

The State of Career Technical Education
Employer Engagement in CTE



About The National Association of State Directors of Career Technical Education Consortium

NASDCTEc was established in 1920 to represent the state and territory heads of secondary, postsecondary and adult Career Technical Education (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 Education Foundation (NCTEF), NASDCTEc provides leadership and support for the National Career Clusters® Framework to deliver high-quality CTE programs through improved curriculum design and instruction. The ultimate goal: To elevate student success in college and careers while strengthening the economy and driving America's competitiveness worldwide.

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Serving 12.5 million students a year, CTE provides students and adults with the academic and technical skills, knowledge and training necessary to succeed in future careers and to become lifelong learners. For more information, see www.careertech.org.

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From its earliest roots, employer engagement has been a part of the legacy of Career Technical Education (CTE). From advising on state-developed standards and preferred credentials to participating in student skills competitions, employers who interact with state CTE systems can get a greater return on their investment of time and energy. Such engagement has the ability to improve students' educational experiences and, in turn, strengthen the talent pipeline.

Yet, little is known about what is really happening consistently and systematically across the country, and what state leaders can do to help accelerate effective employer engagement. With business and policy leaders keenly focused on how to increase and deepen partnerships between CTE and employers, the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) set out to identify the “state” of employer engagement in CTE.

Through a survey of 47 State CTE Directors and a dozen interviews with state and national leaders, this report seeks to illustrate the employer engagement landscape today with a particular focus on the ways in which states are and can foster sustained, meaningful employer engagement to strengthen CTE for all students.


The survey showed that states across the country are stepping up in a variety of ways to support, incentivize and accelerate employer engagement throughout their CTE systems.

- ▶ The vast majority of states are using the Carl D. Perkins Career and Technical Education Act of 2006 as a means of boosting employer engagement, most often by requiring or encouraging local advisory committees. Ten states require local programs to incorporate work-based learning, employer-related professional development and/or monetary or in-kind contributions to receive Perkins funding.

The findings are clear — not only is employer engagement happening, it's increasing and will continue to increase in the future.

- ▶ Nearly every state is also leveraging state policies and programs to foster employer engagement in CTE, most commonly by collaborating with state economic or workforce development agencies (42 states), supporting partner-focused pilot initiatives (26 states), providing guidance for local CTE-employer partnerships (23 states) and/or offering state-funded competitive grants (21 states).
- ▶ More than 40 states engage employers in the development or review of state CTE standards and/or in the selection of industry-recognized credentials.

The findings are clear — not only is employer engagement happening, from the vantage point of State Directors, it is increasing and will continue to do so in the future. However, much work remains to be done by education and employers to identify the most impactful and appropriate policy levers and to scale and sustain successful efforts. States must consider a coordinated strategy that draws upon the full range of resources available to them to bring education and employers together for mutually beneficial partnerships that will positively impact all students.



Major economic forces — globalization, new and emerging technologies, retiring baby boomers — are driving employers to change the way they recruit, hire and train employees. Yesterday’s skills no longer hold currency in today’s labor market. The misalignment between the skills held by existing workers or job seekers and those most demanded by employers is one reason the U.S. has a skills gap. It is therefore not surprising that employers and policymakers are increasingly looking to the education system — in particular, Career Technical Education (CTE) — to help solve this skills mismatch challenge.

At its best, CTE provides learners at all levels with foundational and transferable academic and employability skills as well as more focused technical and occupational skills — all of which are necessary for success in the 21st century economy. Yet, CTE cannot deliver high-quality programs without meaningful partnerships with employers, who help ensure that those programs are aligned with industry needs and have genuine value to students and employers alike.

Employer engagement is part of CTE’s legacy, but the fact remains that little is known about what is really happening consistently and systematically across the country. With business and policy leaders keenly focused on how to increase and deepen partnerships between CTE and employers, the National Association of State Directors of Career Technical Education Consortium (NASDCTEc) set out to identify the “state” of employer engagement in CTE through a survey of its members. (See Appendix B for the full methodology).

This report, based on a survey of 47 State CTE Directors and interviews with 12 state and national leaders, offers an analysis that begins to paint the landscape of how and through what types of activities employers are engaged in CTE. It also points to what states are doing and can do to foster and sustain meaningful employer engagement as means to strengthen CTE for all students across the country. While there is no doubt that most direct employer engagement occurs at the local level, we believe there is a critical role states and state leaders can and should play in fostering such engagement through policy, partnerships and programs.

DEFINING EMPLOYER ENGAGEMENT

For the purposes of this paper, the collaboration between CTE and employers is referred to simply as “*employer engagement*.” Employer engagement can come in many different forms and vary in levels of intensity and scope. Importantly, we are using “employer” as shorthand for a wide range of business, industry and labor stakeholders — including multinational corporations, locally-owned businesses, industry associations and organized labor. In the context of this paper, “employer” simply refers to an individual or organization that can represent the workforce in one or more industries.

CTE & Employer Engagement over Time

Enthusiasm for a more significant role for employers in CTE is by no means a recent phenomenon. Since passage of the earliest federal CTE law (the Smith-Hughes National Vocational Act of 1917), attention has been paid to aligning career education programs with the labor market. Over time, as Smith-Hughes was reauthorized, replaced by subsequent laws, and eventually eclipsed by the passage of the Carl D. Perkins Career and Technical Education Act (Perkins) in 1984, the focus on preparing students for the workforce has stayed a constant, even as the skills and industries have evolved over time.

Over the last 30 years, Perkins has advanced CTE in a number of significant ways. It has helped support access to CTE programs for underserved populations, integrate academics and technical education instruction, align K-12 and postsecondary systems and promote greater program accountability. Perkins has also been a critical lever for policymakers and educators alike to raise the quality and rigor of CTE programs and ensure that students of all ages have a clear pathway from the classroom to the workplace.

The importance of employer engagement cannot be understated. Such partnerships help boost program capacity, update and align course curriculum, provide crucial professional development opportunities

for educators and much more. This is the primary reason that when the State Directors from all 50 states and the territories came together to release “Reflect, Transform, Lead: A Vision of Career Technical Education,” they identified employer engagement as one of five key principles.¹ This principle — “*CTE actively partners with employers to design and provide high-quality, dynamic programs*” — calls for a new relationship with employers. Honoring the historical connection CTE has with employers and building on that foundation, the Vision paper calls for employers to be partners, true co-developers, co-implementers, co-investors in the CTE system. With the needs of the economy and workplace changing so rapidly, a new partnership needs to be forged to ensure students are best prepared for the world of work ahead of them.

Due in part to this long history, there are many outstanding examples of companies, industry associations and individual employers engaging and supporting CTE programs. The challenge is figuring out how to deepen and sustain engagement, and ensure all CTE programs of study have meaningful partnerships with employers.

At the national level, there have been many efforts to connect state and local leaders with employers and industry leaders. One such type of engagement

currently in the spotlight is when major corporations “adopt” a school or district and help design and deliver comprehensive CTE programs. A well-known example is IBM’s Pathways to Technology (P-TECH) model. A number of other companies have designed their own curricula, professional development and industry-recognized credentials, such as Microsoft IT Academy, Oracle Academy, NATEF’s Automotive Youth Educational Systems (AYES) and Cisco Networking Academies. The major automotive companies have partnered through the Automotive Manufacturing Technical Education Collaborative (AMTEC) to identify common, core competencies that can then be taught at the secondary or postsecondary levels.

There are also many examples of industry associations coming together to create resources that allow CTE programs to connect with employers’ needs. The National Association of Manufacturers launched The Manufacturing Institute to provide and organize relevant research and certifications that are then adopted and implemented by states and local CTE programs. The Manufacturing Institute is also leading a multi-state public awareness campaign — Dream It, Do It — to build support for manufacturing careers. The National Association Home Builders similarly created the Home Builders Institute, which offers standards

and certifications for the industry, a pre-apprenticeship program, mentoring, among other programs and resources.

