

Commission on Innovation and Excellence in Education

Career and Technical Education

[Consultants' Proposal: 7/9/18]

Summary

Maryland can lay claim to having one of the best systems for career and technical education in the United States. Its CTE system has dedicated leaders and instructors and one can find high schools and community colleges that provide engaging programs and lead to rewarding careers.

But the numbers of students who leave our schools with a credential – a credential that employers value enough to pay higher wages to young people who have it – are much too small. In Maryland, as in much of the United States, despite the best efforts of dedicated educators and companies that want to help, career and technical education is widely viewed as the place students go who are struggling academically. These programs are often viewed as successful if they keep students who might otherwise have dropped out in school. The majority of high school students appear to us to leave high school without either a solid work credential to launch them on a career or the academic standing to have a decent chance of going to college and succeeding there.

That is unacceptable. Maryland's economy cannot long remain competitive if half of its workforce is uncompetitive in a labor market that is suffering from surpluses of people with low skills and severe shortages of people with high skills. That is the situation today in our state – and most other states.

The future of the Maryland economy and of many of our citizens depends on a massive upgrading of the skills of the workforce, not so much among those who earn professional degrees in university as among everyone else, from cosmeticians to medical technicians using advanced medical technology, specialty welders to farmers with driverless tractors, from people who build and maintain factory automation systems employing advanced robotics technologies to automotive repair and maintenance technicians who are now dealing with computers on wheels.

A world-class career and technical education system for Maryland: What it will look like

No economy can long survive employing only university-educated professionals. We envision a Maryland economy in which, by 2030, close to half of our high school and

college students are in apprentice-like programs that involve much work-based learning that's supported by classwork tied to what is being learned in the work place. Students will constantly apply in the workplace what they are learning in class, using state-of-the-art equipment under the supervision of expert practitioners. These programs will lead to occupational credentials that are gateways to very rewarding careers that do not necessarily require professional degrees. Because the standards for these credentials will be defined by employers, students will know that at the end of their program there is a good job leading to a rewarding career. Some of these credentials will qualify students to take the first step in a good career right out of high school, while others will choose careers in which the first job comes after a year or two or more of college. These programs will include registered apprenticeships as well as many other opportunities for advanced technical training. The distinction will be much clearer than it is now between what students have to do to make the transition between programs that offer beginning skills in high-skill fields and programs that offer more advanced skills in those (and other) fields. For many careers, students will be able to start that progression earlier and complete it faster and at much less expense to them and their families than they can now.

There will be no dead ends in this system. Students will be able to start out getting enough knowledge to begin at the bottom of the ladder, go to work and then go back to get a more advanced credential if they want to. They will be able to systematically explore a variety of career options, go down one path and then shift to another without going back to square one. They will be able to start out in a CTE direction and then shift to a university path or, if they wish, start out on a university-bound path and pick up a CTE credential, too. There will be smooth transitions among high school CTE programs, community college programs and university-based technical programs. Far from being a refuge for the academically challenged, the CTE route will be chosen by many academically gifted students because they want a hands-on approach to their education and can see that CTE is as good a route to the board room or corner office as the university.

To produce those outcomes for almost half of Maryland's young people will require a *whole system* that is carefully designed for this purpose. The purpose of this proposal on CTE is to describe the essential elements of such a system. Its crucial foundation is the Commission's bold proposal to get Maryland high school students to a sound college-and-career-ready standard by the end of grade 10. At that point, a student will be able to pursue a credential that an employer will be willing to pay for. When that system is in place, no one will be able to say that CTE is for students who are struggling academically. It is where you go for a compelling, absorbing and exciting form of education and training that leads to limitless possibilities. It is where you go to master complex technical skills in an economy that provides rich rewards for people with such skills but also where you go for an education broad and deep enough to enable you to turn your career around on a dime, as well as an education for citizenship.

This is no dream. There are countries that have systems that are doing exactly this right now. There is no reason why Maryland cannot do it, too.

There is much to build on. Officials at MSDE; the Governor's Workforce Development Board; the Department of Labor, Licensing and Regulation; the Maryland Higher Education Commission; the Community College System; the Maryland Economic Development Commission; the P-20 Council; and many local leaders, employers, trade unions, and professional educators have all been working on pieces of this problem.

