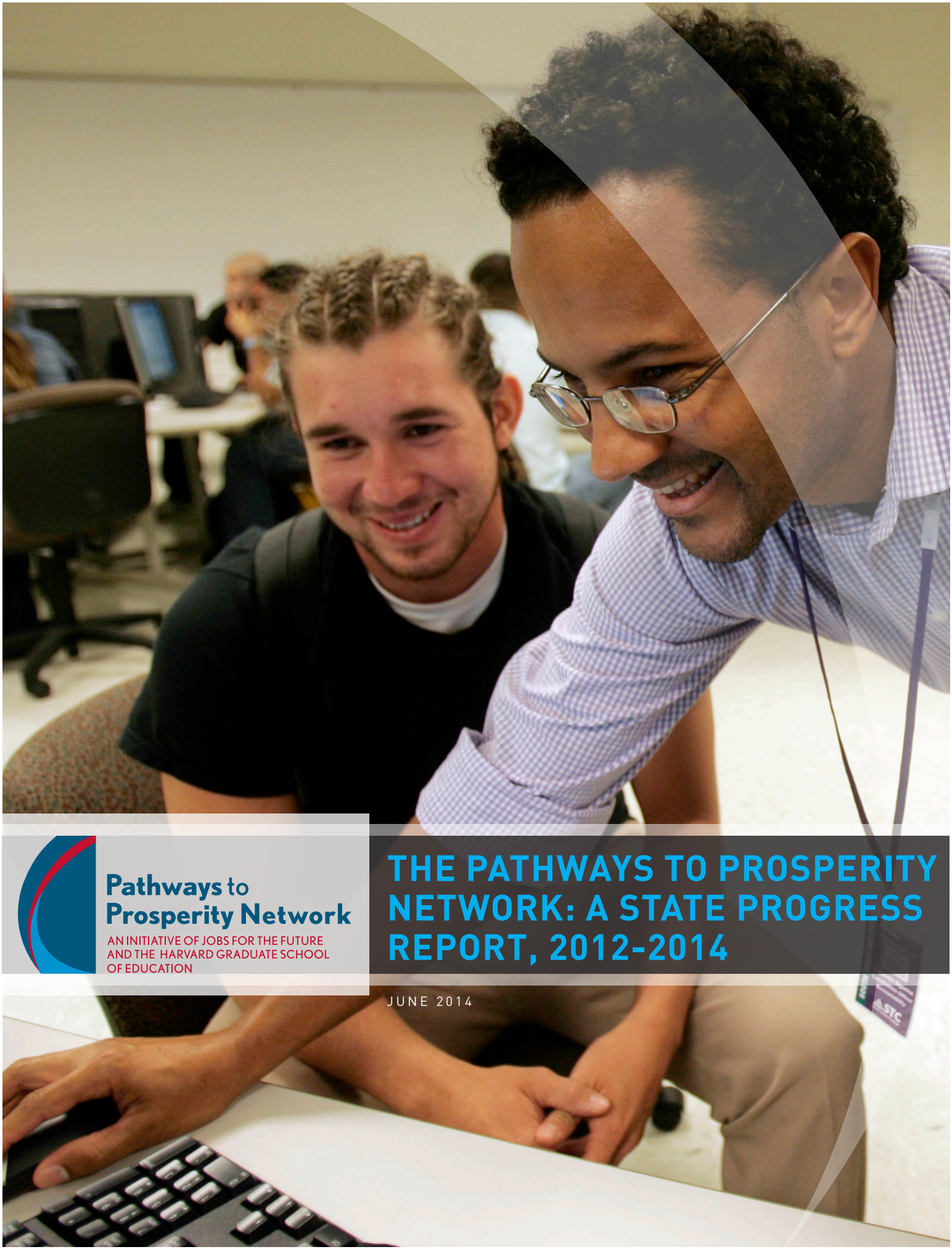

Pathways to Prosperity Network

AN INITIATIVE OF JOBS FOR THE FUTURE AND THE HARVARD GRADUATE SCHOOL OF EDUCATION

THE PATHWAYS TO PROSPERITY NETWORK: A STATE PROGRESS REPORT, 2012-2014

JUNE 2014

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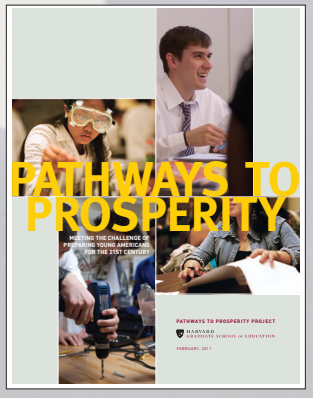
I. INTRODUCTIO

INTRODUCTION

In 2011, the Harvard Graduate School of Education released *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century*.[1] The report argued that our current education system was too narrowly focused on the goal of preparing all young people to pursue a four-year college or university degree immediately after high school, while other postsecondary routes to careers might suit significant numbers of students far better.

Only one young person in three obtains a four-year degree by age 25—and roughly 30 percent of the job openings projected over the next decade require some education beyond high school but not necessarily a four-year degree.[2] The report's authors called for much more attention to building career pathways in high-growth, high-demand occupational fields that span high school and community or technical college preparation and can provide young people with skills and credentials valued in the labor market.



Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century (2011)

The country simply cannot afford *not* to come up with new approaches to career education and workforce development.

Given the rising costs of four-year higher education institutions and the no-longer-certain economic returns on that investment, the Pathways report found a ready audience among policymakers and the public. Consequently, in 2012, the Harvard Graduate School of Education (HGSE) and Jobs for the Future (JFF), a Boston-based nonprofit focused on creating educational and economic opportunity for low-income youth and adults, decided to invite a small group of states to join them in creating the Pathways to Prosperity Network.

The Pathways to Prosperity Network is now two years old, with eight state members—California, Georgia, Illinois, Massachusetts, Missouri, New York, Ohio, and Tennessee—doing significant work in creating career pathways in grades 9-14. Two more states, Arizona and Delaware, joined the Network in June 2014.

This report is a letter to the field about what's been accomplished to date. As is often the case in such initiatives, the results thus far are due to a combination of good luck, good timing, deep knowledge of implementation, and a simple but urgent message and strategy. The unique stories of the developments in each state are included in this report as well as observation and description of key aspects of this work across the states in the Network as a group.

The Network has taken on the challenge of work-based learning and has made the exposure of all young people to a wide range of career options, information, and experiences a key lever in the Pathways framework. Broad general education is as important as ever for the critical thinking and problem-solving skills it teaches as well as for the context it provides for understanding the world. It is equally important that young people understand the labor market, and get a head start while in school preparing for the work they are interested in doing in the future.

The long-term objective of Pathways is to create statewide strategies that ensure that all middle and high school students are provided systematic, sustained exposure to the world of work and careers, and that students in their upper high school years have access to educational options that integrate academic and technical skills and lead to a postsecondary credential with value in the labor market.

The country simply cannot afford *not* to come up with new and more effective approaches to career education and workforce development. These are critical both for the healthy development of the nation's younger generations and for the overall vitality of the U.S. economy and society.

II. EDUCATION FOR CAREERS

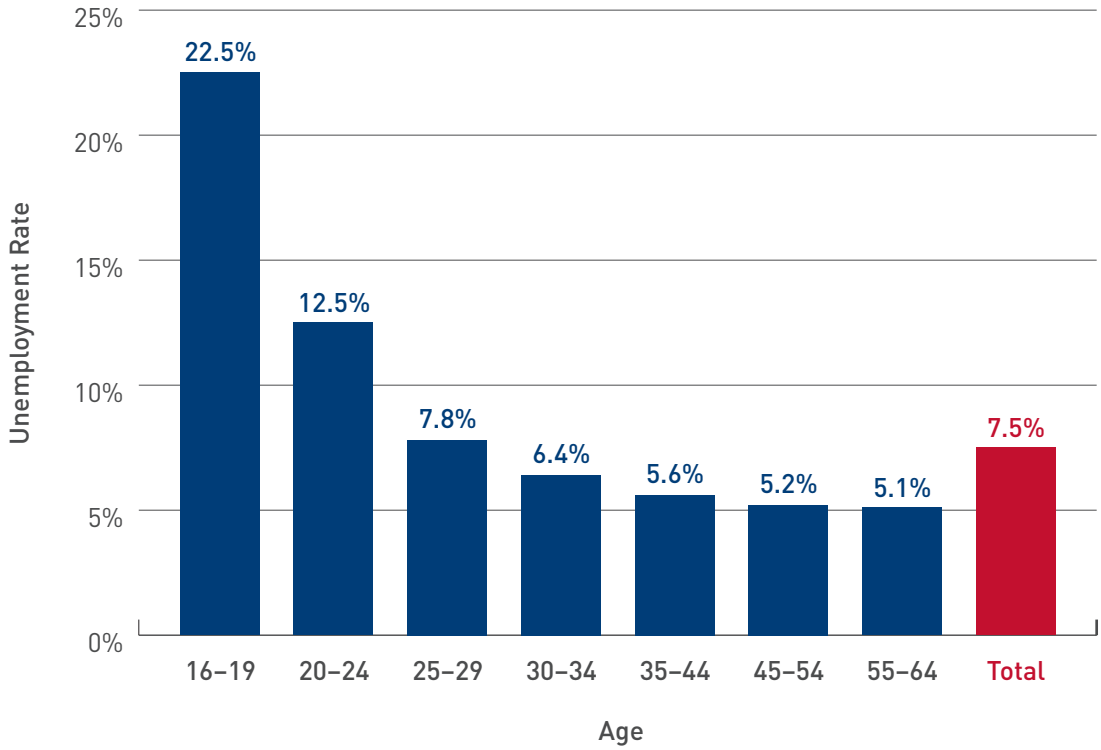
EDUCATION FOR CAREERS: THE ASPIRATION FOR ALL STUDENTS

The overall goal of the Network is to increase the numbers of young people who complete high school, attain a postsecondary credential with value in the labor market, and get launched on a career in a high-demand, high-wage occupation that can also provide the basis to pursue further education and career advancement. This goal is crucial today because all students need career-related education at a time when millions of young people are unemployed, underemployed, and/or may lack preparation that is relevant to the needs of the job market.

