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Your Question:

You asked for information on examples of how states are creating opportunities and connecting students to apprenticeships and credential programs in high-skilled manufacturing.

Our Response:

States continue to look for ways to create opportunities to develop skills of both secondary students and adults who are looking to [upskill and reskill](#) so that they can enter [good jobs](#) that pay between \$35,000 to \$45,000 a year in high-need fields in their state. Roughly [two out of three jobs](#) in the industrial sector require education and training beyond high school, meaning that for students and adults to obtain good jobs, they need skills beyond those developed high school.

To provide these opportunities, states have adopted a variety of secondary and postsecondary education policies. States have:

- Created career clusters in high-demand fields in their secondary career and technical programs;
- Formed opportunities for work-based learning and pre-apprenticeships;
- Increased awareness of opportunities and expanded graduation requirements;
- Removed financial barriers to postsecondary workforce education and training; and
- Created and used regional career centers to connect adults to education and training opportunities.

In addition to state education policy and practice, large employers have committed to forming training programs for their employees. In some cases, but not all, the programs are connected with postsecondary institutions.

Secondary Education Approaches

In a secondary setting, states are creating secondary career and technical education (CTE) clusters and work-based learning programs that, in some cases, align with postsecondary programs and career opportunities in high-need fields. As a means of connecting students to these programs, some states allow students to use CTE credit toward graduation requirements and require that students be informed about learning and career opportunities.

CTE Career Clusters

Often, opportunities specific to industry sectors are offered through [Career Clusters](#) in state CTE programs.

[Manufacturing](#) is one of the [16 Career Cluster](#) frameworks created by Advance CTE. Not all states have adopted and implemented Career Cluster frameworks in their CTE program, but the clusters can serve as an organizing tool for CTE programs, curriculum and instruction. Students who enter the clusters can develop skills through a [course framework](#) that is targeted on industry-specific skill development.

- [Nebraska](#): The state provides six Career Clusters in its secondary CTE program. In the [manufacturing cluster](#), students have a pathway to postsecondary education that supports their pursuit of a career in different manufacturing sectors. The state outlines the learning objectives of the program, education and certification required to enter certain professions, and the education and training options students have when pursuing manufacturing careers.

Work-Based Learning: Apprenticeships and Pre-Apprenticeships

In a secondary setting, work-based learning can include a range of activities from job shadowing to pre-apprenticeships. A growing number of states are connecting their CTE students with work-based learning

experiences, including pre-apprenticeships. In some cases, the pre-apprenticeship is connected to a registered apprenticeship program and postsecondary education.

- **Maryland:** The state Department of Labor offers a youth apprenticeship program in 12 counties in conjunction with high schools and employers. The program focuses on [six broad industries](#), including manufacturing. Youth apprentices work a minimum of 450 hours in conjunction with CTE and other coursework at their high school. In [some cases](#), students have the opportunity to continue onto a registered apprenticeship with the employer and earn up to 30 hours of postsecondary credit for their registered apprenticeship hours.

Student Awareness and Graduation Requirements

Knowing that the high school graduation rates for CTE concentrators (those who earn two to three CTE credits) is [93 percent](#) compared to 80 percent for non-concentrators, and that information about opportunities can vary widely, states have begun to consider ways to connect more students to CTE and work-based learning. States have taken steps to engage with more students and increase the flow of information.

- **Increasing Awareness:** Some states require that school counselors be provided with information on labor market trends, required education for certain occupation, CTE opportunities in the school and work-based learning opportunities. [Virginia](#) requires school boards to implement plans to notify students and their parents of the availability of internships, externships, credential programs, certificate programs, licensing programs and other work-based learning experiences.
- **Graduation Requirements:** States are considering ways to provide students with high school and postsecondary credit for CTE coursework and engagement in work-based learning. [Maryland](#) allows school boards to credit time spent in work-based training or classroom instruction as part of a registered apprenticeship toward high school diploma requirements.