The Maryland State Department of Education understands the challenge and has staff determined to meet it, but MSDE alone cannot meet that challenge. Doing so will require:

1. Much deeper engagement of employers in setting standards for occupational training programs, developing curricula, assessing students and providing many more opportunities for apprenticeships and other forms of work-based learning. This will not happen if employers are just advisors. They are not likely to make the investment of time and money needed to play these roles unless they feel that they are among the owners of this system, not just advisors to it.
2. Much tighter linkages among the state's economic development, workforce development and CTE systems. The state needs to see career and technical education as a key lever of economic development and the CTE system needs to be closely coordinated with the myriad programs of workforce development.
3. Greatly expanding opportunities for work-based learning/apprenticeships in a wide range of occupations. The Commission believes that the most effective way to develop modern occupational skills incorporates learning-by-doing in the workplace coupled with classroom teaching of the theoretical underpinning of that work. Doing this in Maryland at the scale and quality required will involve building what amounts to a whole new infrastructure to support such a system. Fortunately, some good planning has been done by far-sighted Marylanders for the development of such a system. As the state develops its opportunities for work-based learning, CTE will look less like a progression of classroom experiences in school and more like a combination of theory learned in school and highly structured experiences in workplaces carefully designed to enable students to acquire all the skills that they need to meet criteria established by employers to get jobs that pay well and lead to rewarding careers.
4. Redesigning the relationship between high school CTE and the CTE that goes on in the state's community colleges, in other postsecondary institutions/training programs, and in registered/youth apprenticeship programs. Such a redesign is essential, for two reasons. First, to make it possible for students who are ready for community college-level CTE programs at the end of 10th grade to enroll in such programs immediately. Second, to design course sequences for careers involving the step-by-step acquisition of progressively advanced skills that take more than two years to acquire, sequences that start in high school and continue seamlessly into community colleges and in registered/youth apprenticeship

programs that follow (or are integrated into) a high school CTE program. Reaching these objectives will require changes in how schools and community colleges are financed, re-examination of which entities award diplomas, certificates and degrees, and re-examination of the qualifications for teaching CTE courses.

5. Providing additional funding per CTE student at both the high school and the community college levels so that the money provided for training people in specialized, high-tech careers reflects the actual cost of providing such training at no cost to the student, and so that institutions providing CTE have both the incentive and the capacity to offer the kind and quality of CTE that is needed.
6. Creating a governing mechanism for CTE in Maryland that has the visibility, leadership, authority and structure needed to develop the technical workforce that the state will need to be fully competitive and that its citizens will need to lead a good and fulfilling life.

To that end, the Commission proposes that the State:

1. Create a Subcabinet for Career and Technical Education

- a. CTE Subcabinet will be staffed by an Executive Director and other staff.
- b. CTE Subcabinet chair to serve as Ex Officio member of the State Board of Education, the Higher Education Commission, the Governor's Workforce Development Board, the Skills Standards Board (see below) and, at the Governor's discretion, other agencies that play a key role in economic development and workforce development.
- c. CTE Subcabinet will be comprised of the executives of MSDE, MHEC, DLLR, Commerce, the Governor's Workforce Development Board, MACC and the Skills Standards Board.
- d. The CTE Subcabinet staff will provide policy analysis, technical support and recommendations to the CTE Subcabinet and to the Skills Standards Board described below. They will conduct benchmarking research on leading CTE systems, including skills standards systems, in the United States and abroad; collect data on the performance of the Maryland CTE system, including reports on the throughput of the system showing results for each entering high school cohort as they progress through the CTE system with particular attention to the proportion of students who gain economically valuable credentials, how many drop out and how many go on to further education; provide annual public reports to the Governor, the Subcabinet, and the General Assembly on the performance of the Maryland CTE system and, in those reports, recommend changes to Maryland legislation on the basis of its analysis of Maryland needs and CTE system performance.

2. Create a new Skills Standards Board.

- a. The Skills Standards Board will be comprised of senior business executives and representatives of labor, one third of them appointed by the

Governor, one third by the Senate President and one third by the Speaker of the House. The chair will be appointed by the Governor with the advice and consent of the Senate.

