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A Funding Analysis of Kentucky's Career and Technical Education System

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Kentucky Department of Education

Kentucky CTE Funding Study

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Executive Summary

Kentucky's Career and Technical Education (CTE) system finds itself at a crossroads catalyzed by the needs of the state's students, the workforce demands of its industries and the adequate levels of funding needed to produce the workforce of the future. This report extends the work of several recent studies of the state's CTE programs and funding policies by:

- Summarizing and analyzing the various ways Kentucky's CTE programs, technical centers and schools are funded with state and federal dollars,
- Defining what is adequate and equitable CTE funding, and
- Exploring what it means to have a unified world-class CTE system and what resources, policies and questions must be addressed to move in that direction.

Current KY CTE Funding Policies

Kentucky funds CTE programs in comprehensive high schools, locally operated Career and Technical Centers (CTCs) and state operated Area Technology Centers (ATCs) utilizing a combination of federal Perkins funding, totaling almost $18 million dollars, and state SEEK and General Fund dollars, amounting to almost $58 million in the 2013-14 school year. Federal funding policies for CTE programs in Kentucky are tightly regulated and monitored. State support for CTE programs flows from state SEEK dollars and the General Fund. The funding mechanisms are distinctly different for state operated ATCs than for locally operated CTCs and local schools, making comparisons difficult.

The variance in funding mechanisms for Kentucky's CTE programs creates the perception, if not the reality, of disproportionate funding across the system. Additionally, the varied funding streams generate inefficiencies in the extra time and effort that the state, local schools and technical centers must spend in order to maintain and monitor the federal funding processes and two sets of state funding processes.

Kentucky utilizes a student-based, categorical CTE funding methodology, the most common state CTE funding process used in the country. State CTE dollars flow to schools and technical centers based on local enrollment figures where the "money follows the student." Differential weighting is added to CTE course enrollments for factors such as cost of equipment or labor market demand to calculate CTE budgets used in schools and technical centers.

Adequate and Equitable CTE Funding

While definitions of "adequate funding" in education vary, the most common definitions include the amount of funding needed to sufficiently meet the state's identified educational goals that are driven by business and industry needs. Exhaustive interviews and survey responses indicate that state leaders, educators and administrators working with Kentucky's

CTE programs believe there is a major shortfall of adequate funding for career and technical education, especially in the areas of salaries, equipment, materials, facilities and operations.

This funding shortfall is further complicated by funding policies and budget limitations that create a disincentive for technical education. Since all schools and technical centers offering CTE programs share the same total funding amount, raising enrollments or adding new programs reduces CTE funding for all. Furthermore, the budgeting process for local schools and locally operated centers changes halfway through the school year, making budget planning unpredictable and difficult.

Definitions of "equitable funding" include many components but the highest concern among Kentucky's CTE programs is the equity of funding between state and locally operated programs. Variances in school and technical center funding processes create the appearance, if not the reality, of a wide gap between the dollars state and locally operated CTE programs receive, making it difficult to determine if programs are effectively and efficiently using state-allocated resources to support student success.

A Unified World-Class CTE System

Twelve common components of a unified "world-class" CTE system are identified in this report and compared to Kentucky's current system. Current funding levels appear to be critically low in support of student pathways and in the areas of financial and material supports, especially for equipment, educator salaries, facilities and operations.

Recommendations

The report concludes with seven recommendations:

1. Base funding for CTE on state goals and business and industry needs
2. Convene a committee to explore ways of funding CTCs and ATCs equally
3. Provide adequate funding for CTE programs to accomplish state priorities
4. Create a proactive, intentional process of funding large equipment purchases and maintaining and/or upgrading current equipment
5. Allow locally operated centers and schools to set a budget for the entire school year
6. Consider an additional per-pupil funding formula weight tied to state-prioritized occupational and program areas based on state and regional industry needs
7. Explore CTE performance funding

In its current form, Kentucky's career and technical education system is below the adequate funding levels needed to effectively meet the skills needs of the state's industry and employers. Reaching the goal of a unified world-class CTE system appears possible after first reaching adequate funding levels for Kentucky's CTE programs and making a commitment to expanded, sustained funding in the future.

I. Current KY CTE Funding Policies

Understanding the various ways Kentucky's career and technical education (CTE) programs receive funding is an important first step to examining how well funding policies work, where gaps may exist and what steps can be used to bridge the gaps in order to help more of Kentucky's students be prepared to succeed in postsecondary education and a career.

Federal Funding

Career and Technical Education (CTE) courses and programs across the country are supported with a combination of federal, state and local funding. Federal funding is provided to states and U.S. territories through the Carl D. Perkins Act of 2006 (also known as Perkins IV).

Kentucky receives an annual allocation of Perkins funding, totaling $17,905,647 in the 2013-14 school year, which is distributed to technical centers and comprehensive high schools offering CTE courses based on a prescribed formula connected to census data. Eighty-five percent of Perkins funding goes directly to secondary and postsecondary CTE programs in the form of Basic Grants through an annual application process managed by the Kentucky Department of Education (KDE). Secondary CTE programs receive 51% of the funding and postsecondary CTE programs 49%.[i]

Perkins dollars must be spent at the state and local levels in nine required areas to support activities that:

- Strengthen the integration of academics and CTE programs
- Link CTE at the secondary and postsecondary levels and offer at least one program of study
- Provide students with experience and understanding of "all aspects of an industry" typically through work-based learning
- Develop, improve or expand the use of technology in CTE
- Provide professional development to secondary and postsecondary teachers, administrators and counselors involved in CTE
- Help develop and implement evaluations of how the needs of special populations are being met
- Initiate, improve, expand and modernize quality CTE programs
- Provide services and activities of sufficient size, scope and quality to be effective
- Prepare special populations for high skill, high wage and high demand occupations leading to self-sufficiency[ii]

Eleven additional "allowable" uses of Perkins funding are also permitted ranging from counseling and guidance activities to mentoring and entrepreneurship.

Kentucky's 53 state operated area technology centers (ATCs), 42 locally operated career and technical centers (CTCs) and comprehensive high schools offering a pathway of CTE courses must apply for Perkins funding every year. This process requires each school to set and reach progressively higher CTE student and program performance goals each year. Student performance targets are set in four areas based on measuring the percentage of students who:

- Reach academic achievement and technical skill attainment benchmarks
  - Academic achievement is based on student performance on the state's English and mathematics assessments
  - Technical skill attainment is measured through the Kentucky Occupational Skill Standards Assessments (KOSSA) and industry certifications
- Earn a high school diploma
- Are placed after high school in postsecondary education, military service or employment
- Participate and complete a nontraditional CTE program. Nontraditional programs encourage females to enroll in programs that are traditionally male-dominant (such as Welding) and males to register for programs that are traditionally female-dominant (such as Child Development)[iii]

Federal funding policies for career and technical education programs in Kentucky are tightly regulated and monitored by the U.S. Department of Education's Office of Career, Technical and Adult Education in accordance with the Perkins Act of 2006. State and local programs must meet the annual performance targets or submit an improvement plan outlining where changes will be made.