At the local level, there are literally thousands upon thousands of examples of employers serving on local advisory committees to provide input on local CTE programs, providing donations, and volunteering with Career Technical Student Organizations (CTSOs) to help establish standards or serve as judges.² Employers also routinely partner with technical and community colleges to build programs aligned with their needs, such as the partnership between Gateway Technical College in Kenosha, **Wisconsin**, and Snap-on, Inc., that led to the development of Horizon Center for Transportation Technology, which replaced less-aligned and less successful automotive technology programs at the institution. Snap-on has now replicated this program in states such as **Washington** and **Arizona**.

The list can go on and on, highlighting islands of excellence in employer and education partnerships in service of CTE. According to one survey, 95 percent of superintendents reported at least one type of employer engagement in their districts.³ The challenge isn’t finding effective models, but rather building scalable and sustainable partnerships, even in the most rural or economically depressed communities.

The first step to accelerating systemic employer engagement is understanding which levers are most effective at bringing about large-scale change. This section will focus on how states are using federal and state policy to promote or encourage employer engagement activities, as well as delve into the types of activities most leveraged statewide to engage employers in support of CTE.

Leveraging Federal Legislation to Advance and Accelerate Meaningful Employer Engagement

Federal legislation is one way to encourage mutually beneficial CTE and employer relationships. Situated at a critical intersection point between education and workforce development systems, CTE federal policy must consistently balance the needs of students with those of employers. As such, it also must reconcile shorter-term workforce needs of employers with longer-term talent pipeline considerations— a feat that must ultimately be supplemented with effective state and local policies.

The principal federal legislation supporting CTE programs across the nation is the Perkins Act, which identifies CTE's central role in maintaining U.S. economic competitiveness by linking programs to high-skill, high-demand and high-growth occupations supported, in part, through partnerships among secondary schools, postsecondary institutions and employers.⁴

There are three significant leverage points offered by Perkins that states can use to foster employer engagement.

First, while the law does not explicitly require state and local Perkins recipients to partner with employers, they are required to *consult* with representatives of business and industry, along with a number of other stakeholder groups, during the development of the legislation's mandated state and local plans — documents that guide how federal funding is used.⁵

Although employer input into the development of specific CTE programs is not a Perkins requirement, many states and local programs already undertake similar efforts, particularly through the creation of local advisory committees.

Perkins' Influence

This relatively small federal investment represents approximately 10 percent of total national spending on CTE in the United States. State and local CTE funding makes up the remaining portion of CTE investments, with the amount each state invests varying substantially in a given program year. The Perkins Act is tremendously influential in setting priorities around specific policy areas as well as the metrics by which state and local recipients will be held accountable.

Secondly, states can leverage Perkins state leadership funds to support partnerships between CTE program providers and, where appropriate, entities such as employers or organized labor.⁶ According to earlier research conducted by NASDCTEc, the majority of states have identified supporting partnerships between educational institutions and businesses (35 states) and supporting CTE programs that offer work-based learning opportunities (41 states) as allowable uses of these *state leadership funds*. Local recipients similarly are allowed to use a portion of their funds to support such partnerships.^{7,8,9}

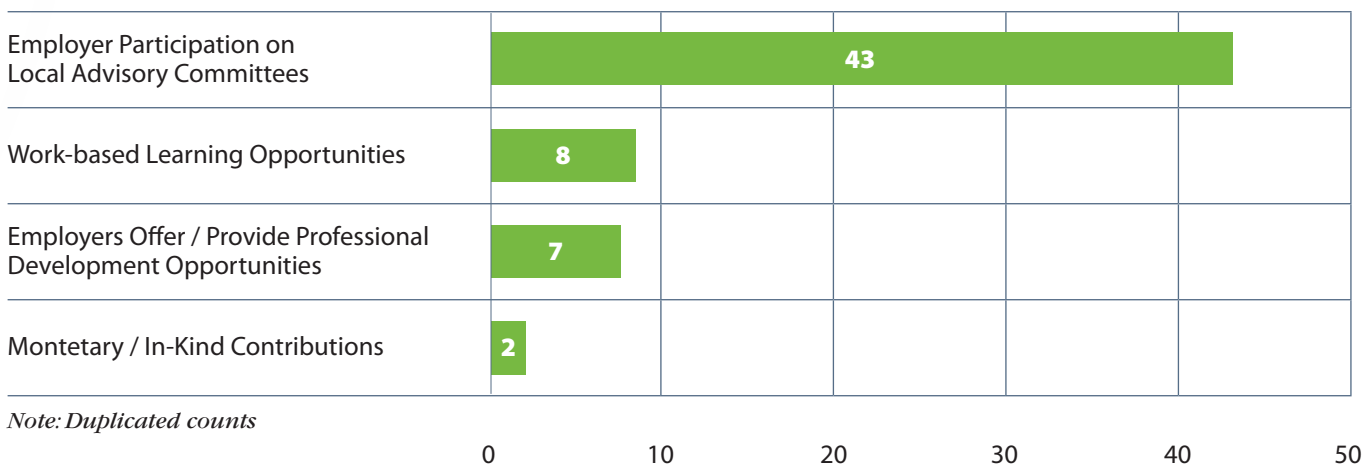
Finally, the law also allows states to establish *additional requirements and activities* for locals seeking Perkins funding.¹⁰ In some states, these requirements are used to ensure consistency with a state’s Perkins implementation strategy and can be used to promote a common vision for CTE in the state beyond the basic requirements outlined in federal statute. This option of using federal legislation as a springboard is yet another way in which states can encourage recipients of these funds to engage with employers and take steps to formalize employer engagement activities in CTE.

This section explores how states are using this last leverage point to tie employer-related activities to requirements for local recipients of Perkins funding.

Local Advisory Committees

States responding to this survey overwhelmingly indicated that they require local Perkins recipients to create and use local advisory committees, a key feature of which is employer participation. The scope of responsibility, influence and intensity of these committees’ activities can vary widely from program to program and from state to state. While one method is to mandate employer participation on these committees, some states, such as **New Hampshire**, are taking a different approach by encouraging such activity instead of requiring. **Virginia**, on the other hand, requires employer participation while encouraging the other three activities. Regardless of approach, it is encouraging to note that most states recognize and prioritize the value of these partnerships and make them a prerequisite for receiving Perkins funds, going beyond the law’s minimal requirements.

States Requiring Employer-Related Activities for Perkins Local Program Approval / Funding



Work-based Learning & Professional Development

Eight states reported that work-based learning opportunities were a prerequisite to accessing Perkins funding, and seven states indicated that employer-driven professional development opportunities such as externships were required. On the surface, these figures may seem somewhat low, but they are actually encouraging signs that, despite a lack of direct federal requirements, states are using federal policy to promote these activities that support employer engagement.

A number of challenges for states still remain when endeavoring to promote these activities in a systemic, statewide fashion. For one, they both require significant coordination and time to set up and sustain. There are also a number of legal hurdles at the secondary level surrounding minors' eligibility to participate in some workplaces due to liability concerns on the behalf of employers.

Monetary/In-kind Donations

Alabama and **Palau** indicated that monetary or in-kind donations from employers were a prerequisite for accessing local Perkins funds. Juxtaposed against the Obama administration's proposed mandatory private-sector match contained in its 2012 publication, "Investing in America's Future: A Blueprint for Transforming Career and Technical Education," this finding demonstrates that few states are using federal legislation to leverage additional funds from the employer community.¹¹

The survey findings largely reflect the nature of current Perkins law, which provides great latitude in how CTE programs are developed and implemented. And, this report draws out some promising practices of states leveraging that flexibility to promote employer engagement. As Congress begins to consider the reauthorization of the Perkins Act, the appropriate federal role for how best to encourage employer engagement in the CTE system will most likely be a central feature of the national debate.