- b. The Skills Standards Board, supported by the staff of the CTE Subcabinet, will adopt and, where appropriate, develop and regularly update a comprehensive, cohesive system of occupational skills standards to drive the Maryland CTE system, including a comprehensive array of career progressions, standards for each occupation and steps in those progressions and for the credentials to be issued to individuals when they achieve the standards as well as the criteria for awarding those credentials.
- c. Standards and other components will comprise a comprehensive, unified system of career progressions for a wide range of low-skill, middle-skill and high-skill occupations that embrace grades 11 through 14 and, where necessary, beyond, with particular attention to the industries and occupations prioritized by the CTE Subcabinet.
- d. The Skills Standards Board will develop standards that represent rather state-of-the-art practices that will make and keep each industry globally competitive.
- e. The Skills Standards Board will be responsible for regularly updating all the skills standards components to reflect changes in technology and work organization
- f. The Skills Standard Board will set the standards and criteria by which credentials will be awarded to individuals, based on performance assessments conducted (and where necessary developed) by expert industry practitioners (how the food tastes as judged by expert chefs, not only whether the student has accurately memorized the steps taken in cooking it; whether the turbine blades meet performance standards as judged by company quality control technicians, not whether the student can remember what the text said about how it should be machined; whether the student is a strong contributor to the team, not whether he can describe what being a strong contributor should look like).
- g. The first phase of this system will focus on high priority occupations and industries and will be in place no later than two years after passage of the enabling legislation.

3. Charge the CTE Subcabinet with overseeing the development of a comprehensive, coordinated, career and technical education system in Maryland that is as effective as the best such systems in the world

within 10 years. To this end, it will have multiple responsibilities, including:

- a. Working with the Maryland Economic Development Commission, the Governor's Workforce Development Board and others to agree on the industry sectors and technologies that the state will prioritize for career and technical training over the short, medium and long term and regularly updating that prioritized list.

- b. Working with MSDE, MHEC, MACC, the Department of Labor, Licensing and Regulation and the new Skills Standards Board to develop a unified system of career and technical education in Maryland high schools and community colleges, structured in the following way:
 - 1. The Department of Labor, Licensing and Regulation, now operates American Job Centers throughout the state. These are one-stop-shops for unemployed or under-employed adult seeking jobs. They are a key component of the structure funded by the federal government's WIOA (formerly the Workforce Investment Act) program. Maryland will provide additional funding to these centers to enable them also to provide access to their services for middle school, high school and community college students and school dropouts. Those services will include:
 - a. Information about jobs and careers, expected incomes, required credentials, where those credentials can be obtained, at what cost, and the pathways among and between careers.
 - b. Information about employers offering internships, apprenticeships and work-based learning opportunities, as well as help in connecting students to those resources and coaching them in how to seek an internship or work-based learning placement.
 - c. Personalized counseling on careers and career development, including aptitude assessment and related services. The American Job Centers will work with middle school, high school and community college counselors to arrange visits by students to these facilities for introductory sessions, job fairs, and meetings with employers offering work-based learning opportunities. To facilitate the counseling and placement process, the Centers will make the Armed Services Vocational Aptitude Battery test results of high school students seeking connections with employers available to employers, subject to applicable legal restrictions.
 - 2. Maryland's comprehensive secondary schools will offer:
 - a. A wide variety of programs designed to use applied learning techniques, apprenticeships and other work-place based learning opportunities to engage students who might otherwise drop out so as to make it more likely that they will graduate
 - b. A wide variety of programs designed to enable students to explore careers and career clusters, these programs to range from "themed" high schools (e.g., performing arts high schools) to short course sequences that enable students to