Improvement plans must be generated in instances where local and state performance targets are not met in one or more of these four areas. Perkins legislation specifically designates 10% of the state's annual federal allotment for leadership development which is overseen by the state's Office of Career and Technical Education. Kentucky's leadership funds are directed to multiple purposes including providing professional development opportunities for instructors and leaders, curriculum development, covering student assessment costs and for conducting program reviews. Specific programs include:

- Summer Institutes on sector work
- Curriculum development at both secondary and postsecondary levels
- Annual dues for participation in the Southern Regional Education Board's (SREB) High Schools That Work (HSTW) and Advanced Career Pathways programs
- The Auto Melior Curriculum
- Professional development for secondary and postsecondary instructors including funding for a Technical Update and Summer Program,
- Secondary student technical skills assessments
- Post-Secondary assessments through the Kentucky Community and Technical College System (KCTCS)

- An annual CTE Program Assessment
- Various teacher preparation programs.

Table I. Federal Perkins Distribution to Kentucky (2013-14 school year)

$15,219,800 – Basic Grants
$7,720,598 – Secondary CTE programs (51%)
$7,499,202 – Post Secondary CTE programs (49%)
$895,282 – State Administration
$845,282 – KDE Central Office
$50,000 – KCTCS
$1,790,565 – State Leadership
$494,500 – Curriculum
$305,000 – Professional Development
$176,315 – Sector Work (Summer Institutes)
$110,000 – State Institutions
$60,000 – Nontraditional (required)

$17,905,647 Total Perkins funding to Kentucky

The state is using Perkins funding to the full extent allowed including the introduction of a 5% set aside of federal funds to be awarded to centers and schools for new and innovative career and technical education programs.

State CTE Funding

While federal Perkins funding is a significant help to Kentucky's CTE programming, state dollars are the primary funding source. State CTE funding flows primarily through two funding streams - the General Fund and the SEEK (Support Education Excellence in Kentucky) Program. State operated area technology centers, locally operated technical centers and comprehensive high schools offering five or more CTE courses in a pathway all receive state SEEK and General Funds, but the funding processes are varied and complex.

Just over 40,000 Kentucky students are enrolled in CTE programs at state and locally operated technical centers. Twice as many, close to 80,000 students, are enrolled in CTE courses at comprehensive high schools. Comprehensive high schools receive no specific CTE funding unless the school offers five or more CTE courses in a pathway sequence.

SEEK Program

The Support Education Excellence in Kentucky (SEEK) Program was implemented during the educational reform movement in the early 1990's by the General Assembly of the Commonwealth of Kentucky as the foundational source of educational funding in the state. SEEK changed the state's previous method of funding classroom units to a per pupil funding

formula. The intent was to more equitably distribute funds through a mix of both state and local tax revenues.[iv]

A per pupil base amount is determined each biennium by the General Assembly. The base amount is multiplied by the prior year's average daily student attendance (ADA) to calculate a district's SEEK funding. Adjustments are made to the calculation for student population growth and for "add-ons" for exceptional children, at-risk students, students with limited English proficiency, students receiving homebound instruction or in a hospital and certain types of transportation including transportation of CTE students.

SEEK dollars are the foundational funding that all schools receive to support education, whether or not the school offers any CTE courses. State operated area technology centers – offering half-day (3-hour) programs – receive no SEEK foundational funding but do receive a separate SEEK allocation for personnel and operations.

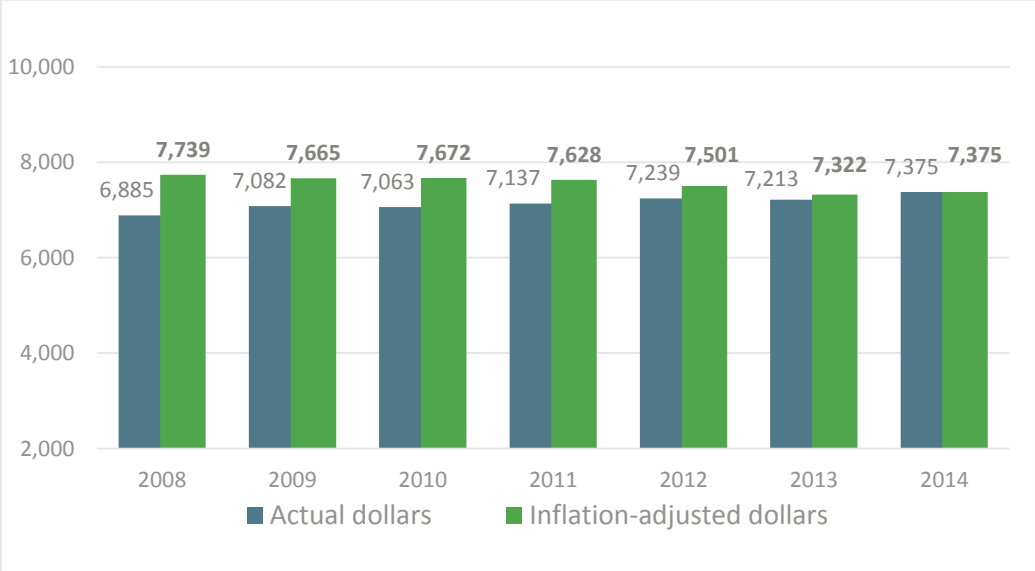
In order for local schools to receive foundational SEEK dollars each district must secure at least 30% of total funding through local tax revenues with the remainder provided by the state. Districts can also raise additional revenue through two additional SEEK funding tiers. Though no SEEK funding is allocated specifically for students in CTE programs, local foundational SEEK dollars can "follow" students if they attend a locally operated technical center but not if they attend a state operated technology center.

As Graph I indicates, the state's SEEK guaranteed base amounts to schools have fluctuated over the years, rising $3,911 per student for the 2014-15 school year.

Graph I. SEEK Guaranteed Base Amounts 2011-2015

Total SEEK funding for local schools – calculated by adding the state's guaranteed base amounts to the amounts local school communities must generate – has also risen over the last five years with the bulk of the growth coming from local funding sources. But when adjusted for inflation, the trend in total SEEK funding drops according to the Kentucky Council for Better Education (Graph II).[v]

Graph II. Trends in Total SEEK Funding



State operated ATCs receive no foundational SEEK dollars but do receive special funding for personnel and a portion of operating expenses through a separate SEEK allocation. ATCs apply to the state for these funds and allocations are made based on the number of full-time equivalent (FTE) students enrolled in 3 hour (half day) courses at the center divided into the total state amount available in that year. In the 2014-15 school year, ATCs received a total of $17,331,366 through this distinct SEEK line item in the budget. A portion of the total allocation each year goes to the Kentucky Community and Technical College System (KCTCS) for serving secondary students and 20% is given back to local school districts that own the area technology center buildings amounting to $4,142,534 in 2015.

Kentucky CTE Funding (2014-15 school year)

Fund Source	Total	Recipient
SEEK	**$22,866,900**	**$17, 331,366** – Area Technology Centers for personnel **$4,142,534** – 20% to local districts owning buildings **$1,393,000** – KCTCS for serving secondary students
General Fund	**$38,876,100**	**$12,368,500** – State Grants $11,843,500 – Local Career & Tech Centers $275,000 – Energy Technology

		$250,000 – Regional Technical HS/Early College **$21,733,100** – Personnel $19,000,000 – Area Technology Centers $2,733,100 – Central Office (Frankfort) **$4,774,500** – Operations $3,721,455 – Area Technology Centers $1,053,045 – Central Office (Frankfort)

Source: Kentucky Office of Career and Technical Education

General Fund

Targeted state support for CTE programs is also provided through the Commonwealth of Kentucky's General Fund.