Leveraging State Policy to Advance and Accelerate Meaningful Employer Engagement

With Perkins often setting the tone for CTE nationally and growing interest from a broader set of policymakers, state policy can serve as a powerful lever to complement, enhance or go beyond the minimum benchmarks set by the federal law.

In recent years, CTE has emerged as a priority area for many state policymakers. In 2013 alone, all but three states had some CTE-related policies taken up by state legislatures, state boards of education and governors, as well as state agencies.¹² This section focuses on eight specific policies and programs states are using to engage employers around CTE, as well as employer involvement in CTE standards development and credentials selection.

Interagency Collaboration

Understanding the interconnected nature of their economic development, workforce and education systems, state agencies increasingly are breaking down their historical siloes to work collaboratively to align their systems and identify solutions. Nearly 90 percent of respondents said they work in some manner with their state's economic or workforce development agencies. This collaboration can take many forms — being a sitting member of the state's workforce investment board and similar entities, sharing data with other state agencies, or even embedding a state CTE staff member in the state's commerce agency and vice versa.

In several states — such as **Idaho**, **Florida**, **Louisiana** and **Texas** — CTE has a seat at the table when wooing new business to the state. In Oklahoma, some state CTE employees are housed in the state's commerce department. Oklahoma state CTE staff are also active members of workforce and economic development committees, some

of which are required by state law to include CTE representation. Increasingly recognized as a key player in the talent pipeline, CTE is being featured prominently as states such as **Colorado, Ohio, Alabama, Nevada** and **South Dakota** develop or update their strategic plans for workforce or economic development.

Pilot Initiatives

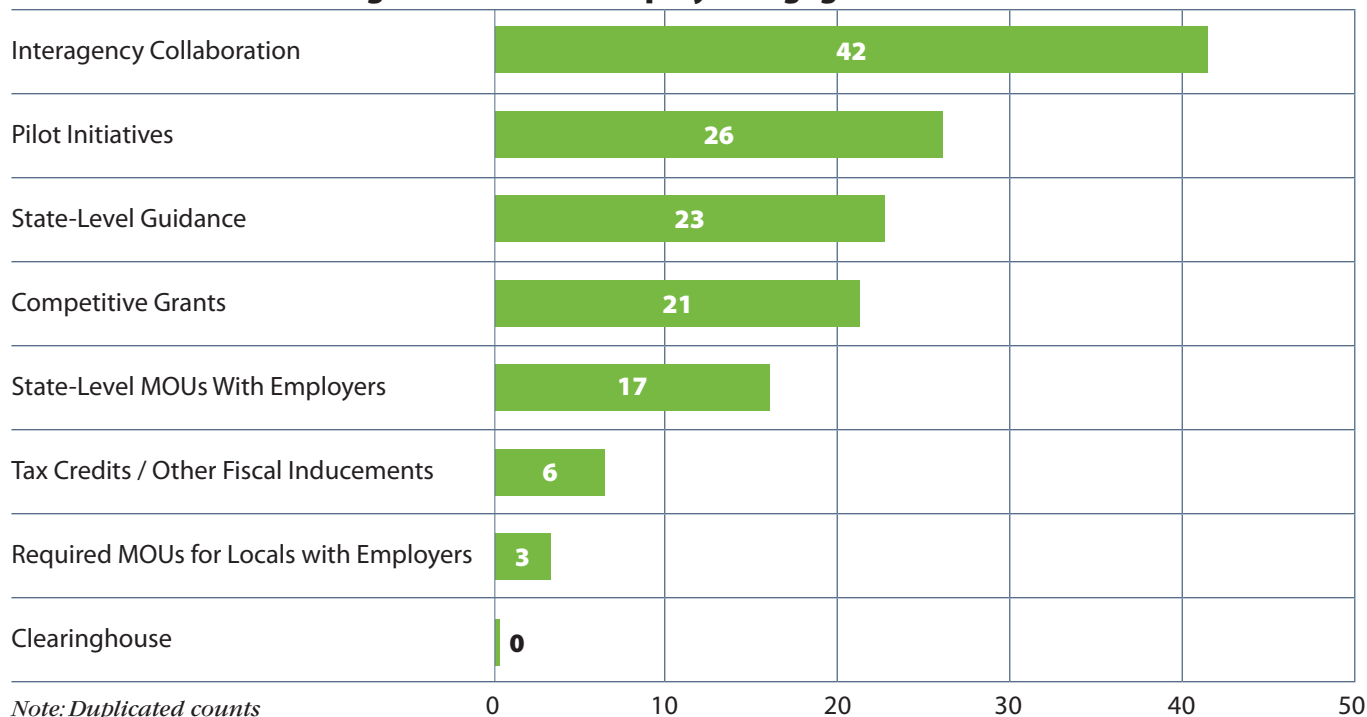
Indicative of increasing interest and support for employer engagement in CTE, more than half of states said they finance pilot programs to foster partnerships between education and industry, many driven by state legislatures as well as state agencies.

While pilot initiatives can transform into powerful, long-lasting features on the CTE landscape, one-time programs run the risk of diverting important resources to the “flavor of the month.” More disappointing are successful pilot programs that are never renewed because of finite resources and changing priorities. The challenge for states is to build a sustainability model to ensure scalability (and funding) if a pilot’s outcomes are successful.

New Jersey’s Talent Networks

New Jersey has developed Talent Networks, which focus on the specific needs of seven key industries from advanced manufacturing to health care that represent the greatest opportunities for high-wage, high-demand jobs in the state. The goal is to connect business in these key industries with educational institutions, workforce development agencies and others to identify the skills prospective employees need to succeed.¹³ Through the Talent Networks, the state’s CTE office has enhanced its collaboration with employers and the state’s workforce development agency, which further helps ensure that industry needs are informing the development of CTE programs.

States with Policies / Programs to Foster Employer Engagement in CTE



Scaling Work-based Learning in West Virginia

In **West Virginia**, the statewide “Simulated Workplaces” pilot program is bringing the workplace into the CTE classroom by turning classes into companies. The program structures a CTE course as a student-centered simulated experience that exposes them to standard practices tailored to the industry they wish to enter from health sciences to construction.

Growing from 64 to 240 sites, the pilot has moved into its second year and is on track to transition into a permanent fixture of the state’s CTE system. The initiative now has at least one pilot in each of the 16 Career Clusters. Employers, who also jointly worked with the state CTE department to develop the program, serve as advisors to the “companies” and provide annual on-site inspections to ensure the “workplaces” are meeting industry standards.¹⁴

State-level Guidance

Nearly half of State CTE Directors said they issue guidance for local business-education partnerships, a common role played by state agencies. Such guidance can elevate strong in-state practices as well as lessons learned from across the country to support and focus local efforts.

In 2013, **Virginia** lawmakers directed the State Board of Education to develop guidelines to establish High School-to-Work partnerships between high schools and local businesses to create work-based learning opportunities for students including apprenticeships, clinical experiences, job shadowing, service-learning experiences and more.¹⁵ Local advisory committees can be another area where state support can help move these entities from perfunctory to productive. States such as **New Jersey**, **North Dakota**, and **Arizona** have developed manuals to provide guidance around the development and use of local advisory committees.