As recently as a generation ago, the nation's young people grew up believing that if they worked hard and stayed out of trouble, they could expect to find decent jobs when they left high school—and those jobs would allow them to become independent and self-sustaining adults. Today, millions of young Americans are stepping into the labor

FIGURE 1 UNEMPLOYMENT RATE BY AGE

Young Americans are unemployed at about twice the rate of older workers.



Source: U.S. Bureau of Labor Statistics, "Current Population Survey" (2013).

The nation's youth employment rates have plummeted over the last 15 years, declining to their lowest levels since the 1930s.

According to recent data from the U.S. Bureau of Labor Statistics, the nation's youth employment rates have plummeted over the last 15 years, declining to their lowest levels since the 1930s. Among 2012 high school graduates who did not enroll in college the following year, only 45 percent were able to find work of any kind, and only half of those jobs were full time.[3] Among high school dropouts aged 16-19, only about 30 percent are employed. And for low-income and minority youth who comprise an increasingly large percentage of the youth population, the figures are lower still. In October 2012, only 5 percent of African-American male high school graduates of the class of 2012 looking for full-time work had found it.[4]

market after high school only to discover that the best they can do is to piece together a series of part-time, low-wage jobs that barely allows them to support themselves, much less build a satisfying life. And the same is true even among those young people with some college credits or a poorly chosen two- or four-year degree.

Over the last few years, the high school improvement agenda has again come to include work-based learning as it did during the school-to-work era of the 1990s. There are three key reasons for this renewed emphasis: the skills-jobs mismatch suggests the need for attention to the alignment of education and labor market needs; the crisis in college costs is making families more attuned to the economic return of a degree; and growing knowledge from the fields of brain science, achievement motivation, and adolescent development confirm that high school students engage and flourish when their learning provides them with, from the perspective of psychologist Robert Halpern, "a window to the adult world by blending academic and applied learning through introduction of apprenticeships, project-based learning, and other real-world applications."[5]

To address these challenges, a small number of exemplary high schools and networks of schools have taken on the

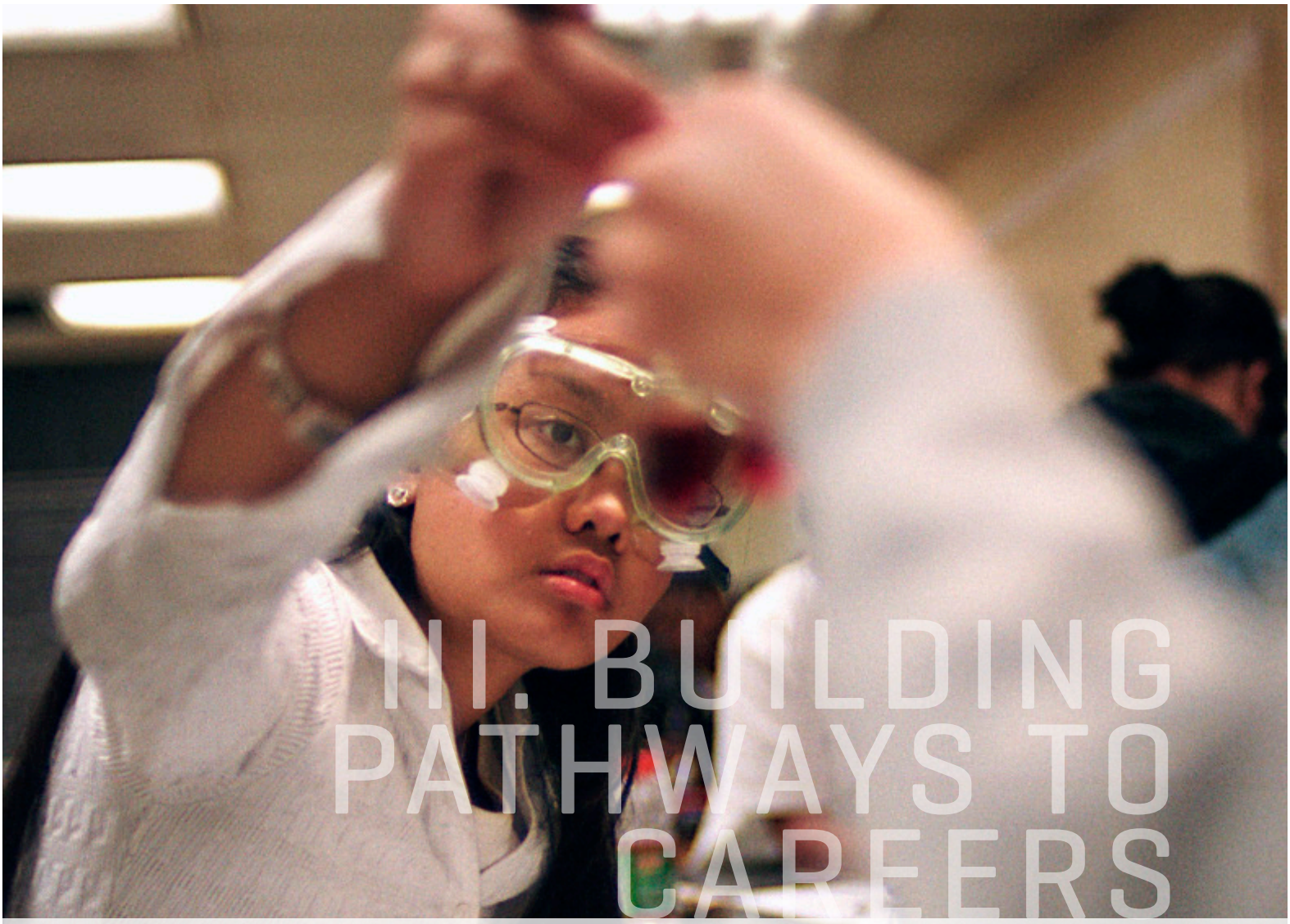
A small number of exemplary high schools and networks of schools have taken on the work-based learning challenge over the last several decades.

work-based or applied learning challenge over the last several decades. The best known of these networks and approaches include Big Picture Learning, High Tech High Schools, Expeditionary Learning, Linked Learning, National Academy Foundation academies, YouthBuild charter schools, and a number of states' vocational high schools and tech centers. Many early college high schools—JFF's signature credential completion strategy—also qualify, since many students complete internships along with college courses while still in high school. P-TECH—the school sponsored by the New York City Department of Education, City University of New York, New York City College of Technology, and IBM, and now being replicated across New York State—is an example of such an early college approach. A commonality among these schools is that they require different and more creative ways of thinking about learning time and environment, especially important factors for adolescents.

The Pathways Network has identified characteristics in the design of new educational pathways that are most effective for educating and equipping students for employment and success in careers. The Network is working to expand efforts that:

- **Have permeable pathways through postsecondary education**, allowing young people to transfer credit from one level to the next and move between sectors of the economy
- **Require students to apply sophisticated theory and application to real-world problems**, demonstrating the relevance of STEM and other academic disciplines
- **Develop STEM competencies and work skills**, complex problem-solving, and expertise in communication, teamwork, and presentation skills
- **Respond to developmental needs of adolescents**, including testing one's skills and building a work identity in a multigenerational workplace outside of school.

The Network's goal is to ensure more students complete high school, earn valuable credentials, and get launched into high-demand, high-wage occupations that can lead to further education and career advancement.



III. BUILDING PATHWAYS TO CAREERS

BUILDING PATHWAYS TO CAREERS

The Pathways to Prosperity Network helps state, regional, and local educators, employers, and intermediary organizations (such as community foundations, workforce investment boards, and chambers of commerce) to build and/or scale up career pathways initiatives that span grades 9-14. These initiatives connect high school with community college and industry certification programs in sectors of the economy that are projected to grow rapidly in the coming years, such as information technology, health care, and advanced manufacturing.

Unfortunately, the larger the number of students to be served with an experience-based approach that expands and rethinks learning time and place in the high school years, the less consistently the appropriate experiences are available. For example, the Linked Learning approach that is present in over 70 districts in California (as well as in Houston and Detroit), the National Academy Foundation that supports 485 career academies serving 60,000 students nationwide, and the California Partnership Academies model that includes 462 career academies across that state, all have a philosophical commitment to providing work-based learning. But none of these models does so systemically across whole districts, let alone across entire high schools. There are only limited examples of the work-based learning "gold standard"—a paid, multi-week apprenticeship or internship in the summer between 11th and 12th grades, or during the 11th and 12th grade years, building on a sequence of opportunities to learn about and visit workplaces starting in middle school.

Employers in the United States do not take the long view about the value of investing in talent early.

The reason why these opportunities are not more readily available to large numbers of students is not hard to identify: employers in the United States do not take the long view about the value of investing in talent early. U.S. employers spend ample dollars on training, but it is generally for mid-level executives rather than to create a pipeline of young professionals. Even if employers were more inclined toward collaborating with high schools to share in preparing young people, teachers and school leaders do not have the time or capacity to develop the number of internships needed while attending to their other responsibilities. In addition, high school daily class schedules are notoriously difficult to modify and expand. Finally, with youth unemployment at an alarmingly high rate—especially for low-income young people—we lack government youth policies that address this crisis.

States participating in the Pathways Network agree to advance career pathways by addressing five major levers that have proven across the Network to gain significant traction. Each state works to:

- **Develop and implement** comprehensive systems for career information, advising, and exposure in programs starting in middle school
- **Gain commitment** from employers, particularly in high-growth sectors, to engage with educators to build a sequence of work-based learning experiences for young people in their regions and states, and to provide input and feedback on curricula and pathways development and improvement
- **Provide opportunities** for students who would traditionally not be college bound to earn at least 12 college credits while in high school and start on a career pathway
- **Develop and strengthen** intermediary organizations that connect employers, high schools, and community colleges, and aggregate and make available work-based learning opportunities
- **Create and maintain** a cross-sector (executive, legislative, employer) state leadership team to guide and champion this work and build public will backed by effective policies and strategies for expansion.