Comprehensive high schools offering CTE programs and locally operated CTCs receive General Funds based on a calculation of student full-time equivalent (FTE) enrollment multiplied by a categorical weight based on the projected cost of the course in which the student is enrolled. The weight is added on the assumption that certain CTE courses, especially those requiring high tech, high cost equipment, are more expensive to offer than those covering fewer technical skills. To utilize the weight amounts, state legislation (705 KAR 2:140) mandates that the Kentucky Department of Education categorize CTE programs as 1) career orientation and exploration, 2) technical skill or 3) high-cost technical skill programs with the following definitions:

- High-cost technical skill programs are those in which students develop "highly technical skills in specific occupational areas…that require high-cost equipment, materials and facilities" as defined by the Kentucky Department of Education. These programs receive a weight of 1.5 multiplied by the annually determined, per student allocation.
- Technical skill programs are defined by statute as programs in which students continue to develop technical skills but which high-cost equipment, materials and facilities are "not necessary to operate the programs." These programs receive a multiplier weight of 1.0.
- Orientation and career exploration programs are defined by the state as programs that allow students to gain knowledge and exposure to various careers, presumably at a lower cost, since this category receives no additional weight in the funding formula.

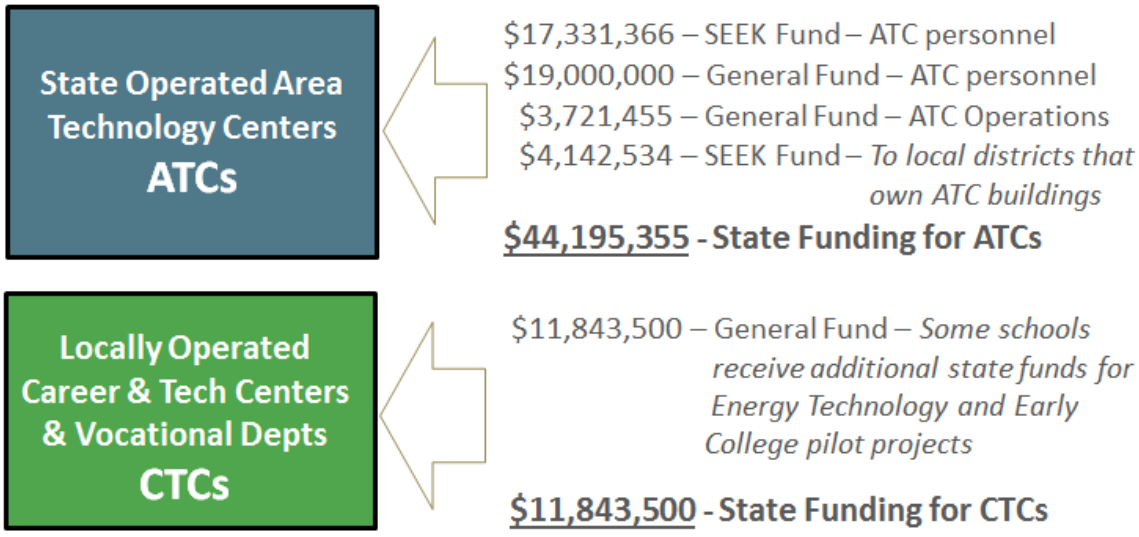
Locally operated CTCs and any school offering five or more CTE programs, designated a Vocational Department, must submit CTE course attendance and enrollment figures of full-time equivalent (FTE) students to the state each year. FTE totals are calculated by dividing course enrollments by the course length per semester (so a two hour course over two semesters is divided by one) then dividing the resulting figure by six (representing the six

class periods needed to equal a full-time equivalent). The FTE is then multiplied by the appropriate categorical weight amount, if it qualifies, and by the specified per student amount determined annually by the Department of Education. In the current 2014-15 school year, the per student amount for category II technical skill programs was $1,260, category III high-cost technical skills programs received $1,800 per student. [i]

Area Technology Centers (ATCs) receive General Funds in order to make up for any shortfalls in personnel and operating costs that remain after SEEK funding is applied. In fiscal year 2015, $19,000,000 of the General Fund was used to meet the remainder of the personnel costs at ATCs and just over $3.7 million was moved to ATCs in order to meet the operational funding needs. ATCs submit a yearly budget request to the state showing the breakdown of funding for personnel and operating expenses using SEEK, General Funds and federal Perkins dollars. See the sample budgets in Appendix A.

To ensure state CTE funds are used appropriately, the Kentucky Office of Career and Technical Education (OCTE) sends assessment teams to conduct site visits at the approximately 95 centers and schools on a two-year cycle. The compliance review, based on 12 accountability standards, is used by schools to develop or update their program, school and/or district continuous improvement plans, accreditation purposes and to determine professional development needs of teachers and administrators.

Graph III. Direct State Funding Totals for Technical Centers

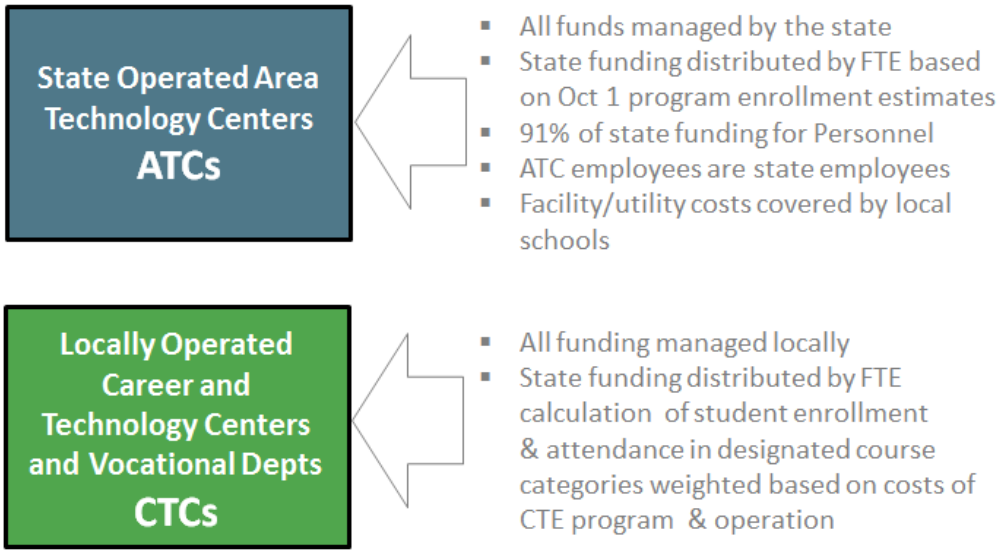


State funding processes for comprehensive high schools with CTE programs, locally operated career and technical centers (CTCs) and state operated area technology centers (ATCs) can be confusing. Graphs III, IV and V provide visual representations of the differences in funding between CTCs and ATCs. Graph III indicates the direct state allocations for technical centers from SEEK and General Fund allocations but does not account for the foundational SEEK funding that locally operated CTCs and schools receive for all students.