To increase and support work-based learning and employer engagement, several states, such as **Vermont**, have created manuals to assist local schools and institutions as they begin to develop such relationships and programs. **Indiana** recently released a manual and course framework for work-based learning to help educators structure the best experience for students.¹⁶ In **North Carolina**, a manual helps to guide secondary schools through the maze of engaging employers by offering information about types of business partnerships and how CTE funds can be used to support partnerships. It also provides many examples of effective employer-education partnerships within the state.¹⁷

Competitive Grants

Just over 20 states say they are using state-funded competitive grants to encourage partnerships with employers and finance such efforts as pilots, innovation projects and the scaling of best practices.

After 20 years of working in CTE, **Alabama's** State Director says he has never seen the kind of recognition and value that he sees in his state today for CTE from employers, parents and policymakers. This energy helped pass the 21st Century Workforce Act in 2013, which authorized a \$50 million bond to transform and align Alabama's CTE programs to high-skill, high-wage, high-demand jobs that lead to industry-recognized credentials, \$20 million of which was earmarked for competitive grants.¹⁸

Tapping into the same database that the state's commerce department uses to bring industries to **Alabama**, state CTE officials created fact sheets about the fastest-growing industries in each region and those in decline. The officials sat down with LEAs to discuss the data, review their programs and if necessary, align or even close them. Some CTE teachers, particularly those teaching agriscience and construction courses, earned new industry-recognized credentials to update their own knowledge.

The money was used primarily to give a complete facelift to old programs, eliminate some and open others. In total, more than 75 new CTE programs opened and 20 were closed or converted across the state during the 2013-14 school year. Thanks to this one-time infusion of state funds, the State Director says he hopes this could eventually change the way the state uses its federal Perkins money — moving away from needing federal money simply for survival.

Minnesota's MOUs

Minnesota's consortium model for CTE delivery uses the Rigorous Programs of Study (RPOS) framework, which includes strong employer partnerships.²⁰ According to the state's CTE office, a fully-developed, high-quality RPOS developed by consortia of secondary and postsecondary CTE systems must include written MOUs that elaborate the roles and responsibilities for all partnership members. These MOUs also enable the state to collect and track information about employer-education partnerships happening at the local level.²¹

Underused Strategies

Tax credits, required MOUs and clearinghouses of effective business-education partnerships were the least utilized state policy levers — collectively happening in just about 10 states. There are some examples of states using one or more of these options to foster employer engagement effectively. In **Alabama**, the governor signed a law in 2014 creating a privately-funded scholarship program for students wishing to earn CTE dual enrollment credits. Up to 50 percent of donations are tax deductible.¹⁹

MOUs can be difficult by nature to secure, but some states have used such agreements as the starting point for deep and sustained employer engagement. **Kansas** and **Oklahoma** use MOUs with their states' commerce departments to jointly use staff. The **West Virginia** Department of Education has state-level agreements with the state's Chamber of Commerce and WorkForce West Virginia that outline their commitments to the Simulated Workplaces initiative and other CTE efforts within the state, including encouraging employers to serve on curriculum advisory committees, as inspectors for the program and provide other work-based learning opportunities.

Capturing & Monitoring Local Employer Partnership Activities

The survey showed that less than half of states monitor or capture programs’ employer partnership activities in any way. Asking schools to report — in a meaningful way — about their engagement with employers can help uncover best practices that could be compiled into a clearinghouse or other vehicle and then shared widely for other schools to replicate. This is also another area where Perkins could be leveraged. Minnesota, for example, requires its local Perkins recipients, all consortia, to report on how they “effectively utilize employer, community and education partnerships” and the related goals and strategies in this area as part of their Perkins applications and reports.

Reviewing CTE Standards

When asked whether employers participate in developing state-required CTE standards, State Directors overwhelmingly responded positively, making it a fairly common practice. However, the level of involvement of employers varies greatly across states, from business representatives serving on the standards writing committees to participating in one-time surveys to provide feedback on draft standards and everything in between.

Some strong examples, however, did emerge. In **Nevada**, industry-validated standards for high school programs can be developed using one of three criteria: the standards being developed must match national industry standards, be developed by a writing team that consists of an appropriate number of business and industry participation, or in cases where industry representation is less than half, a review panel of

industry experts is assembled to provide input and influence on the standards. Additionally, each set of CTE standards must undergo an industry “criticality survey,” where a target number of industry representatives rate each performance indicator to determine how critical it is to the needs of the industry. The survey results are used when developing the corresponding end-of-program technical assessment.

Tennessee is undergoing a large-scale reform of its CTE standards. After recently streamlining the state’s CTE programs to reduce duplication and aligning them to the program of study model, Tennessee recently completed a review of specific course standards and programs to ensure all are rigorous, relevant and student focused. Informed by real-time workforce data and Industry Advisory Councils, the revised and newly developed CTE courses are now organized into enhanced programs of study that include work-based learning opportunities.²²

Selecting Industry-recognized Credentials

To a slightly lesser extent, employers also assist states as they determine which credentials or technical skills assessments should be used within CTE programs. Similar to the academic standards process, employers often are invited to participate, but the frequency and intensity of such participation varies greatly across states. Many State Directors indicated that their states are moving toward formal employer participation through recent state board regulations and other actions. This also does not take into account the review and selection of credentials happening at the local level, often through local advisory committees or similar structures.

States with Employers Participating in Standards Development and/or Credentials Selection



Louisiana's Regional Teams

To better leverage local advisory committees, Louisiana has been providing grants to “Jump Start Regional Teams,” comprised of representatives from school districts, two- and four-year colleges, and experts from local industry, economic and workforce development. Each of these teams is tasked with designing plans for providing courses and work-based learning experiences that lead to industry-recognized credentials. They can also develop or augment existing regional career pathways, which they can petition the state to adopt statewide. A state panel, with leaders from Louisiana Economic Development, the Workforce Commission, and Department of Education, recently approved 33 regionally-developed career pathways.²³

Kentucky's Workforce Investment Board approves the official list of industry certifications, which is also aligned to the state's accountability model for college and career readiness.

Employers drive the credential approval process in **Kansas**. Employers and local advisory committee members comprise the State Business & Industry Committee, which provides recommendations on nationally recognized, third-party industry credentials as part of the larger program alignment process. These approved credentials also form the baseline for the state's 2012 “Excel in Career Technical Education” initiative that allowed high school students to qualify for free college tuition in approved technical courses from the state's technical and community colleges. School districts also receive a \$1,000 incentive for each student who graduates from their district with an industry-recognized credential in a high-need occupation.²⁴

Statewide Activities to Foster Employer Engagement

In addition to exploring the specific levers being used by states, NASDCTEc also asked what types of activities were occurring statewide through which employers were engaged, focusing on seven common strategies.

Recognizing that CTE spans secondary and postsecondary education, states were asked to identify how often each activity occurred at each learner level and the intensity of the activity in the state, namely whether it was encouraged or promoted as a statewide effort as well as occurring at all institutions, occurring at some institutions, or not taking place at all.

While not included in Table 1, it should come as no surprise that most of the activities listed were more likely to occur at all or some local institutions than as part of a formal statewide initiative.

States also largely indicated that most core activities occurred at the same rate between secondary and postsecondary learner levels, although there were a few departures from this trend.

State-level Advisory Committees

Nearly 75 percent of respondents said they have state-level advisory committees for secondary CTE and 60 percent reported similar entities for postsecondary CTE, though it is common for one group to advise both learner levels. Often comprised of a diverse group of employers and other CTE stakeholders, these entities typically consult on matters such as standards, credentials, curriculum and others that impact the state's CTE enterprise. They can also assist with reviewing labor market data to help identify a state's priority Career Clusters® and Career Pathways.

