The emergence of the global knowledge economy has placed new and challenging demands on American education. In order to prepare American students for 21st century jobs in this knowledge economy, we need to ensure that our secondary and post-secondary educational institutions provide high-quality Career and Technical Education (CTE).

This is no easy task. We must overcome the legacy of past 'vocational education' programs, with their tracking of students from working families and students of color into low-wage, unskilled jobs bereft of opportunities for economic and social improvement. We will have to correct the short-sighted, reactive elimination of all education for work and careers that developed in response to that legacy, with its edict that all high school should be purely academic and college preparatory. And we will need to do the hard work of bringing together multiple stakeholders -- government and civil society, secondary and post-secondary educational institutions, business and labor, school, community and industry -- all in one common effort to develop and disseminate the high-quality Career and Technical Education that none of these constituencies can produce on its own.

If this agenda seems ambitious and demanding, consider the alternative of continuing the educational status quo. Over the last decade and a half, American education has been in the thrall of a model of 'education reform' that is obsessively focused on standardized exams and top-down, punitive modes of accountability for schools, teachers and students. Has that reform model moved American schools toward the objective of educating a flexible, highly trained, and technically adept workforce for 21st century jobs in the knowledge economy? In an America that needs civic virtue now more than ever, has it advanced the fundamental goal of education into democratic citizenship? Has it made real progress in closing the opportunity gap between wealthy and poor students, or between white students and students of color? The results, even in terms of test scores, have been modest and uneven at best. Surely it is time to take serious stock of where we are educationally, and where we need to go.

Today, America stands at an educational crossroads. There are promising signs, such as the development of the Common Core and Common Career Technical Core standards, which focus on what is really important in education and are

closely aligned with what students must know and be able to do in the knowledge economy. The instructional shift to the Common Core should be closely aligned with Career and Technical Education, because the Mathematics, Science and English Language Arts that is taught within CTE subjects is precisely the embedded, practical use and application of those subjects sought by the Common Core.

With their focus on preparation for the three 'C's of college, career and citizenship, the Common Core standards provide the basis for rich and rigorous secondary curricula that have "multiple pathways" to success in education, career and life. Within this formulation, 'college' means a variety of post-secondary educational experiences, including community college, technical and occupational certification training programs, and apprenticeships. Such pathways do not preclude four-year baccalaureate degrees, which many students go on to obtain; they simply provide students with a number of different ways to acquire a post-secondary education, and to prepare themselves for the world of work.

But the implementation of challenging new standards such as the Common Core and the Common Career Technical Core is not an easy or quick fix for American education. Teachers must have access to the curricula, teaching resources, professional development and the time to plan and work with other teachers that are indispensable to educating their students to these new standards. If we skip over these steps, and impose new standardized exams and top-down, punitive accountability systems upon the Common Core and the Common Career Technical Core standards, and if we continue to ignore the radical inequalities among our schools, we will never realize the promise of these standards to deliver a quality education for all. Our moment of educational opportunity will be lost.

There is a way forward, a road that leads to real improvements in American schools and to education for the 21st century jobs of the knowledge economy. High-quality Career and Technical Education is not the only way we can walk down that road, but it is an essential part of the journey we need to take.

CTE is important because it provides powerful motivation for students to graduate from high school and go on to post-secondary education. Across America, only 3 in every 4 students graduate high school on time, in four years.

The numbers are significantly better, however, for students with a concentration in Career and Technical Education: 9 in every 10 graduate on time. Of students who graduate high school with a Career and Technical concentration, 7 in every 10 go on to enroll in post-secondary education. After two years, 4 in every 5 of these students have either completed their course of study and earned a certificate, or remain enrolled in a program. [1]

Why does Career and Technical Education make a positive difference in the lives of so many students? For adolescents fixed on their immediate needs and wants, CTE creates a tangible connection to a desirable future, with meaningful work and good paying jobs. Its focus on real world skills and successes can instill in students a real sense of accomplishment and pride in their work that carries over to their studies. For students living in poverty and/or at risk for dropping out, CTE provides a pathway to breaking out of the vicious cycle of impoverishment by finishing one's education and finding well-paying employment in a 21st century job.

In order to support and extend high quality Career and Technical Education, we need to answer three questions:

- What makes a Career and Technical Education program high quality?
- How does high quality Career and Technical Education open up avenues of greater educational and economic opportunity for all students?
- What policies must be adopted to develop and support high quality CTE programs?

What makes a Career and Technical Education program high quality?

Building upon the foundation provided by the 'Program of Study' framework laid out in the Perkins Act, and elaborated by the U.S. Department of Education, it is possible to identify a number of essential components of high-quality CTE programs.[2] Such programs:

- Are aligned with the Common Core and Common Career Technical Core standards;

[1] The data in this paragraph is drawn from the webpage of the Association for Career and Technical Education, "What Is Career and Technical Education?", available at www.acteonline.org/cte/#.UlSWuz9GKVo

[2] Concisely put, a 'program of study" is a structured sequence of academic and career and technical education courses that lead to a post-secondary-level credential.