Graph IV shows the difficulties in trying to compare state funding between just CTCs and ATCs. Even though both types of centers receive per pupil funding amounts, the SEEK funding that ATCs receive is based on estimates of student contact hours that are converted to a full-time equivalent (FTE) value - while the General Fund dollars targeted for technical education at the locally operated CTCs and comprehensive high schools are determined by an FTE calculation based on student attendance in technical skill and high-cost programs, The student attendance number is then multiplied by the number of hours students are enrolled per year, divided by six and multiplied by a designated weight (1.0 or 1.5) and the state's annually adjusted weight value.

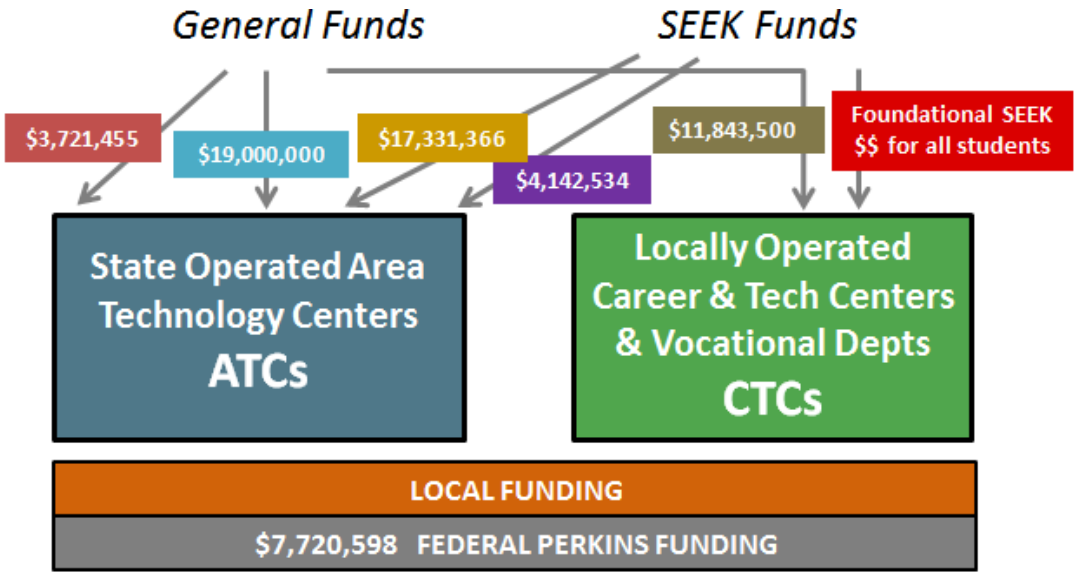
It is easy to see why an "apples to apples" comparison of per student funding between state and locally operated centers is difficult, if not impossible.

Graph IV. Differences in State Funding for Technical Centers



A more illustrative example of the difficulties in comparing funding streams for technical centers in Kentucky can be seen in Graph V. When state leaders and technical center staff say state funding formulas for technical education are confusing, it is clear to see why.

Graph V. Visual Representation of State Funding for Technical Centers



The variance in funding mechanisms for Kentucky's CTE programs creates the perception, if not the reality, of disproportionate funding across schools and centers. The visuals also convey the additional time and effort that the state, local schools and technical centers must spend in order to maintain and monitor the various funding processes.

Brief summaries of the state laws and regulations that govern career and technical education funding in Kentucky are compiled in Table II, including links to full texts of each.

Table II. Kentucky Technical Education Funding Statutes and Regulations

Kentucky State Statute	Description
KRS 158.810 Definitions	Provides definitions for KRS 158.810 to 158.816 including career and technical education, secondary area technology center, career and technical education department, etc. http://www.lrc.ky.gov/Statutes/statute.aspx?id=40071
KRS 158.812 Legislative intent, findings, and declarations	States the intent, purposes, and acknowledgements of the General Assembly in regards to career and technical education programs. http://www.lrc.ky.gov/Statutes/statute.aspx?id=40070
KRS 158.6453 Definitions	Provides definitions for student assessments, program assessments, local assessments, reporting timelines, school report cards, etc. http://www.lrc.ky.gov/statutes/statute.aspx?id=3554

KRS 158.816 Annual statewide analysis and report of technical education student achievement	Mandates an annual statewide analysis and report of technical student achievement for those enrolled or earning at least 3 high school credits by the Kentucky Department of Education and the Education Professional Standards Board. http://www.lrc.ky.gov/Statutes/statute.aspx?id=42222
KRS 151B.025	Renumbered to 156.802 http://www.lrc.ky.gov/statutes/statute.aspx?id=42152
KRS 156.802 Office of Career and Technical Education	Creation of the Office of Career and Technical Education within the Department of Education, responsible for administration, management, control and operate of state-operated vocational education and technology centers. http://www.lrc.ky.gov/statutes/statute.aspx?id=42153
KRS 157.360 State funding	Provides guidance on base funding levels and the equation used to determine program costs and funding levels. Describes the annual funding allocations by the General Assembly. Regulations on maximum class sizes, class loads, attendance calculations, etc. http://www.lrc.ky.gov/Statutes/statute.aspx?id=42372
KRS 157.069 Distribution of general funds for locally operated secondary area technology centers	Description of fund distribution, category levels eligible for funding, and calculation guidelines. http://www.lrc.ky.gov/statutes/statute.aspx?id=42218
KRS 157.410 Payments of funds to districts	Distribution and payment schedule for funds from the State Treasurer to school districts. http://www.lrc.ky.gov/Statutes/statute.aspx?id=3326
KRS 157.370 Allotment of transportation units	Standards to determine the cost of transportation for each district, square mileage, density, and other metrics used to allocate transportation funds. http://www.lrc.ky.gov/statutes/statute.aspx?id=3320
KRS 157.440 Levy of an equivalent tax rate and facilities support program	Regulations on the school districts' board of education acceptable tax levy. Allocation to participate in the Facilities Support Program of Kentucky is also outlined. http://www.lrc.ky.gov/statutes/statute.aspx?id=3329
KRS 157.620 School district participation requirements for construction needs	Explanation of school district unmet needs to qualify for construction funding. http://www.lrc.ky.gov/statutes/statute.aspx?id=3351
KRS 160.470 Tax rate limits	Regulations on the levy of taxes as a revenue source for school districts. http://www.lrc.ky.gov/statutes/statute.aspx?id=3740
Kentucky Administrative Regulations (KAR)	**Description**
705 KAR 2:140 Equalization of funding	Outlines the weighted funding formula for locally-operated area vocational centers and vocational departments. This is based on the cost of programs and

	the full-time equivalent student enrollments. http://www.lrc.state.ky.us/kar/705/002/140.htm
702 KAR 1:130 SEEK funding	System and equation for funds to be transferred by the Kentucky Department of Education for state-operated vocational schools. http://www.lrc.state.ky.us/kar/702/001/130.htm

Source: Kentucky Legislative Records, Kentucky Legislature, www.lrc.ky.gov/Statutes/index.aspx

State CTE Funding Mechanisms

According to the *State Strategies for Financing Career and Technical Education* report, state funding for CTE at the secondary level across the country falls into three primary categories; 1) Foundational Funding, 2) CTE Center Funding and 3) Categorical Funding.[vi]

- Foundational Funding - The US Department of Education (USDOE) report defines foundational funding as the "general funding" that all states provide to local educational agencies (LEAs) or districts to educate all students. Typically, these funds are based in whole or in part on student enrollment determined "by a count of full-time equivalent (FTE) students on a specific date or an LEA's average daily membership (ADM) over a specified period of time." These funds are provided to schools irrespective of enrollment in CTE.