TABLE 1

Statewide Employer Engagement Activities	# States with Statewide Efforts at Secondary Level	# States with Statewide Efforts at Postsecondary Level
State-level Advisory Committees	35	28
CTSO Engagement	31	19
Professional Development	23	17
CTE Advocacy	22	20
Career Guidance & Advisement	17	17
Work-based Learning	16	12
Monetary / In-kind Contributions	8	7

However, across the states, these entities can still vary in many different ways including scope of work and frequency of meetings.

In **Rhode Island**, lawmakers in 2014 revived a long-dormant state CTE Board of Trustees, which will be comprised of 15 members and be responsible for a comprehensive and coordinated CTE system within the state. Members will include employers; labor; secondary and postsecondary CTE; and state education officials.²⁵

CTSO Engagement

States reported using Career Technical Student Organizations (CTSOs) as a common avenue for engaging employers on the state level. With CTSO skill competitions that range from the local to international level, employers can serve as advisors and judges, design competitions, donate equipment and much more. Additionally, CTSOs often offer

student opportunities for job shadowing and employer mentoring, as well as professional development services for CTE teachers, faculty and administrators.

While nearly two-thirds of states said that employers participate in secondary-level CTSO activities as a statewide effort, that level of engagement drops off considerably for postsecondary CTE, with 40 percent reporting such engagement taking place. This can be partially attributed to the general make-up of CTSOs, which typically have greater secondary student membership. For instance, one of the largest CTSO groups, SkillsUSA, has 89 percent of its membership at the secondary level. Despite the high proportion of secondary students in its organization, SkillsUSA partners with over 600 national employers and thousands of small- to medium-sized enterprises across the country to offer unique opportunities to its students and affiliate programs.

The Interconnected Nature of Employer Engagement

In **Virginia**, CTSOs have been a direct and integral component of CTE programs and their success. On the state level, employers serve as judges for the state competitions, and such engagement has paid off exponentially for Virginia CTE students and programs.

One example is the Virginia Automobile Dealers Association (VADA). Initially engaged through a state CTSO automotive competition with SkillsUSA, the VADA has partnered with the state's CTE system since the early 1990s. This partnership has led to an interconnected web of mutual opportunities for the state's CTE system and VADA employers, including:

- State-level advocacy and support;
- A statewide program with the Automotive Youth Education Partnership (AYES); and
- A statewide memorandum of understanding wherein VADA provides technical assistance to schools and educators for the National Automotive Technicians Education Foundation (NATEF) program.

CTE Advocacy

Nearly half of all states indicated that employers engage in advocacy for CTE at both the secondary and postsecondary levels as part of a statewide effort. Additionally, the survey found high levels of local activity, with two-thirds of states reporting that employers are engaging at some schools and 20 states said similar activities are happening in postsecondary CTE.

There are many examples of employers actively advocating for CTE to local, state and national policymakers or campaigning to raise the public's awareness of CTE. This type of support of CTE may be indirect, but is still a hugely valuable undertaking for both the employer and programs. For instance, employers may engage in political advocacy with a state legislature or administration to secure funding for CTE programs. An increasing number of large employers are stepping up their national advocacy efforts through coalition groups that are seeking to mobilize efforts on Capitol Hill or to raise public awareness on the value of CTE to help dispel outdated stereotypes that often misguidedly define CTE.

In **New Jersey**, a new venture between the New Jersey Business and Industry Association and the New Jersey Council of County Vocational-Technical Schools (CVTS) has pushed a series of CTE-related bills through the legislature to help support and grow a segment of secondary CTE programs in the state.²⁶

The New Jersey Employer Coalition for Technical Education launched in February 2014 with three primary goals: to engage more employers with CVTS; to build support for additional state funding for CVTS; and to raise awareness for the value of CTE more broadly. In the fall of 2014, the state legislature passed seven of eight coalition-supported bills, including to establish a four-year CVTS district partnership grant, require teacher and counselor preparation programs to include career readiness coursework, and more.

Professional Development

As articulated in "Reflect, Transform, Lead: A Vision of Career Technical Education", employer-focused professional development activities such as externships and training conferences are crucial to educators

to keep up to date with the most current business practices or processes and discover new ways to embed authentic lessons and projects into their classrooms.²⁷

Given the states' significant role in offering professional development for CTE educators, it's clear that much progress has been made but more work remains. Half of states reported there were statewide efforts in place to promote employer participation in secondary CTE professional development while only 17 states reported similar efforts for postsecondary CTE.

Career Guidance and Advisement

Along with guidance counselors, employers can play an integral role in offering career guidance and advisement with their unique perspectives, through such efforts as hosting or attending career fairs, participating in speaker bureaus or being a mentor to students.

Tennessee's Cross-Disciplinary Externships

Teachers in **Tennessee** can participate in a weeklong summer externship program to learn about current industry technologies and applied skills. Participating industries include aerospace, energy technology, manufacturing and healthcare. In 2014, the state encouraged school districts to nominate two teachers — one from CTE and from general education — to participate together and create a coordinated and cross-disciplinary project to be used in the classroom the following school year.²⁸

Strengthening Work-based Learning in Iowa

The **Iowa** legislature recently rededicated funding to a former state program designed to increase work-based learning opportunities for secondary students. Originally funded as a standalone program in 2010, this is now part of a larger package on improving education and workforce outcomes. Through a \$1.45 million competitive grant, the re-focused program is using the state's 15 community college regions to create a statewide network of intermediaries that connects secondary, postsecondary, employers and other community stakeholders to develop relevant work-based learning activities, particularly in STEM.

These intermediaries serve as the one-stop point of contact for both educators and employers on the range of opportunities including job shadowing and internships, as well as activities such as speakers and tours. To better provide support, the Iowa Department of Education serves in an oversight capacity while encouraging an environment of strong collaboration amongst the regional intermediaries. The regional intermediary contacts meet monthly to share best practices in order to strengthen the Statewide Intermediary Network, helping to secure a future for work-based learning opportunities.³¹

Employers primarily engage in career guidance and advisement at the local level, with 30 states reporting this type of activity occurring to some degree across secondary institutions and 23 states at the postsecondary level, compared to just 17 states reporting statewide efforts under way at either level.

Among those states with large-scale efforts are **Alabama** and **Arkansas**, both of which are investing in “career coaches” to advise students on their future career plans. These coaches can be guidance counselors or hail from industry. Alabama worked with industry partners to create career guidance toolkits for every Career Cluster to help the coaches appropriately advise students. In 2014, the state legislature approved an additional \$1.2 million to expand the program and increase the number of counselors available for schools and postsecondary institutions.

Work-based Learning Opportunities

Learning opportunities directly related to the workplace are often seen as a feature that sets CTE apart from the rest of the educational enterprise. Work-based learning opportunities are one of the most direct forms of employer engagement within the CTE enterprise.

Work-based learning can take on many forms including internships, cooperative work experiences and apprenticeships. These invaluable professional experiences for students are impossible without partnerships with employers.²⁹ Yet the required investments of resources necessary to establish and

nurture relationships between employers and the CTE community to provide such opportunities may make work-based learning one of the more challenging employer engagement activities to establish at scale. Legal hurdles are another obstacle that institutions and employers face when establishing these partnerships. States such as **Georgia** are passing laws to alleviate these obstacles for 16- and 17-year-old students to work in certain environments.³⁰ Lawmakers are considering legislation that would similarly ease the way for insurance providers during the 2015 session.

Sixteen states are promoting work-based learning as a statewide effort for secondary CTE and 12 states do this for postsecondary CTE. As stated earlier, eight states report requiring of these to determine local eligibility for Perkins funds. Given that many work-based learning opportunities are brokered at a very local level — through a school or college coordinator or even an instructor-employer relationship — it's no surprise that 69 percent of states reported employers to be engaging in work-based learning at some schools, and more than half reported this happening across local postsecondary institutions.