FIGURE 2 KEY PATHWAYS IMPLEMENTATION LEVERS FOR A BETTER SYSTEM

Source: Pathways to Prosperity Network.

IV. FROM REPORT TO ACTION

FROM REPORT TO ACTION: PATHWAYS TO PROSPERITY IN THE FIELD

In the first two years since it was launched, the Pathways to Prosperity Network has learned a great deal about engaging employers to take on work-based learning programs. The Network has also identified the industries that are growing most rapidly in the 25 regions where efforts are now located.

ENGAGING EMPLOYERS IN PROVIDING WORK-BASED LEARNING FOR YOUNG PEOPLE

Both young people and their teachers need many more opportunities to learn about the 21st century workplace and future labor market needs and opportunities. Working

The skills gap means one thing to employers and something else to educators.

across multiple regions, the Network teams confirm that the skills gap means one thing to employers and something else to educators. Employers claim that high school and community college graduates arrive ill-prepared for the workplace and with weak skills, while educators claim that, without more willingness to partner in education and training designs and to open doors so young people can gain work experience, employers won't get what they need.

Until these two constituencies can meet in the middle, they will continue to miscommunicate about what needs to happen next and, unfortunately, there are few examples of sustained and scaled success in this realm.

The Pathways Network participants have committed to the idea that sustained and scaled employer engagement cannot be accomplished without the use of workforce intermediaries, sector organizations, and a neutral organizing and guiding body representing key stakeholders in building a regional system. Such an organization's critical activity is brokering work-based learning opportunities for young people. Very few such mechanisms exist now in the Network states. A second critical factor is the Network's focus on the specific sectors of the economy described below. Employers are much more likely to engage when sector organizations can play a go-between role and when data provided from labor market analyses show the actual supply/demand picture for certain specializations within the chosen sectors.

The Network states are testing diverse strategies to link educational institutions to the labor market and address the needs of emerging industries. They are creating opportunities for adolescents to learn more actively in school and beyond by pursuing internships, building relationships with adult mentors, learning about possible futures, developing marketable skills and knowledge, and making progress toward postsecondary credentials and degrees. The states also are designing programs and services that support young people in making informed choices about academic coursework, technical training, and career options that will help them realize their long-term goals.

EXAMPLES: EMPLOYERS ENGAGING YOUNG PEOPLE IN WORK-BASED LEARNING

- **Paramount Farms:** Five early colleges in California's Central Valley are focused on agricultural business management, plant science, and agricultural mechanics, and are engaged in partnerships with three community colleges and six companies that provide paid internships.
- **Southwire:** The Carroll County, Georgia, company sponsors an engineering academy in a comprehensive high school and 12 For Life, a work-study high school for at-risk young people on the Southwire shop floor.
- **IBM and SAP:** Multiple early colleges featuring work-based learning and paid apprenticeships in computer science, IT, and business in Network states; STEM early colleges in Chicago sponsored by Cisco, IBM, Motorola, Verizon, and Microsoft.
- **Western Massachusetts chapter of the National Tooling and Machining Association (WMNTMA):** A comprehensive high school, a technical community college, and the workforce investment board sponsoring a new manufacturing pathway starting in 9th grade.
- **Wegmans Supermarket:** Leadership of an education and workforce development group in Rochester, New York, under the auspices of the Finger Lakes Regional Economic Development Council, meeting weekly to provide local young people with support and job opportunities.
- **The Boeing Company:** Funded externships for instructors in the St. Louis region to participate with business partners to learn about high-demand pathways and to develop problem-based, real-world projects for students.

FIGURE 3 PROJECTED JOB GROWTH IN SUB-BACHELOR'S DEGREE POSITIONS IN THE HEALTH CARE FIELD

Patient-Centered Postitions	Entry Education	# Jobs 2010	Job Growth 2010-2020	Change
Home Health and Personal Care Aides	Less than high school	1,878,700	70%	1,313,200
Registered Nurses	Associate's degree	2,737,400	36%	711,900
Nursing Aides	Postseconary certificate	1,505,300	20%	302,000
Licensed Practical Nurses	Postseconary certificate	752,300	22%	168,500
Medical Assistants	HS Diploma/equivalent	527,600	31%	162,900
EMTs and Paramedics	Postseconary certificate	226,500	33%	75,400

Source: U.S. Bureau of Labor Statistics. (2012). *Monthly Labor Review.*

ZEROING IN ON INDUSTRY SECTORS OF PROMISE FOR YOUNG PEOPLE

To support the development of career pathways within the Network, JFF carried out asset mapping, including studies of the labor market using "real time" as well as traditional data, in 25 regions where Network initiatives are located. The process consistently identified three growth areas of the economy across the Network's eight states as the best bets for young people seeking appropriate entry-level jobs with a two-year degree. These were health care, information technology (IT) and computer science, and advanced manufacturing.

Health Care. Postsecondary institutions have long prepared people for the health care field. Given the aging population and the new requirements of the Affordable Care Act, the allied health field is one of the most in-demand fields in two- and four-year institutions. High schools also prepare young people in health care. The College & Career Academy Support Network lists 156 health-career-themed high schools or academies in their national directory. There are likely more, and a good number of these schools are highly successful in keeping young people in programs through graduation whether they choose to go on in the field in college or prefer a different career option.

The challenge in health care is that among high school counselors, teachers, and students there is little awareness that nursing is only one option of many in the allied health fields. Other growing technical fields one can enter with a two-year degree include physical therapy assistant, medical laboratory technician, radiological technician, occupational therapy assistant, recreation therapy assistant, and respiratory therapy technician, along with the very new field of health information technology (sometimes called health informatics).

A second challenge concerns access. Because of the recession, many adults who have already completed science courses, and have work experience and often a bachelor's degree, are taking the limited places allocated competitively in postsecondary health career degree programs, effectively crowding out young people with little to no work experience who are entering postsecondary education directly from high school. There are also higher education faculty shortages in the health care field. Finally, few high school programs are aligned with postsecondary programs of study.

On the plus side, because obtaining a license in some areas of health care requires a clinical practicum, hospitals, nursing homes, clinics, and rehabilitation centers are accustomed to taking on interns and are often willing to provide work-based learning opportunities for high school students. In existing health-related early college programs, high school students earn credits that transfer seamlessly into community college credential programs under agreements between the college and the high school, thereby ensuring themselves places in high-demand programs. Furthermore, since certificates and licensure are essential to the health care industry, increasing numbers of career pathways in this sector are integrating industry-recognized credentials into their high school programs of study.

Information Technology (IT) and Computer Science. Almost all workplaces today are IT-enabled. IT skills are required in nearly every occupation, including growing career pathways in such fields as data security, engineering technology, and automotive technology.

Only 22 states accept computer science to meet a high school math or science graduation requirement.

Computer science opens doors from programming to cutting-edge development of computing solutions in software design. Many high schools, however, teach the useful basics of office software technologies—PowerPoint, word processing—but are not equipped to offer either introductory computer science or IT courses. Only 22 states accept computer science to meet a high school math or science graduation requirement.[6] And both high schools and community colleges have difficulty finding faculty to teach these programs. According to the National Science Foundation, only 19 percent of U.S. high school students take a computer science class, a percentage that has fallen over the last two decades.[7] When they exist, high school approaches to IT are often not well aligned with postsecondary offerings, and educators often lack good information on which certifications (such as Cisco, A+, Microsoft, and CompTIA) are the best options for students' careers.

On the plus side, the National Science Foundation, College Board, STEM early college programs, and the growing but still small cohort of technology-focused high schools, are creating or have created rigorous curriculum in IT and computer science. (See, for example, the National Science Foundation's Exploring Computer Science entry-level high school curriculum.) Some schools with strong IT programs have in-school enterprises with external client partners, and others provide paid internships—Boston's Tech Apprentice program, for example, is one highly successful model. This is also a field that should be attractive to young people if approached creatively.

Advanced Manufacturing/Pre-engineering. With reshoring efforts underway, manufacturing is now a high-tech occupation rather than the dark, dirty, and dangerous endeavor it once was. To serve the needs of sophisticated multinational companies as well as those of the boutique firms that design and produce unique machine parts and equipment, high schools and community colleges are challenged to provide appropriate training and the expensive, state-of-the-art equipment needed for that training. The manufacturing field requires hands-on skills like welding as well as highly sophisticated computer skills to negotiate the demands of modern computer numeric control systems using computer-aided design and computer-aided manufacturing programs.

Advanced manufacturing courses exist in some high school career and technical education (CTE) programs, and robotics courses and competitions are popular, but the courses are not consistently aligned with postsecondary offerings nor are they commonly offered in traditional comprehensive high schools. For example, engineering technology is a good career path but an instructional area that is light on credit-bearing courses that develop production skills, so advancing from those courses in high school to higher-level postsecondary ones may not be feasible. There are, however, organizations that are working with high schools and technical and community colleges to bridge this gap. Project Lead the Way, for example, is a nonprofit organization that provides a number of districts with high-quality engineering curricula on which to build when designing courses. In addition, the National Association of Manufacturers' Manufacturing Institute has assembled a list of community and technical colleges using its stackable NIMS credentials, and is searching for high schools to add to the list.