State Example

Kentucky: In the state CTE system, students have the opportunity to enter career clusters that provide academic and technical skills in specific industries to students. Within the cluster, a student has the opportunity to pursue a pre-apprenticeship that aligns with the student’s CTE cluster coursework.

- **Career and Technical Education Clusters:** Kentucky offers all 16 career and technical education Career Clusters ranging from finance to manufacturing. The cluster and CTE programs are designed to support student academic achievement, provide opportunities for career exploration and increase career preparedness. The program works to make sure students are ready to transition to postsecondary education and a career.
- **Pre-Apprenticeships:** The TRACK program is a partnership between the Kentucky Department of Education Office of Career and Technical Education and the Kentucky Labor Department. Secondary students are provided pre-apprenticeships with employers who offer registered apprenticeships in the state. The secondary students can pursue opportunities in four focus areas ([carpentry](#), [electrical](#), [manufacturing](#), and [welding](#)).
- **Graduation Requirements:** The state graduation requirements allow students to apply the completion of four CTE cluster pathway credits or a two-year pre-apprenticeship or apprenticeship toward their college and career readiness graduation requirement.

Adult and Postsecondary Approaches

As an increasing number of jobs require additional skills and education, many adults not connected with a postsecondary education system require upskilling and reskilling to obtain a good job with sustainable wages. States,

the federal government and corporations have adopted a range of approaches to provide opportunities for adults to connect to the postsecondary system and apprenticeships to obtain the skills they need to access good jobs.

Removing Financial Barriers to Postsecondary Workforce Education and Training

One common barrier to adults seeking postsecondary education to upskill and reskill is the cost associated with education. To support individuals in pursuing postsecondary credentials, states have developed financial incentives and support systems.

- In 2017, **Indiana** enacted [H. B. 1008](#), creating the [Workforce Ready Grant](#). The grant is designed to remove financial barriers preventing individuals from getting training for jobs in the state. The grant pays for all tuition and regularly-assessed fees for qualifying high-value certificates and can be used at any eligible training provider for up to two years. Eligible students must be Indiana residents and U.S. citizens, have a high school diploma (or equivalent), and enroll in a qualifying training program at an approved provider. Qualifying programs align with identified [high-demand sectors](#), including advanced manufacturing, building and construction, health sciences, IT and business services, and transportation and logistics.

Connecting Postsecondary Education and Apprenticeships

States have developed mechanisms for adults to pursue postsecondary education in conjunction with a registered apprenticeship. By connecting postsecondary education with an apprenticeship, states allow adults to earn wages and obtain industry certification and a postsecondary credential through an aligned process.

- [Apprenticeship Carolina](#) is a division of the [South Carolina Technical College System](#). The division works to ensure employers in the state have access to information and technical assistance to create demand-driven registered apprenticeship programs. In addition to Apprenticeship Carolina, the division coordinates with the 16 technical colleges to offer [Ready SC](#) to prepare individuals for the state workforce needs. This program works directly with employers to design training programs to meet specific employer needs. The division designs curriculum for a specific employer needs and offers multiple delivery options including hands-on simulations, computer-based training, virtual recreations of work processes, hand-held video delivery options, one-on-one training, and mentoring and classroom training.

Regional Career Centers

As noted earlier, not all adults seeking additional education and skills are connected with postsecondary institutions or know where to turn for information and support. One resource in [states and regions](#) are [American Job Centers](#) coordinated by the U.S. Department of Labor. The centers were established under the Workforce Investment Act and reauthorized in the [Workforce Innovation and Opportunities Act \(WIOA\)](#). The centers offer training referrals, career counseling, job listings and other employment services. In 2015, the network of centers provided [13 million people](#) with support services.

Employer-Based Training and Postsecondary Education

While employer-provided training is not a new subject, large companies, including [Amazon and Google](#), have announced that they will be providing worker training programs for their employees. The companies are turning to third parties to provide the training in place of postsecondary institutions. The recent activity has raised [questions about the credentials that employer-based training](#) will provide for employees and the role of postsecondary institutions in the process.