One statewide approach being used is to harness the power of tax incentives to encourage more employers to offer work-based learning opportunities. **California**, for instance, taps into its lucrative film industry and offers tax credits to those who offer work-based learning opportunities to students.

Monetary or In-kind Contributions

States reported being least involved with encouraging or promoting monetary or in-kind contributions from employers. Rather, these activities are taking place primarily at the local level across secondary and postsecondary CTE. No states said that such contributions never took place at any level — illustrating that, at the very least, employers throughout the country are engaging with CTE in this way.

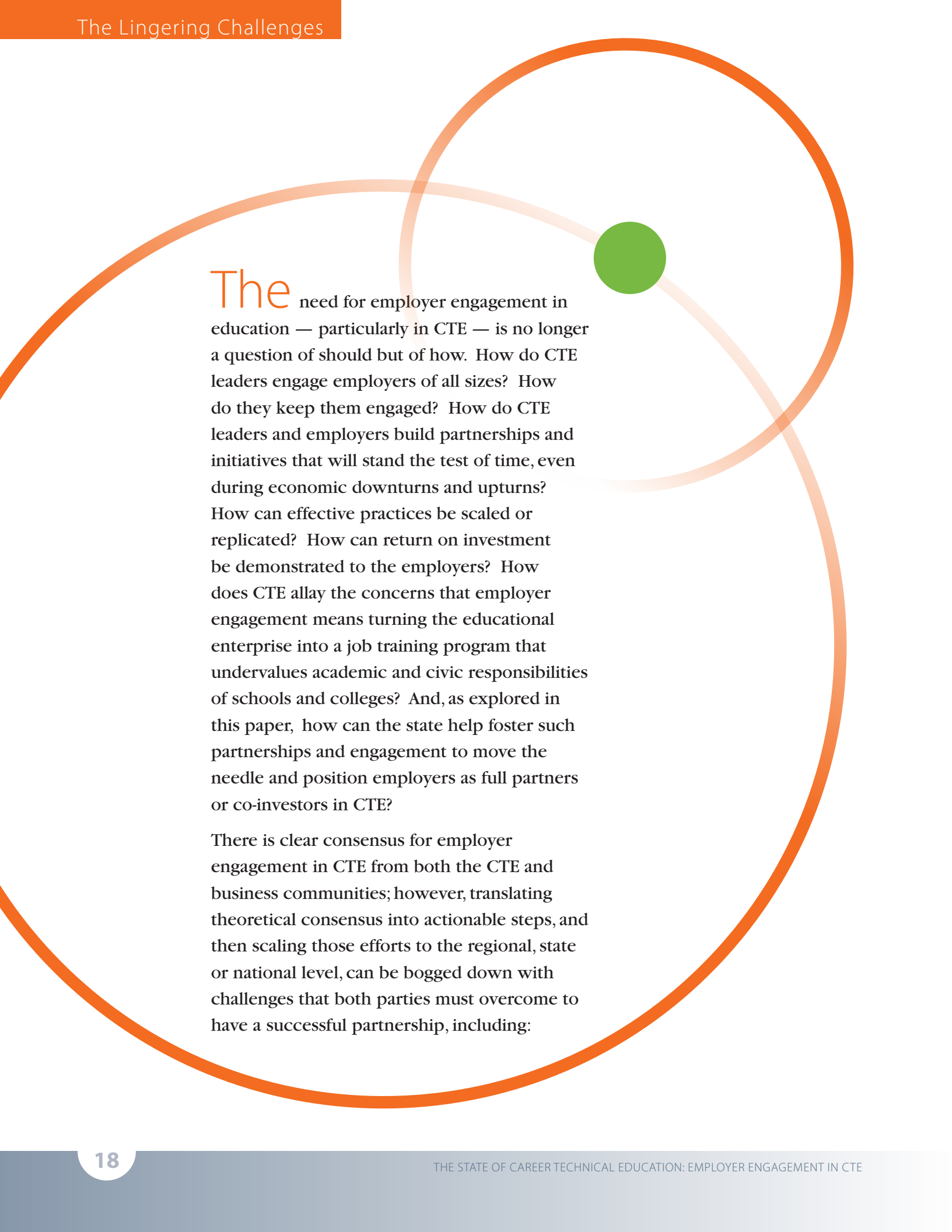
Traditionally, activities falling under this category include direct monetary contributions to a CTE system or an individual program, or student scholarships. They can also be in-kind contributions such as equipment or other resources, and can come through an agreement between the employer and a state CTE system or on a local program-by-program basis. Equipment donations can help CTE programs stay on the industry's cutting edge, but states and locals should be mindful that their programs don't become dumping grounds of outdated equipment.

While these are mainly local arrangements, there is a role for the states to support these partnerships, such as recognizing outstanding employer partnerships and longtime supporters of CTE. In 2012, **Virginia** launched a CTE Hall of Fame that recognizes an employer, educator and public official each year.³²

Recognizing Employer Champions in Kansas

In **Kansas**, a postsecondary CTE employer engagement initiative recognizes businesses at the "supporter," "partner" and "champion" levels.

Institutions are asked to nominate employer partners for activities such as participating in career fairs, serving on advisory committees, providing student scholarships, offering paid or unpaid internships to students or faculty, being a CTE advocate and many more. This initiative is in the process of being scaled to include secondary CTE.³³



The need for employer engagement in education — particularly in CTE — is no longer a question of should but of how. How do CTE leaders engage employers of all sizes? How do they keep them engaged? How do CTE leaders and employers build partnerships and initiatives that will stand the test of time, even during economic downturns and upturns? How can effective practices be scaled or replicated? How can return on investment be demonstrated to the employers? How does CTE allay the concerns that employer engagement means turning the educational enterprise into a job training program that undervalues academic and civic responsibilities of schools and colleges? And, as explored in this paper, how can the state help foster such partnerships and engagement to move the needle and position employers as full partners or co-investors in CTE?

There is clear consensus for employer engagement in CTE from both the CTE and business communities; however, translating theoretical consensus into actionable steps, and then scaling those efforts to the regional, state or national level, can be bogged down with challenges that both parties must overcome to have a successful partnership, including:

CTE's Complexity

CTE is a multi-faceted system that serves learners at all levels — from middle and secondary-level students who are engaging in career exploration and building key foundational academic, technical and employability skills to postsecondary and adult learners who are gaining more focused skills to help them access or advance in the career of their choice. As such, there is no one-sized-fits-all, cookie-cutter approach to engaging employers around CTE programs.

This complexity can play out when CTE must strike a balance between meeting employers' short-term needs and looking at longer-term employment projections to identify programs to offer. The participation of economic development leaders in discussions between CTE leaders and employers can help facilitate this.

Achieving Intensity

As noted earlier, a recent survey found that 95 percent of superintendents said at least one type of business engagement is occurring in their districts — with more than half citing four or more activities. Yet, only 12 percent of superintendents describe the business community's involvement in their districts as “deep.”³⁴ Moving beyond a token advisory council or “checkbook philanthropy” to a fully participatory partnership can be extremely difficult and is why many partnership efforts flounder — or fail to have a meaningful impact on students' preparation for college, careers and life.

Lacking a Common Language

To share a common goal and vision, educators and employers need to speak the same language. Employers need to take the long-view on their investments in education because, in fact, educating a child is a long-term proposition. In an employer engagement playbook from the state of **North Carolina**, the Bayer Corporation advised potential employer partners to trade the oft-touted phrase “return on investment” for “return on innovation,” because it inverts the common business strategy from measuring investment in dollars and cents to count the number of students reached.³⁵ Educators, too, must harness the power of data and metrics to be able to illustrate how the partnership — which often includes donations of time as well as money — will help achieve those common goals.

As one State CTE Director said — once everyone around the table is speaking the same language, a partnership's true value can change the game dramatically.