  A majority of states and territories provide additional state funding to cover the costs of CTE, however seven states and jurisdictions, and one territory, do not. Educators in those states and regions rely solely on foundational funding, plus federal Perkins funding and local funding, to supplement the costs of CTE and include:
  - District of Columbia
  - Maryland
  - Nebraska
  - New Mexico
  - Oregon
  - Palau
  - South Dakota
  - Wisconsin

  Advantages & Disadvantages: Foundational funding is less complicated for state agencies and state budget personnel to manage because there is no distinction between funding CTE and other educational coursework. CTE programs receive no additional support from the state and must compete for educational dollars. Local schools rely on federal Perkins funding or on local/regional employer and community support to grow, sustain and improve programs.

- CTE Center Financing – Seven states provide CTE funding primarily to area CTE centers operated as separate facilities from a student's home high school. The states include:

- Arkansas
- California
- Connecticut
- New Hampshire
- New Jersey
- New York
- Vermont

Kentucky provides some state funding for area CTE centers but also supports locally operated CTE programs whereas the seven states in this funding category deliver CTE instruction only at stand-alone facilities apart from the home high school. Doing so allows centers to consolidate staff, equipment and other finances.

Advantages & Disadvantages: State funding directly to CTE centers allows for the consolidation of staff, equipment and other finances. Startup costs to build separate facilities and provide transportation can be high, but can also lead to cost centralization and efficiency over time. Students may be reluctant to travel away from their home high school for all or part of the school day to participate. Clear delineation of CTE versus other high school courses provides clarity for students, parents and staff but may promote a perception of students at CTE centers as "different" than other students.

- Categorical Funding – Categorical funding for CTE is the most common state funding method used by 75% of all states. It is also arguably the most complicated. Kentucky's CTE state funding model is a distinct type of categorical funding called Student-Based Funding representing one of three primary categorical funding strategies:

1. ***Student-Based Funding***, as the name implies, is provided to LEAs according to student enrollments. Kentucky's state CTE funding strategy falls under the Student-Based Funding category which can be based on any of the following:
   - Proportions of CTE student participation, for example, an LEA with 10% of the state's CTE students would receive 10% of the state's earmarked CTE dollars
   - Straightforward student enrollments in CTE courses. Supplemental weighting is given to CTE courses in the foundational funding formula allowing CTE programs a larger share of state funds
   - Differential weighting to CTE courses for factors such as cost of equipment or labor market demand for CTE program-related occupations

   Advantages & Disadvantages: Twenty-one states utilize the Student-Based Funding model making it the most commonly used strategy in the country. Estimating appropriate per-student budget amounts presents challenges and some state calculations can be complicated. Many states favor the model because the "money follows the student."

2. ***Unit-Based Funding*** is used by seven states, including Tennessee and Mississippi, to allocate state CTE funding according to a variety of factors which can include instructional staff, course materials, facility maintenance, etc.

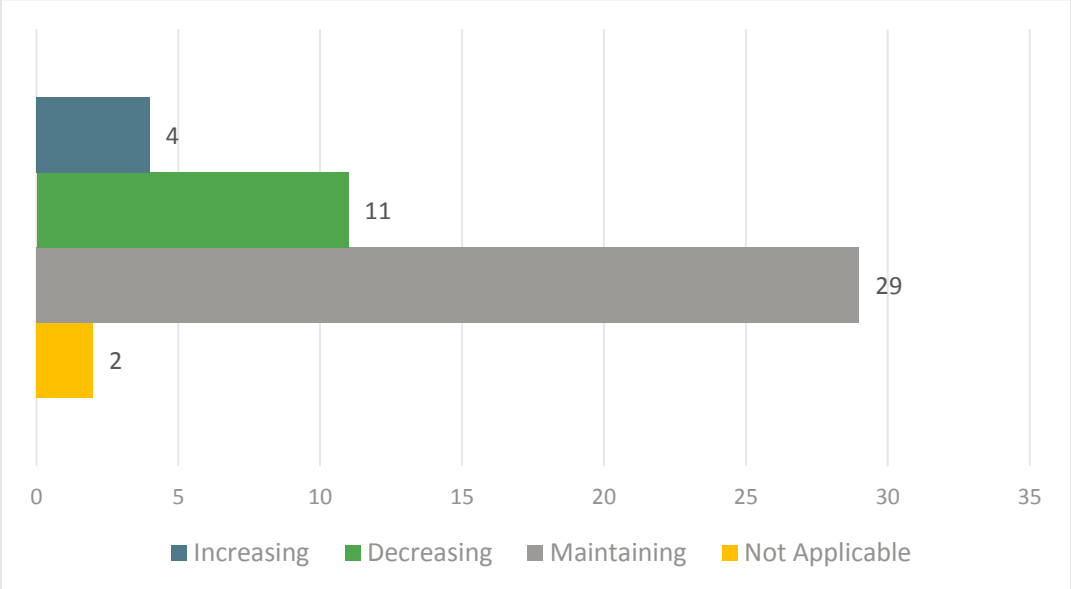
   Advantages & Disadvantages: Unit-Based Funding allows states flexibility to fine-tune funding to areas of highest need but can also be complicated.

3. ***Cost Reimbursement Funding*** is the third type of categorical funding and is provided to schools and centers a year after a CTE program concludes, based on calculations of prior-year expenses. CTE districts report their costs each year and the state determines to what extent it will reimburse those expenses given adequate funding.

   Advantages & Disadvantages: Local educational agencies (LEAs) may not get fully reimbursed for expenses incurred in the previous year, especially if state funding amounts drop. On the positive side, LEAs may get reimbursed for higher capital outlays for buildings, equipment or coursework if the state approves.

A 2012 review of state funding for CTE programs around the country found that most states are maintaining funding levels though 11 states had decreased funding amounts and only 4 had increased CTE funding (Graph VI).

Graph VI. State Funding Trends (non-federal) for Secondary CTE (2012)



Source: A Look Inside: A Synopsis of CTE Trends, National Association of State Directors of Career Technical Education

Summary Section I

While federal funding for technical education in Kentucky is fairly straightforward, state funding can sometimes be confusing. The graphs included in this section are intended to help visually clarify the funding mechanisms. It is important for state leaders and budget decision-makers to understand current state funding processes and amounts in order to have a solid basis for exploring the definitions of adequate and equitable funding detailed in the next section, and to consider ways of moving Kentucky to the unified world-class CTE system outlined in Section III.

Key Points:

- Kentucky's federal Perkins funding is relatively constant with performance measures in place for accountability.
- State funding for technical education flows to state operated area technology centers (ATCs) and locally operated career and technical centers (CTCs) and schools with CTE programs primarily through SEEK and General Fund line items.
- Kentucky uses a student-based categorical funding method similar to the majority of other states in which funding for schools and technical centers is intended to "follow the student."