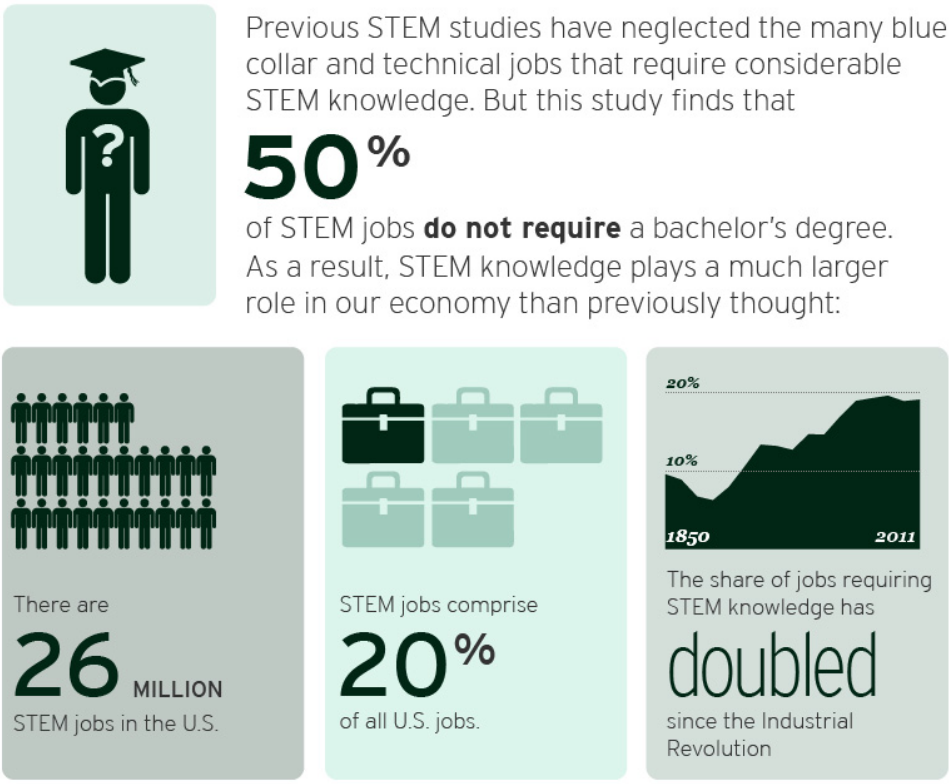
Manufacturing truly is a wide-open field for young people. Young people and their families need better information about the existence of training and career opportunities, and employers will have to work with educators to build the curriculum, provide equipment, and publicize the advantages of this career area.

USING THE PATHWAYS TO PROSPERITY FRAMEWORK TO LEVERAGE PUBLIC FUNDS

Member states embracing the Pathways Network framework and working on the design and implementation of new career preparation pathways in key regions in their states were poised to influence and then leverage both state and national funding opportunities. That states and the Obama Administration are making such substantial investments in these redesigned high schools is a testament to a growing national consensus around the need for better career education.

At the federal level, serious efforts to promote workforce development have begun to gain traction. President Obama has spoken with increasing frequency about the urgent need to expand funding for apprenticeships, career and technical education, and job training programs—even announcing that he would designate the last as one of Vice President Biden's second-term responsibilities. The President's growing attention to career readiness has translated into concrete initiatives as well, including the $2 billion Trade Act Assistance Community College Career Training Program, which aims to retrain unemployed workers, and the $100 million Youth CareerConnect initiative, which funds partnerships between high schools and local employers.

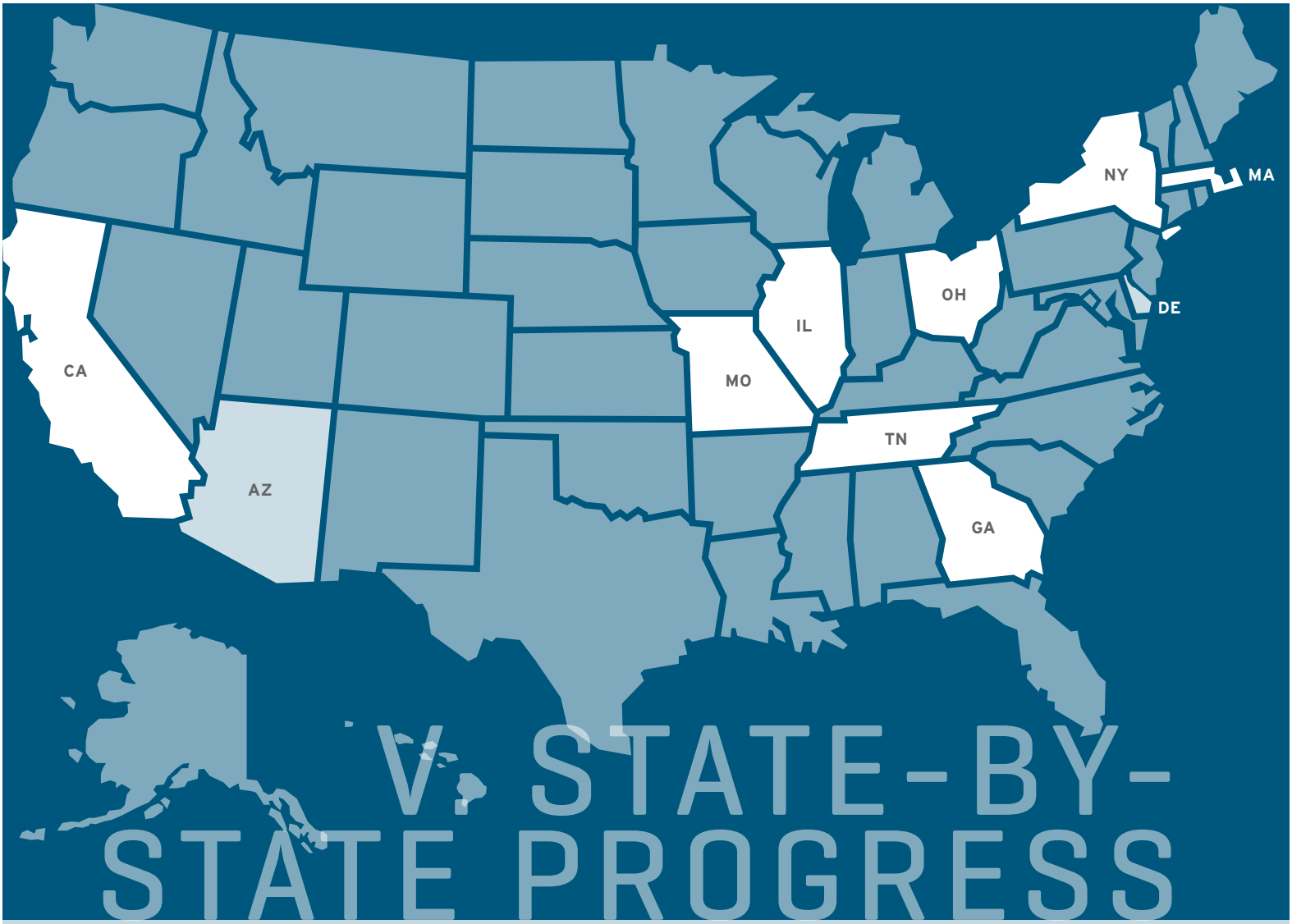
FIGURE 4 STEM JOBS IN THE UNITED STATES



Source: Brookings Institution. (2013). *The Hidden STEM Economy*. Retrieved from http://www.brookings.edu/research/interactives/2013/the-hidden-stem-economy.

At the state level, the Pathways Network's framework has leveraged public funds as identified in some of the highlights below and in the detailed state profiles that follow.

- **California** allocated and awarded **$250 million** for a **Career Pathways Trust** to invest in regional collaboratives to support career programs, including work-based learning aligned with regional economic priorities.
- Reynoldsburg City Schools in **Ohio** was awarded **$14.4 million** through the State Department of Education's Straight A Fund to implement **Pathways to Prosperity career programs** in partnership with 15 districts, with the JFF Pathways team providing technical assistance and guiding systems-level design and strategic planning.
- **New York State** has funded **16 new P-TECH high schools** with grants of $300,000 for seven years, for a total of **$28 million**, with support in several regions from the JFF team. The most recent budget includes funding for up to 10 additional schools.
- Jobs for the Future was the only national organization to win a **Youth CareerConnect** federal grant with its three **Massachusetts** Pathways sites, which include high schools, postsecondary institutions, employers, and workforce investment boards. The funding is **$4.8 million** over four years.



V. STATE-BY-STATE PROGRESS

*Arizona and Delaware are entering the Network in 2014.

STATE-BY-STATE PROGRESS ACROSS THE PATHWAYS NETWORK

Given how widely the states differ in their strengths, needs, and priorities, beyond the framework and design principles endorsed by the partners, the JFF/HGSE team's role is not to dictate a specific model of career education and workforce development. Rather, it is to help states and regions to strengthen, add to, and align the initiatives they already have in place. The work has progressed through a Network peer-learning community as well as through leadership in each state and region.

The profiles illustrate just how varied the strategies that the states have chosen to pursue are, given their differing histories and present needs. For example, Tennessee and Georgia—states that have particularly strong traditions of career and technical education at the secondary level—have focused on modernizing their programs, strengthening their academic rigor, and building closer relationships between high schools and postsecondary institutions. In Massachusetts, which has a long history of funding discrete vocational-technical high schools, the challenge has been to introduce more career-related programming and services into the comprehensive high schools. And in California, which has a strong record of investment in career academies, a key challenge has been to strengthen those schools' connections to postsecondary technical programs. But, in every case, common challenges include meaningfully engaging employers.

CA CALIFORNIA

State-level activity: With support from the James Irvine Foundation, California joined the Pathways to Prosperity initiative in 2013. Accomplishments since then build on the state's long history of support for partnership academies as well as on the Irvine Foundation's substantial investment in Linked Learning, an approach that integrates rigorous academics with career-based learning and real-world workplace experiences. Since the 1980s, the state has supported partnership academies, programs structured within high schools that incorporate integrated academic and career and technical education, business partnerships, mentoring, and internships. There are now more than 460 partnership academies in the state. The Linked Learning approach encompasses the partnership academy model as well as National Academy Foundation academies and other models. Beyond these individual academies, the Irvine Foundation has funded nine districtwide Linked Learning initiatives. Following initial successes in these districts, the state invited another 52 school districts and eight county offices of education to implement districtwide systems for program coordination, development, and support through the Linked Learning Pilot Program. Once these pilot programs are fully implemented, the approach will touch more than one-third of California's high school students.