Data Limitations

Having accurate and reliable data — on everything from short- and long-term job openings to meaningful post-program student outcomes — remains an ongoing challenge within CTE. The lack of such data makes it difficult to hone in on the skills most needed for tomorrow's jobs and the explicit return of investment of existing and new CTE programs. There are a number of states effectively leveraging the data they have as part of their employer engagement strategies, but this data gap can make the critical CTE-employer conversations much harder to have.³⁶

Time, Time and Time

Building effective and sustainable partnerships simply takes a lot of time and a lot of conversations. At the heart of any effective partnership is trust, and it takes time to build trust, especially given other barriers identified above, particularly the lack of a common language.

Using one example, a recent report found time was a tremendous barrier to expanding work-based learning — despite its important role in students' education and training, and a natural entry point for employer engagement. The primary obstacles came from both employers and school teachers and leaders. Employers, it said, did not take the “long view” about investing in talent early, and teachers and school leaders did not have the time nor capacity to develop the necessary work-based learning opportunities while also balancing their other work and responsibilities.³⁷

According to one local Chamber of Commerce leader, having a dedicated person within each local CTE academy to build, manage and sustain business partnerships is key to their community's success with engaging business leaders, reflecting both a commitment of time and someone who can bridge the CTE and employer language gap.

This is all to say that strong and sustained employer engagement is not easy, but still clearly worth the time and effort based on the clear payoff to students, employers and the CTE system as a whole. As demonstrated throughout this paper, states are using the widest array of levers at their disposal to foster and facilitate employers as “co-investors” in the CTE enterprise, but more efforts are still needed to monitor, support and sustain such employer engagement to achieve a truly shared system.

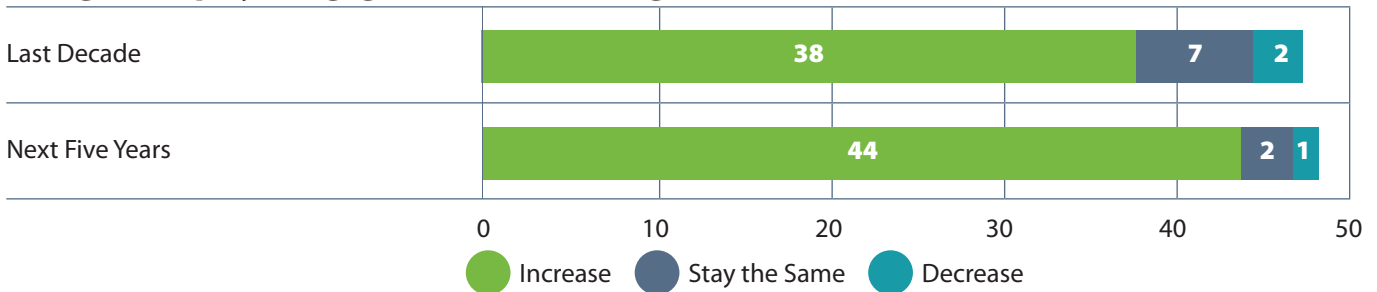
Conclusion

The findings of this report are clear — employer engagement is happening in CTE across the country. And, not only is employer engagement happening, it's increasing and will continue to increase in the future, according to State CTE Directors. Over 80 percent of State Directors believe employer engagement has increased in intensity over the past decade, and all but three states anticipate that this intensity will continue to increase over the next five years.

As evidenced throughout this report, there are now many shining examples across the spectrum to point to and from which to learn. However, to meet, support and direct the right kind of employer engagement — the kind that brings those crucial employer voices to all CTE programs, connects all students with valuable mentors and work experiences and contributes to closing the skills gap — states must consider a coordinated strategy that draws on the full range of policy, programmatic and partnership resources available to them.

As they approach the role they can best play in supporting employer engagement in CTE, states should evaluate their capacity, will and policy structures to use the full range of tools at their disposal. By considering both the breadth and intensity of engagement activities and the value they bring to all parties, states can serve as a strong facilitator or initiator for education and employers to come together. The benefits of deeper engagement are mutually beneficial. Ultimately, such an approach helps to close the nation's skills gap and maintain its competitive edge by greatly expanding the pipeline of skilled workers possessing the knowledge and competencies needed to succeed in the modern workplace.

Change in Employer Engagement with CTE Programs



Appendix A: Questions to Consider

The findings presented in this report point to a number of trends in which activities are routinely engaging employers across states in support of CTE, and which policy and programmatic levers states are using to expand and deepen such engagement activities.

Rather than identify specific recommendations, states and state leaders should consider the following questions when assessing their own efforts to build and sustain strong partnerships with employers by looking for ways to better leverage the opportunities available to the, and drawing from the state-based examples included above.

- ▶ What are the elements of a successful business-education partnership? How might your state measure such “**success**” at the individual partnership or system level?
- ▶ The report identified a number of **levers for supporting employer engagement**, including federal policy and state policy levers. Which, if any, of these policies or programs do you use in your state to successfully foster employer engagement in CTE? What did it take to make it happen? What lessons were learned for future initiatives and efforts?
- ▶ Very few states **monitor or collect** employer engagement activities and/or share promising practices through a clearinghouse or other mechanism. What would it take to monitor, collect and/or share such employer engagement activities? What mechanisms could you use to collect such information (e.g., Perkins reporting, voluntary clearinghouse, survey, etc.)? How might such information be used to improve the quality of local CTE programs? How might such information be used to further recruit and engage with employers?
- ▶ Every state reports widespread involvement of **local advisory committees** (LACs), whether required by the state or not. LACs can provide an important entry point for employers and connect CTE programs to local economy needs, which can also sometimes narrow the scope of such local programs. What are examples and/or elements of successful LACs in your state? Less successful LACs? Does your state have regional advisory committees? A statewide advisory committee? How do or might these regional or statewide committees interact with LACs? What guidance do or can you provide to LACs to ensure they are leading to high-quality CTE programs?
- ▶ This report identified seven overarching types of **activities** through which employers can be engaged to support CTE (state advisory committees, work-based learning, CTE advocacy, monetary/ in-kind contributions, professional development/ externships, career guidance/advisement and CTSO activities). In your state, through which activities are employers most likely to be engaged statewide? In which activities do you want or need more employers to be engaged? What barriers need to be addressed or removed?
- ▶ One of the most common ways employers are engaging CTE programs statewide is through **Career Technical Student Organizations** (CTSOs), with about two-thirds of states reporting these partnerships happening statewide at the secondary level. However, it is often the case that those employers are only engaging around CTSOs rather than supporting CTE programs more broadly. How can such employers be engaged in a broader set of activities?
- ▶ Where does your state stand on the four elements of “collaborative partnerships” identified in the Rigorous Program of Study framework?²³⁸ If not already present, what would it take to incorporate them as part of a comprehensive employer engagement strategy?
 - ▶ Create written memoranda of understanding that elaborate the roles and responsibilities of partnership members.
 - ▶ Conduct ongoing analyses of economic and workforce trends to identify statewide (or regional) programs of study to be created, expanded, or discontinued.
 - ▶ Link into existing initiatives that promote workforce and economic development, such as sector strategies and other activities supported by the Workforce Innovation and Opportunity Act.
 - ▶ Identify, validate, and keep current the technical and workforce readiness skills that should be taught within a program of study.
- ▶ What is one new idea, strategy or tactic you learned from this report? How might you replicate successes other states have or are having in your state?

Appendix B: Methodology

This report employed a mixed-methods approach that included the collection of both quantitative and qualitative data from several sources. The quantitative aspect of this study involved a survey of NASDCTEC's core State CTE Director membership in August 2014, requesting responses to a series of fourteen questions. Forty-six states and one territory responded to this survey request. Although full participation was not met in this survey, the response rate was substantial enough to warrant interpreting its results as representative of overall national trends.