- familiarize themselves with the opportunities offered by a career cluster, to job shadowing and internships
- c. Community college certificate and degree programs in occupational areas (for students who have met their CCR requirements); these programs will be redesigned so that at least two days per week of a full-time program will be work-based learning offered at an employer's work site and that meets industry standards as those standards are more fully developed.
 - d. Youth Apprenticeships and the appropriate portions of Registered Apprenticeship programs
3. Maryland will have a system of high schools that specialize in CTE for juniors and seniors who have achieved CCR certification. They will include district high schools and regional schools that serve multiple communities. Such schools will be certified for this purpose by MSDE as meeting criteria set by the CTE Subcabinet and the State Board of Education. To be certified, these high schools will have to offer:
- a. A standardized program of up to six months duration designed to enable interested students to explore a career or career cluster before choosing an occupational certificate program. The standardized program will be designed by MSDE and may also be offered by middle schools.
 - b. Programs leading to credentials developed by the Skills Standards Board (see above). These programs, if offered to meet the initial steps of a career progression, will be provided by the high school staff, but, for programs designed to enable the students to reach higher steps on the career progression or requiring staff, equipment or facilities not available at the high school, they will be provided by community colleges, which will do so whenever practicable on the high school campus. As the system is fully developed, such programs will be required to have a work-based learning/apprenticeship component that accounts for at least two days a week for full-time high school students and that meets the standards developed by the Skills Standards Board. Youth Apprenticeship and Registered Apprenticeship programs may be offered by the appropriate trade unions and others in collaboration with the schools. The high school attended by any student taking any CTE program, whatever its sponsor, will be responsible for that student (responsible to the state as well as the student's family) until he or she graduates.
 - c. As a priority, credentials will be offered in industries and careers designated as high priorities by the CTE Subcabinet

- as having the greatest economic relevance in the state labor market and their own local labor markets.
- d. In addition to programs the content of which is defined by the specific requirements of the occupation being trained for, courses in the liberal arts will be offered that are academically challenging, designed to enable students to pursue other careers, learn new things quickly, understand and know about a wide range of phenomena, develop as ethical and wise individuals who can contribute as a citizen and conduct themselves responsibly, with dignity, and with compassion.
4. Maryland community colleges and other higher education institutions wishing to offer approved CTE programs will be expected to offer:
 - a. CTE credential programs in high priority areas designated by the CTE Subcabinet at the novice level for which the Standards Board has developed standards for adults who wish to begin training in a career line in which they have little or no prior experience or training (these are the same programs as will typically be offered by the specialized CTE high schools).
 - b. Programs designed to result in the award of credentials developed by the Skills Standards Board for the mid-level jobs in approved career progressions. When the system is fully developed, these credential programs will include at least two days of work-based learning/apprenticeship set to standards approved by the CTE Subcabinet for full-time students. All such programs will be designed to fit into the career progressions developed by the Skills Standards Board. Funding priority will be given to programs prioritized by the CTE Subcabinet (see section on funding below) which also meet local priorities established by employers and sponsors of apprenticeship programs.
 - c. Community college CTE programs can be offered at the college site or, for lower level credentials, at the specialized high schools.
 - c. Presenting to the Governor and General Assembly no later than one year after passage of the enabling legislation a plan for offering the whole range of community college level occupational certificate programs to high school students in grades 11 and 12 who have met the new CCR standard. This plan will include a timeline for making these programs available to students at no charge. It will also resolve any issues that may arise with respect to financing and to the qualifications of the instructors in these programs and the authority to grant certificates.

- d. Working with employers, labor and CTE providers to create high quality opportunities for work-based learning combined with appropriate classroom instruction directly related to the occupation being trained for and resulting in credentials recognized by employers in sufficient numbers to accommodate half of all high school and community college students. This first phase of this system will focus on the high priority occupations and industries identified by the CTE Subcabinet for which credentials approved by the Skills Standards Board are available, and will be in place no later than four years after passage of the enabling legislation. The whole system to be in place within six years of the enabling legislation.
- e. Working with representatives of the MSDE, MHEC, MACC and others to resolve the issues that will arise concerning the credentials that instructors must have to teach CTE programs and higher education courses in the schools, how high school and post-secondary education course offerings will be redesigned to assure tighter alignments and smoother progressions for students from high school CTE offerings to college-level course offerings, how and by whom credit will to be offered for which offerings, and so on. In the event that the CTE Subcabinet cannot get these bodies to agree on resolution of these issues, it will bring these issues—and the recommendations of its Executive Director and staff to the Governor and the General Assembly for resolution there.
- f. Presenting to the Governor and General Assembly no later than one year after passage of the enabling legislation a plan for changing the governance of high school and community college CTE programs to include representatives of employers and labor in the governance of such institutions and programs.
- g. Advising the Governor and General Assembly on all budget requests from all agencies and institutions that offer CTE programs.