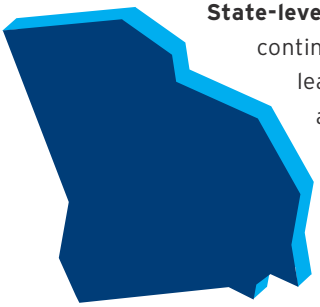
Influenced by the success of Linked Learning, in 2013, California State Senate President pro Tem Darrell Steinberg and State Superintendent Tom Torlakson announced the creation of the Career Pathways Trust, a $250 million fund distributed through competitive grants to regional consortia of school districts, county offices of education, community colleges, and employers, to prepare California's future workforce to meet regional labor-market demands. In December 2013, the JFF and HGSE Pathways team was invited by state leaders to introduce the Pathways framework to nearly 600 potential grant applicants seeking design guidance in day-long institutes in Sacramento, Fresno, and Los Angeles. On May 30, 2014, Superintendent Torlakson announced that 12 regional consortia had been awarded grants of up to $15 million; 16 consortia received grants of up to $6 million; and 11 had received grants of up to $600,000. Two weeks later, Sen. Steinberg announced that another $250 million for the Trust had been secured in the FY15 budget.

Regional activity in California: The JFF and HGSE Pathways team's work with Long Beach Unified School District (LBUSD) preceded California's joining the Pathways Network. Long considered a beacon in high school reform and now implementing Linked Learning wall-to-wall in all high schools, LBUSD is moving ahead quickly to align its Linked Learning pathways programs with majors at Long Beach City College and California State University, Long Beach. The district is also building the Long Beach Collaborative to Support Linked Learning (LBCALL), a group representing the school district, employers, and higher education, which will broker and provide work-based learning opportunities for local high school students.

Under a unique grant to the Pathways State Network from the Noyce Foundation, LBUSD is also creating and piloting a Young Scholars elective, called Possible Futures/Possible Selves, which enables middle school students to explore potential careers through engaging, Common Core-aligned STEM career courses, and to begin high school with a career-focused summer bridge program. The goal is to build a coherent sequence of workplace experiences for all students, culminating in an internship or other form of extended workplace learning experience for interested students prior to high school graduation. Products developed through Possible Futures/Possible Selves, also being piloted in rural Tennessee, will be available to the Pathways Network following the design phase.

"The Pathways Network was an essential resource that paid big dividends for our work here in California. The opportunities for cross-state learning, and exposure to the latest research and best international practice, helped shape our thinking and ultimately our policymaking at the state level. In addition, the expertise of Network leaders informed both the planning for and execution of the landmark $250 million California Career Pathways Trust." *—Darrell Steinberg, president pro tempore, California State Senate*

GA GEORGIA



State-level activity: Georgia has had and continues to have strong education leadership, as well as institutions and structures built over several decades, to support career pathways. The Pathways to Prosperity work in Georgia—a partnership with the Georgia Department of Education, the Technical College System of Georgia, and the University System of Georgia—launched in March 2013, and is now supported as an initiative through the Georgia Alliance of Education Agency Heads, the state's P-20 Council.

The foundation of much of the current career preparation work in the state is the College and Career Clusters/Pathways legislation (HB 186) that was signed into law in 2011. The legislation has led to the development of career and technical education courses for high school students, who are required to select a career area to explore, and has stimulated a great deal of work across sectors to align career pathways to job market needs in the state. A total of 17 career clusters and 97 career pathways have been approved. In fall 2013, an initial 28 foundation courses were implemented in Georgia high schools, while an additional 157 courses were developed between May 2013 and February 2014. All courses will be available to school districts in the state for implementation in fall 2014. This career pathways work is also integrated into the accountability system for Georgia schools in grades K-12.

This career pathways legislation works in tandem with HB 713, which mandates career exploration and awareness activities in grades K-12. The Work-Based Learning Act (HB 766), which will take effect on July 1, 2014, will expand the range of industries in which high school students in Georgia can participate in work-based learning. The bill calls for the creation of work-based learning opportunities linked to students' career pathways and for which students have an opportunity to earn dual credit toward their high school diplomas through the Technical College System of Georgia.

Regional activity in Georgia: The Pathways to Prosperity Network regions in Georgia are Carroll County and Bulloch County. State leaders intend to use the initial work in these counties to create frameworks that can inform similar work in communities across the state that are seeking to build partnerships among K-12 education systems, postsecondary institutions, and employers.

Carroll County is home to a nationally recognized extraordinary school district-business partnership, 12 for Life, with Southwire, a manufacturer that is one of the area's largest employers. (12 for Life refers to the twelve years of public schooling culminating in a high school diploma.) To stem an unacceptable high school dropout rate, Southwire built a new school housed within a Southwire manufacturing facility in which students combine and integrate rigorous classroom academics with hands-on, real-life advanced manufacturing work-based learning. In addition to gaining work skills and experience, students earn income from working and attain their high school diploma. The school, staffed by district and Southwire employees, has graduated over 300 students since it was initiated, and currently serves 160 young people.

In April 2014, the JFF Pathways to Prosperity team began asset mapping in Bulloch County to gather baseline data around each of the levers in the Pathways framework. There is a great deal of enthusiasm about the Network's work in the region, and leaders from education, business, and industry are eager to build collaborations that support development of pathways. Stakeholders intend to develop a work plan in the summer of 2014.

"The future success of Georgia's workforce relies on our ability to help students . . . pursue a variety of exciting avenues that lead to rewarding jobs and great careers. The Pathways to Prosperity partnership . . . [enables] students to participate in relevant coursework while also gaining work-related experience. These innovative programs ensure that our youth are better prepared for college and ready for highly skilled jobs in Georgia's workforce." *—Ron Jackson, commissioner, Technical College System of Georgia, and chair, Georgia's Alliance of Education Agency Heads (P-20 Council)*

IL ILLINOIS

State-level activity: In 2012, the State of Illinois launched a major STEM education initiative, Illinois Pathways, which brings together partners from education, business, and industry to provide rich opportunities to encourage high school students to work deeply in nine STEM career clusters. Illinois Pathways has used $3.2 million of the state's Race to the Top funding to support seven new public-private partnerships in priority STEM career cluster areas (known in the state as STEM Learning Exchanges). The initiative is developing career pathway systems in all 25 Race to the Top districts and in other Pathways-aligned regions across the state.

In addition, a new intergovernmental coordinating committee with membership from six state agencies representing P-20 education, workforce, and economic development, guides the work. Five of the STEM Learning Exchanges have completed strategic plans and commenced delivery of supports to school districts and regions. Work is underway on the creation of an online content repository that, as part of the state's "Illinois Shared Learning Environment" project, will organize and make available instructional resources and assessments to help deliver local career pathways systems.

Regional activity in Illinois: The Pathways to Prosperity Network's effort in Illinois has thus far focused on Aurora and Chicago; one to two additional regions will be added in 2014. Aurora is making a citywide investment in career and technical education, with an emphasis on the information technology field. The Chamber of Commerce and the mayor have taken lead roles in the effort and were key speakers at the Aurora Regional Pathways launch event along with leaders from industry, government, and education. As a follow-up to this event, representatives of local educational institutions, employers, and JFF worked together to brainstorm, develop, and set the strategy for the Information Technology Pathway that will debut in fall 2014.

Building on this work, a team of educators in Aurora participated in an IT curriculum development session. They created 9th and 10th grade entry-level courses that will provide students with the necessary foundational tools to pursue additional IT coursework, including dual credit opportunities. Stakeholders in the region are creating a new intermediary organization to develop an employer engagement process to support the IT pathway and the development of the health sciences and advanced manufacturing pathways.

In Chicago, five Early College STEM Schools with a grades 9-14 pathway in IT launched in the fall of 2012. These schools are currently serving 1,600 9th and 10th graders, with the latter group participating in IT Problem Solving, the first class in the City Colleges of Chicago IT degree sequence. A summer geometry class allows approximately 200 students to accelerate in math, and the schools have launched mentoring, work-based learning, and college-going experiences with partners. In addition, Chicago Public Schools developed nine new CTE programs for the 2013-14 school year.

The Pathways Network also helped to launch Chicago's Crane Medical Preparatory High School, a health science-focused high school featuring a course of study consisting of Project Lead the Way's biomedical sciences program as well as nursing and diagnostic services. Pathways work in the region also involves efforts to collaborate with the City Colleges of Chicago to develop courses of study that incorporate postsecondary education in high school. Area employers, including Siemens and SAP, have expressed strong interest in supporting efforts to prepare young people for IT careers, and IBM has expanded its P-TECH high school model into Chicago. In addition, the Chicagoland Workforce Funder Alliance approved two planning grants for the development of sector-specific intermediaries in IT and manufacturing.

"We see the Pathways Network . . . as the most effective way to create and sustain the essential educational components needed to ensure that every student is truly college and career ready. If we don't provide opportunities for work-based learning, internships, employment, mentoring, obtaining stackable credentials, use of technology, and industry resources for teacher-employer participation in the shaping of curriculum, then the 'career' part of 'college and career readiness' will not be fully realized." *—Miguel del Valle, chairman, Illinois P-20 Council*

MASSACHUSETTS

State-level activity: Massachusetts, a top performer in K-12, also has high-performing regional vocational high schools. The community college system has stepped up the scope of its career preparation programs and strengthened its alignment with labor market needs. Nonetheless, middle-skill STEM jobs are unfilled, the comprehensive high schools do not offer a range of career and technical education pathways, and high school pathways need to be aligned with community college programs of study. An additional challenge in Massachusetts is the absence of a dual enrollment policy and limited funding to support college-course taking by high school students.

Massachusetts joined the Pathways to Prosperity Network in 2012 through Governor Deval Patrick's executive office of education as one part of the state's investment in career pathways for youth and adults. In 2014, Pathways was moved to the College and Career Ready unit (CCR) of the Massachusetts Department of Elementary and Secondary Education in order to integrate it with other early college approaches for which the Department provides technical assistance in collaboration with the Department of Higher Education. Recently, CCR supported JFF's successful Youth CareerConnect application, which is funding three high schools to build programs for grades 9-14 as part of the Pathways work, two of which are new members of the Massachusetts Pathways investment.