This survey data were then supplemented with 12 in-depth interviews, lasting from 30 minutes to one hour in length, with State Directors, relevant state staff, employers and other key leaders in important stakeholder groups. Information from both the survey and these interviews was then synthesized to make conclusions based on a combination of these two sources and provided the largest amount of original source material. An extensive review of existing literature on employer engagement in education was also conducted and these sources have been cited throughout this report.

Additionally, this report drew upon an existing NASDCTEC report, "State of Career Technical Education: An Analysis of State CTE Standards," which also took a closer look at state governance structures. State Directors predominately are based in State Departments of Education, but most have a postsecondary counterpart and often a close-working relationship. Although many State Directors engaged their postsecondary counterpart directly for NASDCTEC's employer engagement survey, it was not a requirement to respond.

ENDNOTES

¹National Association of State Directors of Career Technical Education Consortium. 2010. “Reflect, Transform and Lead: A New Vision for Career Technical Education.” Retrieved from: <http://careertech.org/cte-vision>

²The National Coordinating Council for Career Technical Student Organizations (NCC-CTSO) is a coalition of national CTSOs serving CTE students and teachers. See: <http://www.ctsos.org/>

³Rivkin, Jan. 2013. “Partial Credit: How America’s School Superintendents See Business as a Partner.” Harvard Business School, Boston, MA. Retrieved from: <http://www.hbs.edu/competitiveness/pdf/partial-credit.pdf>

⁴Carl D. Perkins Career and Technical Education Act of 2006, Pub.L. 109-270, 20 U.S.C §§ 2301-2414.

⁵20 U.S.C. § 2322(b)(1)(A); 20 U.S.C. § 2354(b)(5).

⁶20 U.S.C. § 2344(b)(6).

⁷NASDCTEc research on states’ Perkins implementation, 2014 (unpublished).

⁸20 U.S.C. § 2355(c)(3).

⁹Another flexible portion of current Perkins law is the reserve fund. The statutory requirements of this reserved portion of a state’s allocation allow for the promotion of employer engagement activities as defined in this report, but specific state efforts in this area were beyond the scope of this study. (20 U.S.C. § 2322(c))

¹⁰20 U.S.C. § 2322(c)(1)(F).

¹¹U.S. Department of Education, Office of Vocational and Adult Education. 2012. “Investing in America’s Future: A Blueprint for Transforming Career and Technical Education.” Washington, D.C. Retrieved from: <https://www2.ed.gov/about/offices/list/ovae/pi/cte/transforming-career-technical-education.pdf>

¹²National Association of State Directors of Career Technical Education Consortium and Association for Career and Technical Education. 2014. “State Policies Impacting CTE: 2013 Year in Review.” Retrieved from: http://careertech.org/sites/default/files/ACTE-NASDCTEc_State_Policy_Review_2013.pdf

¹³New Jersey’s Talent Networks, see: <http://www.jobs4jersey.com/toolkit/talent/>

¹⁴West Virginia’s Simulated Workplaces, see: <http://wvde.state.wv.us/simulated-workplace/>

¹⁵Work-based learning in Virginia, see: http://www.doe.virginia.gov/instruction/career_technical/work-based_learning/index.shtml

¹⁶Indiana Work-based Learning Guidance, see: <http://www.doe.in.gov/standards/cte-work-based-learning>

¹⁷North Carolina Department of Public Instruction, see: <https://www.jcps.k12.nc.us/District/Departments/CareerTechEdu/Documents/Developing%20High%20Quality%20CTE%20Programs%20Through%20Business%20Engagement.pdf>

¹⁸Memorandum. Alabama State Superintendent. 2013. “Career and Technical Education Bond Issue Requests for Proposals (RFP),” see: <https://www.alsde.edu/sites/memos/Memoranda/FY14-1001.pdf>

¹⁹Alabama House Bill 384, see: http://web.alsde.edu/legislativebills/2014Regular/HB0384_ENACTED.pdf

²⁰U.S. Department of Education’s Rigorous Programs of Study Framework, see: <http://cte.ed.gov/nationalinitiatives/rpos.cfm>

²¹Minnesota Rigorous Program of Study Guide, see: <http://www.cte.mnscu.edu/professionaldevelopment/documents/MN%20RPOS-Guide%202-1-13.pdf>

²²Tennessee’s Standards Revision Process, see: <http://tn.gov/education/cte/revisions/PhaseIIOnePagerOctober.pdf>

²³Louisiana’s Jump Start Career Diploma, see: <http://bese.louisiana.gov/documents-resources/newsroom/2014/10/15/bese-approves-graduation-pathways-for-jump-start-career-diploma>

²⁴Kansas’ Excel in Career Technical Education, see: http://www.kansasregents.org/governors_cte_initiative

²⁵Rhode Island 2014-H 8204 Substitute A, see: <http://webserver.rilin.state.ri.us/PublicLaws/law14/law14410.htm>

²⁶The New Jersey Council of County Vocational-Technical Schools is an association of superintendents and school board members representing the state’s 21 county vocational-technical school districts that enroll 31,000 secondary school students. In addition, CTE programs are offered at the secondary level at more than 100 comprehensive high schools that serve over 50,000 students and at the postsecondary level, over 125,000 students at the state’s 19 community colleges.

²⁷National Association of State Directors of Career Technical Education Consortium. 2010. “Reflect, Transform and Lead: A New Vision for Career Technical Education.” Retrieved from: <http://careertech.org/cte-vision>

²⁸Tennessee’s 2014 Teacher Externships, see: <http://www.tn.gov/education/cte/externships.shtml>

²⁹Alliance for Excellent Education and National Association of State Directors of Career Technical Education Consortium. 2012. “Promoting Work-based Learning in Connecticut and Kentucky.” Retrieved from: <http://careertech.org/sites/default/files/WorkBasedLearning-EffortsInCT%26KY-Oct2012.pdf>

³⁰Georgia House Bill 766, see: <http://www.legis.ga.gov/legislation/en-US/display/20132014/HB/766>

³¹Iowa’s Statewide Work-based Learning Intermediary Network, see: <https://www.educateiowa.gov/adult-career-and-community-college/career-and-technical-education/intermediary-network-statewide>

³²Virginia’s CTE Hall of Fame, see: <http://www.vcef.net/virginia-career-and-technical-education-hall-of-fame/>

³³Kansas’ Employer Engagement Initiative, see: http://www.kansasregents.org/employer_engagement_initiative

³⁴Rivkin, Jan. 2013. “Partial Credit: How America’s School Superintendents See Business as a Partner.” Harvard Business School, Boston, MA. Retrieved from: <http://www.hbs.edu/competitiveness/pdf/partial-credit.pdf>

³⁵North Carolina Department of Public Instruction, see: <https://www.jcps.k12.nc.us/District/Departments/CareerTechEdu/Documents/Developing%20High%20Quality%20CTE%20Programs%20Through%20Business%20Engagement.pdf>

³⁶Workforce Data Quality Campaign. 2014. “Mastering the Blueprint: State Progress on Workforce Data.” Washington, DC. Retrieved from: http://www.workforcedqc.org/sites/default/files/images/WDQCMasteringtheblueprint_web.pdf

³⁷Jobs for the Future. 2014. “The Pathways to Prosperity Network: A State Progress Report, 2012-2014.” Boston, MA. Retrieved from: <http://www.jff.org/sites/default/files/publications/materials/Pathways-to-Prosperity-for-Americas-youth-080514.pdf>

³⁸U.S. Department of Education’s Rigorous Programs of Study Framework, see: <http://cte.ed.gov/nationalinitiatives/rpos.cfm>

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