II. Adequate and Equitable CTE Funding

In 1989, the Kentucky Supreme Court declared the state's K-12 school funding formula to be "constitutionally deficient" stating in its decision that, "The framers of our constitution intended that each and every child in this state should receive a proper and adequate education, to be provided for by the General Assembly." Notably, the court decision used the word "adequacy" or "adequate" forty-seven times.[vii]

The school funding formula that was created in response to the court decision, the Support Education Excellence in Kentucky (SEEK), summarized adequate funding as "providing sufficient funding for each school in the state to deploy powerful enough educational strategies to meet the state's…goals which are to have all students performing at or above the proficiency level on the state's student testing system."[viii]

Since that Supreme Court ruling, Kentucky and other states have worked to quantify what "adequate" translates to in actual dollar amounts and exactly what "equitable" looks like across a state with very different schools, tax bases and student needs.

Defining Adequate Funding

Kentucky is not the only state that has sought a definition of adequate education. A 1997 New Hampshire Supreme Court decision, known as Claremont I, ruled that public education in the state must be constitutionally adequate which the court defined as "more than basic reading, writing and arithmetic training to thrive in the 21st century." To quantify "adequate funding" in dollar amounts, New Hampshire initially identified a student performance measure – 40-60% of 3rd through 6th grade students passing the state's standardized assessments – then ranked all of the schools according to student performance and divided the base cost of education in those schools by the total number of students.

The resulting per pupil cost was the state's foundation of an adequate funding formula. But in the seven years that followed the state tried four additional funding calculations and none satisfied the state's Supreme Court. It ruled in 2006 that attempts at creating an adequate funding formula in the state had not succeeded.[ix]

In a comprehensive national review of state educational funding methodologies entitled *Equity and Adequacy in School Funding*, compiled shortly after the Kentucky Supreme Court decision, multiple state definitions of adequate funding were examined across the country. The study's authors conclude their research with several suggestions regarding how states should approach defining adequate funding:

> *"The most important action a state can take to assure [funding] adequacy is to determine the target foundation level of per-pupil revenue on the basis of a*

rational analysis of educational goals and student need. In other words, the state should analyze its educational goals, the characteristics of the state's students, the methods available for meeting those goals, and the cost of implementing those methods to arrive at the foundation level of funding. This type of analysis is extremely difficult, and the state of the art for performing such calculations is still controversial and based more on theory than on firm knowledge of what expenditures and methods will result in what degree and type of student achievement.'"[x]

When state legislatures appropriate funding for education, according to the article's authors, they rarely "begin by setting goals, assessing needs, and calculating the cost of achieving those goals" which consequently results in a disconnect between expectations of statewide student outcomes and the funding needed to reach those outcomes.

This "goals first" approach to adequate state funding for CTE was a central theme of comments received from a survey of Kentucky's CTE educators and administrators whose definitions of "adequate funding" were fairly similar:

- *The amount [of funding] needed to operate and maintain a technical skills program to train students with the materials and equipment valued by regional business and industry*
- *Aligning technical education with industry standards*
- *Enabling centers to provide the latest technology and resources for students to be successful in either continued education or entering the workforce*
- *All equipment and supplies necessary for the student to be judged career ready, especially by the industry*[xi]

Not only should state-level goals drive funding decisions for CTE programs according to the survey responses, but these goals should be based on the highest priority needs of Kentucky's business and industry community. In other words, survey respondents said current and future workforce demand should determine course offerings and training provided.

The most frequent survey comments regarding funding for Kentucky's CTE programs stated current financial resources from the state are inadequate. If the funding levels for technical education in schools and technical centers should mirror the 1989 Kentucky Supreme Court definition of "sufficient" to reach the state's goals, the majority of survey respondents believe the state is missing the mark. CTE teachers and administrators feel there is a significant gap between current state and federal CTE funding levels and the state's expectations, especially in the areas of:

- Salaries
- Equipment and equipment maintenance
- Facilities and operations

Table III. Survey Respondents' Ranking of Most Critical Funding Priorities

Equipment	**1**
Curricular/course materials	**2**
Teacher salaries and benefits	**3**
Computer/technology hardware	**4**
Facilities/utilities	**5**
Software	**6**
Student assessments/certifications	**7**
Professional development/training	**8**
CTE student orgs/events	**9**
Other	**10**

Periodically, but unpredictably, the state has provided additional funding to schools and centers to purchase or update CTE equipment although no additional funding for new equipment procurement has been provided in several years. The Kentucky Department of Education estimates the value of current equipment used for CTE in schools and centers at approximately $35 million dollars, requiring an additional annual allocation of $3.5 million dollars from the state to maintain and update those resources. This is based on industry averages of budgeting 10% for equipment maintenance.[xii]

CTE administrators and staff say new equipment and updates to existing equipment are vital for preparing the future workforce to meet the industry expectations of the current workforce (Table IV).

Table IV. Survey Responses on Equipment Needs

For the last 20 years we have not been able to adequately purchase new updated/ higher technology equipment. Industry must obtain new technology to stay competitive, but we cannot keep up. So, we train students on older equipment and when then step onto the industry floor they are already behind and overwhelmed
I have spoken with at least five welding teachers who have said they were out of metal and funding to purchase that metal, and this was prior to the end of the first semester. The same issue has been the case with several of our classes that have needs for resources such as HVAC equipment and units, computer equipment, etc. As we have attempted to cut from every area of our budget to allow the most money to be available to classroom teachers, we have found that we still come up short in giving them the necessary supplies for success
We need equipment money. Most of our larger equipment items are aging and really are past the point of repair because of the age. We already need several larger items that we cannot afford even with our Perkins money

More funding for the most up-to-date equipment, training and support materials has not been addressed for many years. Now is the time someone steps up and addresses this need. If the state and nation truly want a well trained workforce-which I am confident our CTE instructors are more than capable to produce- they need the state to support them

Also ranking high on the list of CTE budget needs is funding to pay for industry certifications and dual credit expenses, the cost of professional development for staff and expenses related to career and technical student organizations (CTSO's). Previous concerns about funding for the Kentucky Occupational Skill Standards Assessments (KOSSA) and the WorkKeys assessments required for students to earn the National Career Readiness Certificate (NCRC) were addressed in 2014 when the state legislature allocated funding to cover both of these costs.

One criterion for adequate funding under Kentucky's mandate is whether state funding levels allow schools to reach the state's goals. A preponderance of CTE teachers and administrators surveyed across the state feel this is not happening. Many feel that basic needs for equipment, classroom materials, supplies and other resources are limiting students' opportunities to practice their skills and restricting the state's ability to reach its goals.

Table V. Survey Comments on Funding and Student Outcomes

If students are not using the same technology in the classroom that is being utilized in business and industry the students are at a disadvantage before they enter the job market.
This school is 8 years old, our textbooks and student computers are 8 years old because there is no money to buy [new]. Funds have not been mismanaged, there simply is no money for computers or textbooks.
The lack of adequate resources prevents schools/programs from purchasing current equipment and technologies so students are being trained on outdated equipment that fails to meet industry standards. This obviously prevents them from being effectively prepared for the demands of the workplace.
When a student looks into a shop or classroom and everything is ancient technology it affects enrollment. When the buildings are falling apart it affects enrollment…. When we can't keep teachers due to pay it affects the effectiveness of the program. When the students are working on 20 year old equipment it does not prepare them for the current workforce, let alone the future. Funding affects every single student, every single hour.