A distinction of the Massachusetts Pathways approach is that community colleges—including Bunker Hill, Massasoit, and Springfield Technical—as well as Framingham State University and workforce investment boards (WIBs) are the organizing hubs for grades 9-14 pathways. Massachusetts' WIBs are supported by a unique line item in the state budget called "Connecting Activities," which establishes public-private partnerships through the 16 local WIBs, to connect schools and businesses to support students' career development education. Through Connecting Activities, students across the state are provided structured work-based learning experiences and other career development activities. Connecting Activities is administered by the College and Career Ready unit of the Department of Elementary and Secondary Education.

Regional activity in Massachusetts: In Boston, the Pathways to Prosperity team designed and launched two new courses (math and English/language arts) for the 2013-2014 school year for all 9th graders in two health-themed high schools. Developed collaboratively by high school and community college faculty with support from the Private Industry Council, Boston's workforce investment board, the courses prepare students for college-credit courses in a health care pathway in their junior year of high school. Bunker Hill Community College, the health careers partner, is building back from a long-standing 12th grade dual enrollment program. In addition, JFF is working through a special partnership between Roxbury Community College and Madison Park Technical Vocational High School in Boston to develop a health care pathway for high school students, and a small group has already started taking college courses this year.

"Through the [Pathways to Prosperity] initiative, we are creating opportunities for students to learn about careers and acquire the necessary skills so they can transition smoothly from high school into a two-year technical program—and then get a job or pursue a bachelor's degree. The collective efforts of the Departments of Elementary and Secondary Education and Higher Education, our workforce investment boards, employers, and enthusiastic state and regional leaders ensure that we have a shared, cohesive, and effective strategy for preparing all students for success after high school." *—Mitchell D. Chester, commissioner, Massachusetts Department of Elementary and Secondary Education*

MASSACHUSETTS

In Hampden County, the Pathways to Prosperity team developed an advanced manufacturing exploratory course for 9th graders who opted into a new manufacturing pathway at West Springfield High School. Participating 9th graders make visits to Hampden County manufacturing companies, and all Pathways students will participate in a summer enrichment program at Springfield Technical Community College's engineering technology department. Working with the leadership of the Hampden County WIB, the Pathways Network team is also planning to launch IT and health care pathways in other comprehensive high schools in the region.

The Metro South/West region of the Massachusetts Workforce Investment Board and Marlborough High School's STEM-focused early college program joined the Pathways Network through the Youth CareerConnect grant in April 2014. They will build on the engineering and manufacturing pathways already in place at Marlborough High School, which currently serve 350 6th through 11th graders, and will also begin an IT pathway. Brockton High School will begin its health care pathway in 2015 with support from the Brockton Area Workforce Investment Board.

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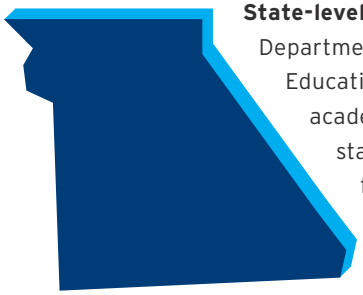

State-level activity: The Missouri Department of Elementary and Secondary Education is prioritizing integrated academic and career pathways as a state-led strategy and has hired four staff members dedicated to the work of the Pathways Network who are charged with expanding the initiative statewide.

In February 2013, high schools in three St. Louis-area school districts participating in the Pathways to Prosperity Network (St. Louis, Pattonville, and Ferguson-Florissant) were awarded $1.3 million in Community Development Block Grant "Innovation Campus" funds from Governor Jay Nixon to establish Innovation High Schools, which, through partnerships with St. Louis Community College and local businesses, allow participating students to earn college credit and gain hands-on experience in high-demand fields such as advanced manufacturing, skilled trades, health sciences, and information technology. In addition to launching the Innovation High Schools, in December 2013, the three Network districts were also awarded a grant from Boeing to provide resources for instructors to participate in externships with business partners. Over several days, 68 educators shadowed 14 business partners in high-demand pathway areas. From those experiences, instructors developed problem-based, real-world projects for students.

Regional activity in Missouri: Pathways to Prosperity continues to expand within the St. Louis region; several school districts in the St. Louis area have expressed interest in becoming involved with the Network, and work began in September with Hazelwood School District outside of St. Louis to develop a health sciences program in collaboration with the Danforth Plant Science Center and St. Louis Community College. Existing Network districts have also continued to broaden their scopes. St. Louis Public Schools has developed four dual enrollment courses in health sciences and IT that currently have 350 high school seniors participating in internships; Ferguson-Florissant has launched an advanced manufacturing pathway; and Pattonville is launching programs in health care, IT, and manufacturing, with internship opportunities.

While the Pathways work in the St. Louis region has been underway for a year, Pathways to Prosperity is now expanding to other regions across the state, including the Mid-Missouri, Kansas City, and northeast regions. In January 2014, a Mid-Missouri Pathways to Prosperity director was hired and an advisory committee was established. Districts around the region have joined the initiative, and new school-business partnerships have developed. Local companies such as Onshore Outsourcing, Hubble, and IBM have agreed to provide internships for high school students. Onshore Outsourcing will be paying for some of their interns to attend the local community college and will guarantee them a job when they graduate. In addition, in June 2014, a regional Pathways conference will be held in northeast Missouri to expand the Pathways initiative further.

The Kansas City Pathways to Prosperity Director will begin in July 2014. In August, JFF will begin asset mapping of both the Mid-Missouri and Kansas City regions.

"We are in the final stages of implementing a new partnership that will result in over $3 million of local investment in the next three years, which would not have been possible without the support of the Pathways Network and the Missouri Department of Elementary and Secondary Education's commitment to college and career readiness. We need to motivate our young people and we need to bring the world of work into the classroom." *—Charles Stockton, superintendent, Macon R-1 School District*

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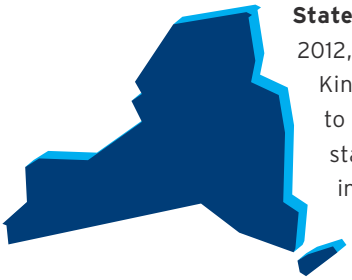

State-level activity: In December 2012, Education Commissioner John King convened a meeting in Albany to familiarize a wide group of stakeholders with the Pathways in Technology Early College High School (P-TECH), which was launched in fall 2011 through a partnership between the New York City Department of Education, City University of New York, New York City College of Technology, and IBM. From that meeting grew two complementary initiatives: The state committed to funding and scaling P-TECH replications throughout the state and it also joined the Pathways to Prosperity Network. The $28 million grant to expand the P-TECH model requires at least one school district-employer partnership in each of the 16 economic regions of the state, with partnerships receiving $300,000 a year for seven years. The recently adopted New York State Budget contains an additional $5 million in funds to support the expansion of the P-TECH program. JFF is working with leaders at the New York State Department of Education and the director of the Leadership Council for NYS P-TECH, to accelerate and intensify the work in the Capital Region as well as provide some targeted support in New York City.

A goal of both the Pathways Network and P-TECH is to change the perception of career and technical education (CTE) in the state by highlighting STEM careers offered through high school CTE programs, Boards of Cooperative Educational Services (BOCES), and community colleges. As in the Pathways framework, P-TECH requires programs of study for grades 9-14 through a partnership with the SUNY Community Colleges, but there are more specific design requirements for P-TECH than for early college programs as envisioned in Pathways. The Pathways framework also provides a structure for organizing employer engagement through an intermediary, and one challenge is how the BOCES, in partnership with regional economic development and employer organizations, can build out the requisite infrastructure to convene key players to create and sustain these regional partnerships. Under the P-TECH replication, individual employers interact directly with schools, which will likely become a challenge as demand for employer engagement—and especially student internships—grows with the addition of new students beyond the initial cohort.

The New York State Board of Regents recently reviewed the previous research and recommendations on multiple pathways with a commitment to revisit the topic in future meetings and to come to consensus on a multiple pathways model for schools in New York State. At this same meeting, approval was given to move ahead with regulations allowing additional integrated CTE credits (increasing the number to eight) in approved CTE programs (currently only four integrated credits are permitted in approved CTE programs). In addition, incentives were proposed for school districts in the state's accountability system to recognize student achievement on English language arts, math, and technical skills assessments. This proposal is pending approval from the U.S. Department of Education through the ESEA waiver renewal process. Included in this is a request for approval to reinstitute a study to identify

"The Pathways to Prosperity report made a compelling case for a new and more powerful approach to career and technical education in the U.S, and the Pathways Network that followed has helped states and regions build career pathways systems designed to equip more young people with the skills needed for success in the 21st century economy. The Network has been very helpful to IBM as we replicate the success of P-TECH, the grades 9-14 program IBM helped create first in New York City but then in Chicago, across New York State, and now across Connecticut." *—Stanley S. Litow, vice president, corporate citizenship and corporate affairs, IBM, and president, IBM International Foundation*

NEW YORK

industry-based technical skills assessments comparable to the New York State Regents exams. Currently, 13 technical assessments have been reviewed and recognized.

Regional activity in New York: In the Capital Region (Albany), four P-TECH sites—each including multiple schools, districts, employers, and community colleges in close geographic proximity—are working together with JFF to prepare to open new pathways in September 2014. In their first meeting in March 2014, participants analyzed the regional job market using labor market information provided from JFF's asset mapping process and began to identify common challenges in curriculum design, logistics of working with multiple schools to create central early college programs at each site, and engagement of employers. Among these four sites, two have received funding for early colleges through the Governor's Smart Scholars Early College High School Program administered by the New York State Education Department and are providing valuable guidance to add to the Network in the state, especially in regard to structuring early colleges to serve students in multiple school districts at a single central site in a semi-rural area.