- Employ teaching strategies and curricula that integrate career and technical subjects, as well as core academic subjects, in students' programs of study;
- Have as their foundation partnerships between educational institutions, on the one hand, and, on the other hand, businesses, community institutions and labor unions from all sectors of the economy (private and public, for profit and not for profit);
- Coordinate career and technical programs and sequences between secondary and post-secondary educational institutions;
- Provide educators with high-quality professional development that is embedded in their educational workplace, focused on real issues they confront in their work and sustained over a period of time;
- Incorporate appropriate technology;
- Wherever possible, provide internships and other work-based learning opportunities for students;
- Use high quality performance assessments of technical skills.

The Obama Administration's 2012 report, "Investing in America's Future: A Blueprint for Transforming Career and Technical Education," provides a framework for identifying and promoting high quality CTE, organizing it around four key themes: alignment, collaboration, accountability, and innovation.[3] The CTE 'blueprint' identifies multiple, innovative pathways to create 21st century jobs for the knowledge economy, and makes proposals that, if adopted, would strengthen the Perkins Act. A 'blueprint,' however, is only a plan: the federal government must act to bring that plan to fruition. And the foundation of a national program of high-quality Career and Technical Education begins with its full funding. No effective educational program can be built on the cheap.

How does high quality Career and Technical Education open up avenues of greater educational and economic opportunity for all students?

Traditional 'vocational education' was the 'second class' in a two class system of education. Students who were tracked into vocational programs were all too often consigned to unskilled, low wage employment in 'dead end' jobs. Ever since Brown v. Board of Education, advocates of educational equity have rightfully targeted 'vocational education' for the manner in which the disproportionate

[3] Available at www2.ed.gov/about/offices/list/ovae/pi/cte/transforming-career-technical-education.pdf

numbers of students from working families and students of color tracked into 'vocational education' were denied the educational and economic opportunities that their wealthy and white counterparts enjoyed in academic schools.

Precisely because high quality Career and Technical Education is designed to prepare students for 21st century knowledge economy jobs, which require that students use both their mind and their hands well, it represents a fundamental break with the old system of 'vocational education.' In a highly competitive economy, graduates of strong CTE programs will possess the skills that are in demand. And because of the powerful connections CTE makes between a student's studies and his or her economic future, participation in such programs increases the chances that he or she will graduate high school and complete some form of post-secondary education.

What policies must be adopted to develop and support high quality CTE programs?

The Perkins Act is the primary conduit of federal government support for Career-Technical Education, and it currently provides $1.13 billion in funds. Congress must complete the reauthorization of the Perkins Act with full funding. To support a strong national system of Career and Technical Education, the Perkins Act should remain a formula grant designed to provide funding, via states, to districts and schools that make a commitment to high-quality CTE programs.

It is important that the Perkins Act grants are targeted where they will have the greatest effect. These funds must not be swallowed up by state and district bureaucracies, but be expended predominantly in those secondary and post-secondary institutions providing the CTE programs. Current funding priorities have become diffuse and need to be refocused. At the state level, funding should be concentrated on the development of high-quality 'programs of study,' curriculum development, and stronger connections between secondary and post-secondary systems. At the local district level, funding should be directly primarily toward the *implementation* of these 'programs of study.' The provision of career guidance and career development activities to students is also an appropriate target for local funding.

In order to ensure that the Perkins Act funds high-quality Career and Technical Education programs, the elements of a program described above should be the basis for identifying programs to be funded.

Accordingly, the Perkins Act's current accountability system needs to be revamped, with an eye toward providing fewer, more meaningful measures than the number that are currently used. At the secondary level, the focus should be on measures such as high school graduation and career and technical certification. At a post-secondary level, the attainment of credentials and placement in appropriate jobs are especially important. It is critical that labor market data be used in accountability systems, as this will ensure that CTE programs are preparing students for actual jobs.

The Perkins Act may establish an Innovation Fund to seed new and promising practices in Career and Technical Education, provided that additional monies, over and above current Perkins Act funding, are specifically earmarked for this purpose.

It is also necessary to achieve alignment and common purpose in the federal government department and agencies that support different components of CTE. Particular attention should be paid to ensuring that that programs and funding provided by the Department of Education (Perkins funding and College Work-Study funding) and by the Department of Labor (apprenticeship programs) are coordinated and focused on providing high-quality Career and Technical Education.

Finally, in order to maintain the recent momentum toward high-quality Career and Technical Education that serves all students, government and private foundations should support rigorous research on existing CTE programs.