Additional Challenges

Not only do so many state leaders and educators feel that funding levels for technical education are inadequate to meet the state's goals, they also believe the state's funding mechanisms for CTE discourage growth and innovation, especially due to budget limitations and the biannual budgeting process.

1. Budget Limitations. The cap on overall state funding CTE creates a disincentive for growth. Since all schools and technical centers offering CTE programs share the same total pot of money, raising enrollments or adding new programs effectively reduces and dilutes the funding for everyone.
    - Four new locally operated technical centers have been added to the total funding formula in the last five years - effectively reducing funding for all other schools and technical centers - and at least three additional centers are waiting to be added. A similar issue arises when more students enroll in high-cost technical skills programs. The result is a reluctance to expand or add new programs and resentment when other districts do.
    - The state provides little or no guidance regarding which CTE programs are a priority – effectively saying all technical programs are important – leaving schools and centers to figure out on their own which programs will be capped, cut or for which they will need to find additional local funding.
    - Though program, personnel and technology costs have steadily increased, the General Fund allocation for local area career centers (known as LAVEC funding for Local Area Vocational Education Centers) has been relatively stagnant over the last decade. Not only have costs increased but new centers have stretched thin and diluted the existing allocation amount.
    - Even administrators at high-performing state operated ATCs and locally operated CTCs and comprehensive high schools agree that CTE funding levels are so "bare bones" that sustaining quality student performance is becoming impossible. Many administrators find it necessary to pull dollars from student programs to cover operating expenses and/or salaries. Several rely on local funding and industry support for current programs but worry that sustaining good programs is becoming increasingly challenging.

2. Biannual Budgeting Process. Locally operated centers contend with a budget that changes halfway through the school year.
    - The tentative budget technical centers receive before the school year starts (in July) is readjusted for enrollment changes in the middle of the school year (typically January or February) making budget planning and forecasting challenging. State operated technology centers, on the other hand, receive a budget based on fall student enrollments that does not change until the following year.

- The unpredictability of this funding methodology creates frustration, thwarts budget planning and generates additional work. As one director put it, he is always on "pins and needles" hoping his program will be able to adapt to the mid-year changes.

While adequate funding is always a balance between available funds and the resources needed to ensure student success, the consensus among the CTE community and many state leaders is that the state has not met its obligation to consistently and adequately support technical education. Though there may never be total agreement between state budget makers and those working with students day-to-day regarding what CTE funding amounts are adequate, establishing clear state goals based on the primary drivers of Kentucky's economy while providing guidance to schools and centers on CTE program priorities can help narrow the funding gap, improve student outcomes and promote improved funding effectiveness and efficiency.

Defining Equitable Funding

Determining an accurate way to define and quantify "equitable funding" presents just as many challenges as defining adequate funding. According to the authors of the *Equity and Adequacy in School Funding* study mentioned above, "there is no universally accepted definition of equitable school funding." Rather, "equity is a concept based in fairness, and most people agree that fairness does not require absolutely equal per-pupil expenditures."

Quantifying equitable funding for CTE can go in many directions; equity in funding levels between states, equitable funding among Kentucky's locally operated technical centers and state operated technology centers, even equity between one type of technical program versus another.

Illinois, for example, defines education funding equity as "a fair distribution of resources for public education that takes into account student need and school district characteristics" especially in two areas:

1. Student Equity – Meaning the same per-student spending by all school districts in the state, with allowances for differences in costs because of a school district's size, location or student characteristics, and
2. Taxpayer Equity – Defined as the same or similar tax rates for public education used in districts across the state with differences in tax rates allowed if a community of taxpayers wants to spend more on education.[xiii]

Equitability in overall educational funding in Kentucky, including allowances for different tax rates in various areas, was addressed when the state general assembly passed comprehensive funding reform through the Kentucky Education Reform Act (KERA) in 1990. The legislation was a targeted response to the Kentucky Supreme Court's mandate to

"recreate, re-establish" the state's entire system of funding and to provide equality in funding across districts.

When SEEK funding was adopted through KERA, Kentucky sought to establish equity in education funding in the state, an effort many believe has worked.[xiv] Yet, state operated area technology centers receive $21 million in designated SEEK dollars but no foundational SEEK funding. Locally operated technical centers and comprehensive high schools offering CTE programs receive no dedicated SEEK funding for CTE and must rely on foundational SEEK dollars provided to schools for all students to cover teacher salaries and the costs of operating and maintaining facilities.

Because foundational SEEK funding does not specifically support CTE programming, locally operated technical centers and high schools must rely on the special line item from the General Fund to cover the majority of expenses for technical skill and higher cost CTE program. Conversely, state operated area technology centers use dollars from the General Fund to meet personnel and operating costs because the SEEK allocation is less than half of what is required to maintain current operations according to the Kentucky Department of Education (KDE). Though the Kentucky General Assembly allocated $3 million dollars in 2014 to specifically support technical center personnel, which resulted in the hiring of 34 new technical center teachers, the gap in funding for operations persists.

The differences in funding between schools and centers have generated a cry for a more equitable funding formula for technical education in Kentucky. Variances in CTE funding create the appearance of a wide gap between the dollars state operated centers and local schools and centers receive. The separate and complicated funding formulas for ATCs and CTCs make it more difficult to draw equitable funding comparisons and even harder to determine if all CTE programs are effectively and efficiently using state-allocated funding to support student success.

When asked to identify more equitable ways to distribute state CTE, respondents to the survey conducted for this report and interviews with state leaders generated many suggestions:

- Basing CTE funding on student enrollment was an often-repeated sentiment though many acknowledged there would still need to be allowances for enrollment in programs that require higher cost equipment and materials. Some felt the local economy and level of support from the regional business community should also be included in any per student enrollment calculation.
- Estimating an average cost for operating CTE programs across the state, and using that figure as a basis for funding, was another commonly referenced way for approaching equitable funding. The average costs would need to be recalculated on a scheduled basis. Currently, the state's budget for CTE programs in schools, locally operated career and technical centers and state operated area technology centers is

not based on estimates of the actual costs required to meet the state's educational goals but on estimates of available funds.

- Performance-based funding, or additional support to centers meeting or exceeding student CTE outcomes targets, was also mentioned as a consideration.