4. Change the way Maryland’s CTE programs are financed to provide incentives to educational institutions to offer them and to employers to offer work-based learning opportunities to their students

- a. Recognize in legislation that it often costs substantially more per student to provide quality career and technical education than to provide quality academic education
- b. Create grant programs for:
 - 1. industries willing to develop comprehensive systems of occupational standards in a common format specified by the CTE Subcabinet
 - 2. community colleges willing to work with MSDE and school and industry leaders to create carefully aligned course sequences encompassing the junior and senior year of high school and the two years of community college in a single learning progression for each key career line

3. consortia of school districts interested in creating regional CTE high schools based on the new model
4. industry coalitions interested in developing powerful models of work-based learning in their industry, including development of industry intermediary organizations that could work on standards development and course criteria and development, and offer portions of the training that individual employers cannot provide

Under this plan, the roles of key agencies involved will be:

1. *CTE Subcabinet*

Will engage key state agencies in the development of a world-class career and technical education system for the Maryland; its specific roles and responsibilities as described above

2. *Skills Standards Board*

Will develop and continually refresh a system of occupational skills standards including skill progressions, credentials and assessments that will drive the whole Maryland CTE system as described above.

3. *The Maryland Department of Labor, Licensing and Regulation*

Through its American Job Centers, MDLLR will offer access for Maryland middle school, high school and community college students to the centers' facilities and services, as described above. DLLR will also take the lead in integrating registered apprenticeships and Youth Apprenticeships into the larger CTE system, in collaboration with the schools and community colleges

4. *MSDE, State Board of Education*

a. Participates in CTE Subcabinet to establish the overall framework for Maryland's CTE system, including industry priorities, occupational standards, curriculum framework, work-based learning system and credentials

b. Within the framework established by the CTE Subcabinet:

i. Building on the strong programs and institutions already in place, will further develop the system of specialized CTE high schools as described above. This includes:

1. Developing appropriate regulations
2. Providing technical assistance to cities and towns
3. Developing quality control and accountability measures
4. Providing training and professional development to school leaders and faculty
5. Developing materials and conducting community outreach to explain the new system and encourage public support for it

ii. Awarding innovation grants to specialized high schools to model the kind of CTE offerings leading to valued credentials envisioned by the Commission

- iii. Awarding innovation grants to comprehensive high schools to model the kind of exploratory CTE programs envisioned by the Commission
 - iv. Designing and implementing a rebranding program for CTE intended to interest 10th graders who meet the CCR standard in enrolling in the new CTE exploratory and credential programs
 - v. Collaborating with the community college system and the institutions represented in the state Advisory Council in soliciting the interest of employers in offering opportunities for work-based learning
 - vi. Providing technical assistance to specialized schools in creating high quality work-based learning/apprenticeship opportunities in schools in situations where employers do not offer sufficient slots to meet student demand
 - vii. Creating a standardized optional “front end” program for students in the specialized CTE high schools to enable them to explore careers and career clusters before selecting a CTE program
5. *Maryland Association of Community Colleges/Maryland Higher Education Commission/Other Postsecondary Institutions*
- a. Participate in CTE Subcabinet as it establishes the overall framework for Maryland’s CTE system, including industry priorities, occupational standards, curriculum framework, work-based learning system and credentials
 - b. Within the framework established by the CTE Subcabinet:
 - i. Develop appropriate regulations
 - ii. Provide technical assistance to cities and towns
 - iii. Develop appropriate quality control and accountability measures
 - iv. Provide appropriate training and professional development to school leaders and faculty
 - v. Develop needed materials
 - vi. Engage in outreach to explain the new system and encourage public support for it
 - vii. Award innovation grants to selected community colleges to model the kind of CTE offerings leading to valued credentials envisioned by the Commission
 - viii. Collaborate with others in soliciting the interest of employers in offering opportunities for work-based learning
 - ix. Provide technical assistance to community colleges in creating additional high quality work-based learning opportunities in situations where employers do not offer sufficient slots to meet student demand
 - x. Create a standardized optional “front end” program for students in the community colleges who enter knowing that they want to pursue a CTE program but have not yet decided on particular careers

- xi. Take the lead within the higher education community in rebranding CTE as a valued and desirable pathway to status, respect and economic security in Maryland