Prior to the transition to a new chancellor, the New York City Department of Education committed to open three new early college programs, each sponsored by a company or partnership of companies, such as SAP, Microsoft and New York-Presbyterian Hospital, and the American Association of Advertising Agencies. JFF has worked with the planning teams for these schools focusing in particular on innovative work-study models. These early college programs are scheduled to launch in 2014.

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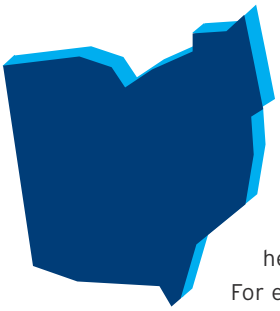

State-level activity: While the Columbus region, but not yet the entire state of Ohio, has joined the Pathways Network, state leaders and the Ohio Department of Education have made investments in education and early college initiatives that are helping the Network continue to grow. For example, the Innovation Generation—a collaboration of 15 Central Ohio school districts, Columbus State Community College, and regional businesses and community groups that provides a continuum of work-based learning and dual enrollment opportunities within a comprehensive grades 9-14 pathway—was made possible through a $14.4 million grant from the Straight A Fund, a competitive grant program created by Governor John Kasich to improve efficiency and drive new approaches that improve education outcomes in the state.

In addition, Governor Kasich and the Ohio Board of Regents have crafted a new dual enrollment policy, College Credit Plus, that, when signed into law, will do much to simplify, expand, fund, and better publicize opportunities for students to begin college courses while still in high school. The new funding plan in College Credit Plus also removes past disincentives for participation by ensuring that students bear no costs and by allowing high schools to retain a percentage of funding for students taking college courses as well as for the college to receive support for enrolled high school students.

Regional activity in Ohio: In 2011, under the leadership of Columbus State Community College president David Harrison, the Columbus area's K-12, higher education, employer, and economic development communities came together to form the Central Ohio Compact, with goals of raising the region's educational attainment rates and supporting the region's economic growth strategies. In 2012, the Compact adopted for Central Ohio the Lumina Foundation's goal that 60 percent of adults in the region attain a postsecondary degree or certificate by 2025. Later that year, the Compact joined the Pathways to Prosperity Network to build a system of grades 9-14 career pathways in collaboration with employers and aligned with the area's labor market demands. In a short period of time, the Compact began implementing its strategic plan and goals, including increasing on-time high school graduation, expanding dual enrollment opportunities, reducing postsecondary remediation rates, and guaranteeing an effective and efficient path to completion of a postsecondary degree or certificate from colleges and universities in the region. The Central Ohio Compact's membership in the Network was made possible through investments, including support from JPMorgan Chase, Battelle, the Ohio Business Roundtable, and the Education Service Center (ESC) of Central Ohio. (The ESC of Central Ohio accelerates the missions of school districts in Delaware, Franklin, Licking, Ross, and Union counties, serving more than 200,000 students in 25 school districts.)

The Compact was also chosen as a site for JPMorgan Chase's $250 million investment to build the New Skills at Work initiative in eight labor markets, as well as a $2.5 million gift to the Compact itself to develop its capacity to build pathways to credentials in high-need areas of the economy. This investment will deepen and accelerate the Compact's major initiatives, including Pathways to Prosperity, and enable the Compact to work with local employers to identify and develop new education and training programs, and to replicate and bring to scale successful initiatives. Spearheaded by Columbus State Community College, this grant will help the Compact build the infrastructure around a series of regional strategies,

"The Central Ohio Compact is leading the region in developing innovative solutions to strengthen academic preparation, promote adult learning opportunities, and bolster career pathway programs to ensure that every high school graduate is college and career ready. Because of our partnership with the Pathways to Prosperity Network, coupled with our close ties to industry leaders and proven track record of developing relevant workforce credentials, Columbus State is well-suited to lead the regional partnership." *—David Harrison, president, Columbus State Community College*

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including work-based learning intermediary development, to ensure students graduate high school ready for college and obtain the degrees or credentials they need for a job.

The Innovation Generation collaborative in Central Ohio is utilizing the Pathways to Prosperity framework to structure six new career pathways initiatives across the 15 districts within the region. All of these will lead to (and through) a credential earned at Columbus State Community College and on to high-growth, high-wage careers. Starting in fall 2014, these multi-district initiatives will focus on health care and health informatics, information technology, pre-engineering and advanced manufacturing, and business and logistics.

For example, Reynoldsburg City Schools, Marysville Exempted Village Schools, New Albany-Plain Local Schools, Westerville City School District, Pickerington Local Schools, Gahanna-Jefferson Public Schools, Columbus City Schools, Grandview Heights City Schools, and Upper Arlington City School District will partner with industry leaders such as Honda of America Manufacturing, TS Tech USA Corporation, Greif, and Dynalab in an advanced manufacturing career pathway. And through the strategic deployment of the Massachusetts Institute of Technology's Mobile Fab Labs, which are advanced manufacturing laboratories on wheels, students starting in the middle grades will explore their technical interests without ever having to leave their school. Students will use leading-edge advanced manufacturing techniques through problem-based learning that addresses real-world needs; participate in job shadowing and internships with business and industry partners; and assist small local businesses in defining and addressing their manufacturing problems by working with them to prototype and test innovations rapidly. Students will also earn industry-recognized stackable credentials and college credit through dual enrollment, graduating with a leg up on college and career in a high-demand field.

Reynoldsburg City Schools—the Straight A Fund grantee, fiscal agent, and lead district for the Innovation Generation initiative—already has programs established to help students earn college credit and carry out paid internships. The pilot dual credit program was aimed at seniors graduating in 2014 who now are enrolled at Columbus State Community College.

TN TENNESSEE

State-level activity: Pathways Tennessee is a statewide initiative built around the levers of the Pathways to Prosperity framework. Pathways Tennessee is sustained through regional collaboration with various levels of support from agencies at the state level. The Tennessee Department of Education has made a commitment to using the Pathways Tennessee model to drive further educational attainment to improve high school completion and postsecondary access. Two higher education initiatives led by Governor Bill Haslam—Drive to 55 and, most recently, the Tennessee Promise—complement the Department's agenda. Drive to 55 pledges to increase the number of Tennesseans with a college degree or certification to 55 percent by the year 2025. Through the Tennessee Promise, the state will provide financial assistance for all high school graduates to attend a community college or a Tennessee College of Applied Technology. The state is hoping that these last-dollar scholarships, along with assistance from a statewide group of volunteer mentors to students, will help nearly 500,000 more Tennesseans obtain the two-year and technical degrees that the state feels it needs to add to its workforce.

Pathways Tennessee was formed in December 2012 through the creation of the State Planning & Implementation Team and the identification of two pilot regions in Tennessee (Upper Cumberland and Southeast Tennessee). Working with Pathways Tennessee, the state then developed and improved a strategic plan with priorities, timelines, and detail about implementation. Among the six core priorities are to provide Tennessee students with rigorous academic and career pathways, which are linked to economic and labor market needs and trends. These pathways must: (1) have multiple entry and exit points in education; (2) transition seamlessly from the secondary to postsecondary levels, allowing for college credit and industry certifications in high school; and (3) encourage and support active industry involvement in student learning.

All CTE courses at the state level are currently being updated to reflect Pathways Tennessee's goals. In 2014, there will be changes made to 117 courses and another 97 by the end of 2015. Funds from the Tennessee Department of Education have been used to provide assistance with Perkins Reserve Grants to support the development of pathways in schools, to be given as non-competitive grants to support intermediaries, and to support a public relations and marketing campaign for Pathways Tennessee throughout the state.

Regional activity in Tennessee: With state funding support, two regions (Upper Cumberland and Southeast Tennessee) have launched Pathways initiatives. Both are slated to have new career pathways courses reflecting regional needs launching in high schools in fall 2014. Four Academic Career Coaches were hired in the Upper Cumberland region to assist in aligning local workforce needs and offer support for working with Pathways Tennessee in participating schools. The Academic Career Coaches attended a training session in September 2013, which was provided by the Network and funded by the Noyce Foundation.

The state is also expanding the regional sites to the Southwest Tennessee, Northwest Tennessee, and East Tennessee regions. Expansion in Southwest Tennessee began in February 2014 with the other regions slated to join in late fall or moving into the new year. A pilot of the Seamless Alignment and Integrated Learning Support (SAILS) program is currently underway in several regions. This program is geared toward integrating the high school bridge math standards and the college developmental math competencies, to divert students from traditional remedial programs, stream students into college-level courses with embedded support, and minimize the time to prepare students for entry into college.

"The Network really helped crystalize [the state's previous commitment] by providing meaningful technical assistance and tangible approaches and resources to make it happen. It also challenged us to stretch our thinking from traditional, silo policy approaches to an approach that brought disparate education and industry stakeholders together for meaningful—and what we believe will be lasting—reform." *—Danielle Mezera, assistant commissioner for career and technical education, Tennessee Department of Education*

VI. LESSONS FROM THE FIELD

LESSONS FROM THE FIELD

From its work in eight states, the Pathways Network has begun to identify some key lessons that may be useful to states and communities that seek to expand options for young people.

- **Lack of opportunity for young people is not only an urban problem, it is a national challenge that affects every community.** Large cities are not the only places where young people don't have options. Rural communities and once-proud cities the Network has studied in the South, Midwest, and Northeast have seen significant demographic and economic changes and are struggling with high dropout rates and a lack of options for young people. Pathways to Prosperity's asset mapping in rural Georgia, southwest Tennessee, New York State's Capital Region, Aurora, Ill., and western Massachusetts have indicated that leaders are seeking to transform their economies and are anxious to work across sectors to build new pathways to and through postsecondary education.
- **Schools and young people are typically disconnected from the labor market.** Teachers, school leaders, and young people and their families have little information about where the good jobs are, where they will be coming from, and the skills and knowledge required.

They are eager for information about new careers in such fields as health IT, advanced manufacturing, or data security. Teachers are eager for, and can learn much from, even brief externship experiences.

