institute.nam.org/page/edu_workforce_skills_cert_implementation.

These certifications fit into the framework of the Advanced Manufacturing Competency Model developed in collaboration with the Employment and Training Administration along with other industry, education, and labor partners. The model is co-sponsored by the Manufacturing Institute, the National Council for Advanced Manufacturing, and the Society of Manufacturing Engineers. The competency model is available within the CareerOneStop Competency Model Clearinghouse, at:

<http://www.careeronestop.org/competencymodel/pyramid.aspx?HG=Y>.

- **Energy:** The mission of the Center for Energy Workforce Development (CEWD) is to promote efforts to help develop the future energy workforce. As part of that work, CEWD developed the Get Into Energy Career Pathways Model, based on the Energy/Generation, Transmission, and Distribution (Energy) Competency Model which can be accessed at

<http://www.careeronestop.org/competencymodel/pyramid.aspx?NRG=Y>.

The *Get into Energy Career Pathways Model* separates education and training into three categories that align with the tiers of the Energy Competency Model: Basic Training (Tiers 1-3), Industry Fundamentals (Tiers 4-5), and Job Specific Skills and Credentials (Tiers 6-8). Grouping the skills in this way allows for the development of common curriculum and education requirements that correspond to the Get Into Energy Career Pathways model. For example, a technician with successful attainment of Basic and Industry competencies will have the foundation to take additional training for a specific job skill, such as wind or smart grid technologies, providing for a sequence of credentials that build upon each other. See how these relationships are depicted at <http://www.cewd.org/documents/pathwayswhitepaper.pdf>.

To ensure that educators and training providers are training to the key competencies identified by the industry, CEWD is in the process of mapping existing industry credentials and curriculum to the competencies in the model. By using the Energy Competency Model as the framework for uniform training and development, CEWD can help focus curriculum development to address the specific needs of industry and reduce program overlap and duplication of effort among education and training providers. CEWD's efforts to create a uniform curriculum framework serve to align education and training with the needs of the industry.

- **Information Technology:** Information technology (IT) is the industry sector with perhaps the largest number of associated certifications and other credentials offered by organizations both commercial and non-profit. The sheer number of potential credentials can present challenges for individuals and for staff in the workforce system when trying to identify which IT credentials will be beneficial for certain individuals in specific labor markets. One IT industry organization, the Computing Technology Industry Association (CompTIA) has developed several online tools to assist individuals and staff who work with students and jobseekers to access and make sense of the sphere of IT credentials. At <http://www.comptia.org/careers/backtowork.aspx>, Getting

America Back to Work (GABTW) is an online tool that is designed to guide individuals through an integrated IT training and certification process all the way through to identification of potential job openings. The GABTW site guides individuals through a four-step process: 1) assessment, 2) training, 3) certification, and 4) placement—providing referrals to relevant information at each stage—including referrals to local One-Stop Career Centers and to other training resources. WIBs are invited to participate with CompTIA in this initiative if IT is an in-demand industry cluster in their regional economy. In addition, CompTIA has a somewhat more technical online resource on IT skills, competencies, and related certifications called the TechCareerCompass, located at <http://tcc.comptia.org/>.

- **Bio-Science:** The Missouri Economic Research and Information Center is using the industry competency models as resources to guide workforce development initiatives that address skill gaps in targeted industry clusters. In fact, at Moberly Area Community College the models are being used for program assessment and re-development, the information technology faculty used the models to identify gaps in curriculum and course offerings and conducted a skills gap analysis and validation of existing curriculum. In addition, the Missouri Department of Elementary and Secondary Education and Missouri Center for Career Education have used the models for re-development of existing competency profiles for career education instructors and to conduct a validation and gap analysis of measurable learner objectives and task statements for local curriculum development.

Bio-1 is a workforce development partnership of regional industry groups, businesses, WIBs, educational and research institutions, and government and nonprofit organizations in New Jersey. (See <http://www.bio-1stop.org/>) The Bioscience Competency Model is used as a resource for creating career pathways in the bioscience industry. Bio-1 is working with educators from K-12 through university levels to create articulation agreements, mentoring programs, internship, and professional development opportunities. The Monmouth County Vocational-Technical Biotechnology Career Academy High School in Freehold, NJ is using the model to inform and evaluate its curriculum. The four community colleges in the region are creating associate degrees that prepare students for immediate career opportunities in pharmaceutical or biotechnology companies or transfer to upper division colleges and universities.

- **State-Level Projects:** In addition to national sector-driven strategies a number of states have undertaken initiatives to increase credential attainment in fields in demand and based on strategic partnerships between the workforce system, employers and educators. One well-documented example is the Oregon Career Pathways initiative. Oregon defines a Career Pathway as a series of connected education and training programs and student support services that enable individuals to secure a job or advance in a demand industry or occupation. Career Pathways focus on easing and facilitating student transition from high school to community college; from pre-college courses to credit postsecondary programs; and from community college to university or employment.

The goal of the initiative is to increase the number of individuals attaining certificates and credentials. The strategy combines innovative course designs that are driven by industry preferences for competency-based curricula and designed around the needs of adult learners for flexible scheduling, contextualized learning, and supportive services.

Career pathway approaches also rely on visual roadmaps or templates to depict the coursework, competencies, skill requirements, and credentials needed for a series of related occupations in an industry sector. Oregon has developed an interactive web-based tool that allows students and workers to chart a career path and identify the necessary educational and labor market credentials necessary to advance along it. The URL for the tool is: <http://www.mypathcareers.org/>. For more information on Oregon's statewide approach to increasing credential attainment, see the Worksource Oregon website at: <http://www.worksourceoregon.org/index.php/career-pathways/128-what-are-career-pathways>.