- **Career exploration that begins in middle school is beneficial but not widely available.** Few school districts provide consistent or expansive efforts to expose young people to work beginning in middle school. Many career readiness and workforce development programs and partnerships are designed for students who have failed, and have not yet focused on middle- or higher-achieving high school students who are still in school yet are at risk of floundering as they approach high school graduation and make postsecondary choices.
- **Effective programs emphasize adolescent development, flexibility, application of knowledge to real-world problems, and develop STEM competencies and work skills.** Model pathways enable young people to test themselves at work and build a work identity in a multigenerational workplace outside of school. They create permeable pathways through postsecondary education, allowing young people to transfer credit from one level to the next and move between sectors of the economy. They require students to apply academic learning to real-world problems and develop sophisticated STEM competencies and work skills, such as complex problem-solving, expertise in teamwork, oral and written communication, and presentation skills highly prized by employers.
- **Community colleges can be strong local partners to build pathways to college as part of their efforts to reduce the cost of remediation.** Community college leaders will support these efforts and partner in programs beginning in 9th grade programming if they can be assured—as in the early college designs advocated by Pathways—that students will enter college without needing to re-learn key concepts and content that they never mastered in high school.
- **We need to replicate or expand the most effective career and technical education programs.** The strongest of these programs are oversubscribed but are producing students who have had internships and go on to postsecondary education at high rates.
- **The best approach to engaging employers is working sector by sector**, starting in those fields where employers are already committed to strengthening the pipeline of new entrants to the labor market.
- **High school students who seek to learn about careers are a true asset in the workplace and often become more engaged and hardworking in school.** While only anecdotal, there is growing evidence that once high school students are in a workplace, employers generally find them inventive, hardworking contributors, and surprisingly mature. Students claim that internships improve their trajectories dramatically, committing them to work hard in school since they now have a purpose.

NETWORK INSTITUTES

In 2012, after an initial group of five states joined the Network, the Harvard Graduate School of Education and Jobs for the Future brought together teams of regional stakeholders—including state policymakers, K-12 and higher education officials, and business leaders—for a two-day meeting in Cambridge, Massachusetts, to begin the process of determining their own priorities for workforce development, selecting regional partners, and designing school-to-work pathways spanning grades 9-14. The following year, as the Pathways Network expanded to include eight states, this work continued with a second Institute at the Harvard Graduate School of Education, a site visit to Long Beach, California, and a convening of the Pathways states in Nashville, Tennessee, in conjunction with Tennessee's rollout of its statewide Pathways strategy. There was also a smaller group visit to Switzerland to study what many consider the best applied learning or vocational education system in Europe.

Network staff members have crisscrossed the country many times over to consult with state projects on the ground as these move forward with asset mapping and program development. Already, a total of 25 regional initiatives is underway, featuring a wide range of program models such as the redesign and expansion of career and technical courses, business-education partnerships, apprenticeships, and early college high schools.

VII. POLICY ACTIONS

POLICY ACTIONS THAT SUPPORT STATE PATHWAYS EFFORTS

The Pathways to Prosperity Network has identified key policy actions that can facilitate the expansion and success of state initiatives to increase career and postsecondary options for young people.

- **Encourage better coordination of resources across state agencies to provide funding for scale up of Pathways programs.** The K-12, postsecondary, and workforce training systems were not set up to work together in the ways necessary to support work-based learning and the development of grades 9-14 pathways. In many states, local communities need permission to use state funding flexibly to build the needed programs and services and to receive funding to establish the infrastructure required for scale up. Some state Pathways initiatives have worked around these problems by appropriating a pool of state resources requiring that schools work closely with colleges and workforce development agencies to apply collectively for these funds. One exemplary way to jumpstart such integration is through an appropriation for a competitive regional pathways initiative that requires agencies to braid resources. A second is through a waiver process.

- **Support acceleration of learning through dual enrollment/dual credit** so that more high school students, particularly diverse and disadvantaged students, can graduate from high school while making progress toward postsecondary degrees. States should allow high school students to take college courses free of tuition and non-course-related charges, and allow both districts and postsecondary institutions to claim per-pupil funding allocations to support the cost of offering college courses for dual credit. There should also be provisions or special appropriations to support the development of early college models targeting students who are underrepresented in higher education and providing programs of study through the associate's degree. States should ensure that students in early college programs have adequate career advising, counseling support, and access to academic skills building to support student success. States also should broaden eligibility requirements to permit students to participate in credit-bearing, college-level courses based on proficiency in those subjects even if they are not proficient in others. Student eligibility should also be determined by a combination of tests, end-of-course grades, teacher recommendations, and students' work portfolios.
- **Better integrate academic and career and technical education (CTE) programs, and elevate the profile of these programs as a means to develop crucial STEM skills.** To bolster career readiness for all students and counteract the stigma associated with CTE programs, states have created dynamic clusters of courses in growth fields, such as IT, advanced manufacturing, biotech, and other STEM areas. To ensure integration of academic and applied learning and to further leverage the value and importance of CTE, states must articulate college- and career-readiness standards and establish core content credit so that students taking CTE courses in Advanced Manufacturing or Engineering Math can get course credit. Some states have leveraged federal funds reserved under the Carl D. Perkins Vocational and Technical Education Act, which supports increasing the focus on the academic achievement of CTE students, to incentivize integration of academic and CTE funds.
- **Expand the mission and purview of workforce development organizations and other economic development nonprofits.** Workforce investment boards, community foundations, chambers of commerce, sector organizations (e.g. the National Association of Manufacturers) and youth-serving community organizations all have a role to play in brokering, distributing, and supporting work-based learning. Neither schools nor employers alone can develop appropriate jobs for young people, ensure that students are both learning and contributing to the workplace, and troubleshoot as necessary. Intermediaries must serve as the go-betweens or "glue" between schools and business. Many such organizations serve only at-risk or disengaged youth. They need state support to join in the education of in-school youth.
- **Establish more robust career information and advising systems linking online resources and appropriate counseling from teachers, mentors, and others through student work-based learning plans.** States need to strengthen and expand career advising systems to include industry mentors and teachers who learn more about careers related to their subject matter through externships. Advising cannot be the responsibility of counselors alone but needs to be supported by educators, parents, and mentors through the development of work-based learning plans in which students explore career goals with adults who support them as they participate in internships, summer jobs, community service, and other work-related experiences.
- **Develop policies that incentivize business involvement and work-based learning.** States should explore tax and other incentives to encourage businesses to get involved in Pathways efforts and provide all students enrolled in a career pathway an opportunity to participate in work-based learning, including job shadowing, paid or unpaid internships, virtual and group experiences, and paid part-time and/or summer employment. Students need flexible schedules and expanded learning time to take advantage of opportunities outside of school. Policymakers also must ensure that apprenticeship programs are eligible to receive state funds and that work-based learning is recognized in college admissions.

VIII. CONCLUSION

CONCLUSION: EXTENDING THE PATHWAYS

States in the Network are leading the way to provide a broad range of meaningful educational and career options for young people. The new pathways that are being developed and expanded are not one-way streets, but a nexus of opportunities that link school to work and postsecondary learning and allow young people to enter and exit different institutions flexibly across the sectors as they make new choices to shape their futures. The pathways help young people hone a broad range of academic, critical thinking, problem-solving, and communication skills. They help young people test themselves, build a work identity, and learn to team with others in a multigenerational workplace outside of school.

The Network's efforts are expanding rapidly to new states over time and are gaining support as state officials and civic leaders, business, and K-12 and higher education leaders explore what is needed in their regions. Their efforts recognize the importance of giving young people a foothold in fields that require an associate's degree or other postsecondary credential such as an industry-specific certificate, but which also can serve as pathways to a four-year degree.

The Network will continue to study what is working in rural, urban, and suburban communities and encourage more creative public-private partnerships and corporate investment in emerging occupational areas. It will also work to establish robust policies that will continue to support the expansion and success of new programs. The states in the Network are finding the funding and developing the organizational structures to bring these programs to more students who can benefit.

The Network will continue to grow as solid public support for these programs increases as it has over the last several years. One recent study of public opinion—Kettering Foundation's *Divided We Fail* report on what the public values when it comes to shaping the future of higher education—indicates that many college-educated Americans recognize that we need to better serve students upon leaving high school so that they can find their way toward meaningful jobs and postsecondary education experiences.

HGSE and JFF, and the Pathways to Prosperity Network, will continue to provide ongoing technical assistance to states and communities that want to explore this approach to help youth and their communities thrive.

We encourage all to learn from the states that are part of the Network. We continue to call on all sectors—K-12 and postsecondary education, economic and workforce development, business, labor, and civic and youth-serving institutions—to help make these opportunities the norm, not the exception, for America's young people.

ENDNOTES

[1] Symonds, W.C., Schwartz, R.B., & Ferguson, R. (2011). *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century*. Boston, MA: Pathways to Prosperity Project, Harvard Graduate School of Education.

[2] Kena, G., et al. (2014). *The Condition of Education 2014*. Washington, DC: U.S. Department of Education, National Center for Education Statistics, p. 2.

[3] Sum, A., Khatiwada, I., & McHugh, W. (2013). *The Complete Breakdown in the High School-to-Work Transition of Young, Non-College Enrolled High School Graduates in the U.S.; The Need for an Immediate Policy Response*. Boston, MA: Center for Labor Market Studies, Northeastern University.

[4] Ibid.

[5] Amos, J. (2012). It takes a whole society: New report says high school years should blend academic and applied learning, provide students with window to outside world. Straight A's, 12 (7). Retrieved from http://all4ed.org/articles/it-takes-a-whole-society/.

[6] Code.org. (2014). [Computer Science: America's Untapped Opportunity]. [Infographic]. Retrieved from http://code.org/stats.

[7] Cuny, J. (2011). *Transforming Computer Science Education in High Schools*. Washington, DC: IEEE Computer Society. Source is: http://nces.ed.gov/nationsreportcard/pdf/studies/2011462.pdf.

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For more information about the Pathways to Prosperity Network, please visit www.pathwaystoprosperity.org

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