Table VI. Survey Comments on Equitable Funding Strategies

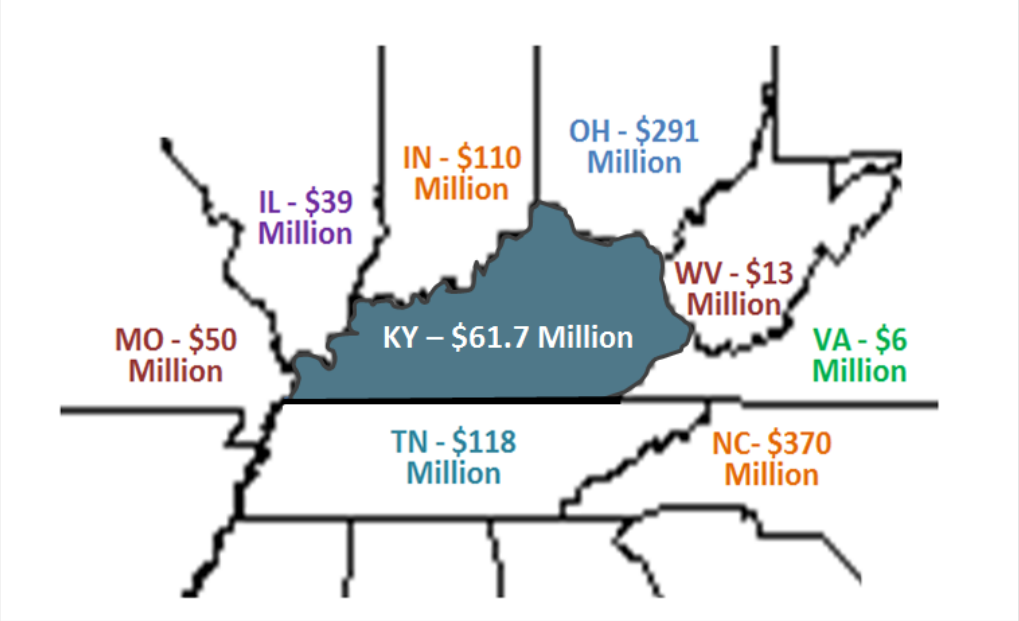
I feel that CTCs and ATCs should receive the same amount of support regardless of their district. To ensure CTCs and ATCs are funded in a similar manner, the calculations should be done to figure the amount needed based on the same funding formula.
I would prorate the distribution. I would set up amounts according to the amount of industry within a community. Ex: 30 + industries = larger amount, 20-29 industries = stepped down amount. Then amounts spent on each CTE program will need review as a CNC lathe for machine tool cost more than a drill press for electricity.
Base it on population number of students served and numbers of students earning certifications.
[Conduct] a realistic needs assessment
Transparency of current funding formula is a place to start. Both locally operated and state operated centers should be funded using the same funding formula. Enrollment (2nd month) has worked as the baseline for many programs… Weighting for high-cost technical programs continues to be appropriate particularly if the desire is to increase programs in STEM and manufacturing. Incentive or bonus funds should be made available based on criteria such as program alignment with local/regional industry, CCR attainment, etc
Equitable distribution of funds for both would include paying for staffing at the locally operated like the state pays for staffing at the state operated. This would ensure an appropriate amount of funding for the programs.

Looking at equitable funding for Career and Technical Education between states shows wide variation, even among those states bordering Kentucky (Graph VII).

State CTE funding totals gleaned from the November 2014 U.S. Department of Education report, *State Strategies to Financing Career and Technical Education,* in the eight states nearest Kentucky's borders finds that four states provide state CTE funding at or below the level of Kentucky and four provide more than double the amount.

The state of North Carolina, noted around the country for its exceptional CTE programs, allocates $370 in its annual state budget for technical education, a figure seven times Kentucky's funding level.[vi]

Graph VII. Estimated State CTE Funding Totals Near Kentucky



Per-pupil CTE funding amounts and methods of distributing state dollars for technical education also vary when comparing one state to another. Some states provide no additional state funding for CTE programming while those that do range from approximately $3,250 per CTE student in Arkansas to$4,750 per student FTE (full time equivalent) in Ohio.

Added weights in technical education funding formulas also vary greatly from 17 per student ADM in Pennsylvania to 1.35 in Texas and 1.50 for some programs in Kentucky.

Summary Section II

Given Kentucky's aggressive adoption of the innovative Unbridled Learning Accountability Model and the state's desire to create a unified world-class CTE system, there is wide agreement among state leaders and educators that funding Career and Technical Education in the state is inadequate. The two-tracked funding structure for local schools and technical centers versus state-supported area technology centers adds another level of confusion to the funding picture, fostering a pervasive sense of inequity between schools and centers.

Key points:

- Definitions of "adequate funding" in education vary but research indicates that common components of any definition include sufficient funding amounts in order for schools and centers to meet state educational goals that are driven by state business and industry needs.
- State leaders, educators and administrators working with Kentucky's CTE programs believe there is a shortfall of adequate funding especially in the areas of:

  - Salaries
  - Equipment and materials
  - Facilities and operations.
- Multiple funding challenges complicate support for CTE including:
  - Overall state funding limits that create disincentives for technical education
  - Budget processes involving local centers and schools that create extra work and thwart budget planning.
- Definitions of “equitable funding” can include many components but among Kentucky’s CTE programs the highest concern is the equity of funding between state operated ATCS and CTE programs in local schools and locally CTCs.

III. A Unified World-Class CTE System

In its comprehensive 2014 analysis of Kentucky's Career and Technical Education (CTE) programs, the Southern Regional Education Board (SREB) challenged the state to develop one system of "world-class technical centers" by addressing four over-arching recommendations:

1. Commission an in-depth study that will identify funding priorities and formulate recommendations to create an equitable and adequate funding system for all technical centers.
2. Establish an accountability system that not only measures outcomes, but also measures the implementation of best practices that will maximize opportunities for students.
3. Create a single system of world-class technical centers.
4. Establish stronger, more formal ties between the state's secondary and postsecondary educational institutions and business and industry partners by creating a robust system of state, regional and local advisory committees.[xv]

Recommendation #3 leads to the question: **What is a world-class CTE program?**

Defining World-Class, High Quality CTE Programs

While multiple terms and descriptors are used to describe components of high quality CTE programs, there is no list of agreed upon "world-class" standards or criteria. Nevertheless, the literature points to several common elements deemed essential to advancing student career and postsecondary success through CTE.

The list of 10 key practices of Technology Centers That Work (TCTW), developed by the Southern Regional Education Board (SREB), is arguably one of the oldest and broadest compilations of the primary components needed for high quality technical education programs. SREB's list of key practices includes:

- High expectations — Motivating more students to meet high expectations by integrating high expectations into career/technical and academic classroom practices and giving students frequent feedback.
- Program of study (or Pathway) — Requiring each student to complete a career-focused program of study, including both a concentration of at least four career/technical courses and a "ready" academic core, leading to better preparation for postsecondary studies and advanced training.
- Academic studies — Teaching more students the essential concepts of the college-preparatory curriculum by encouraging them to apply academic content and skills to real-world problems and projects within their CTE courses.

- Career/technical studies — Providing students with access to intellectually demanding CTE studies that emphasize higher-level mathematics, science, literacy and problem-solving skills needed in the workplace and in further education in high-demand fields.
- Students actively engaged — Engaging students within CTE and academic classrooms in rigorous and challenging assignments using research-based strategies and technology.
- Guidance — Working with the high school staff to create a guidance, counseling and advisement system that involves students and their parents in planning a career-focused program of academic and technical studies.
- Teachers working together — Providing teachers with time and support to work together in planning integrated lessons and projects to help students succeed in challenging technical skills and academic studies.
- Work-based learning — Enabling students and their parents to choose a program of study that integrates challenging academic and technical studies and work-based learning and is planned by educators, employers and students.
- Extra help/transitions — Providing a structured system of extra help to assist students in completing accelerated programs of study with high-level academic and technical content.
- Culture of continuous improvement — Using a variety of data (student assessments, program evaluation data, technology center performance reports, program enrollment, retention and placement reports, college remediation.[xvi]

Using a broader scale, the U.S. Department of Education's Office of Career, Technical and Adult Education (OCTAE) – which oversees the nation's Perkins technical education programs – identified *Four Core Principles for the Transformation of Career and Technical Education* when proposing revisions to the Perkins Act two years ago. The four principles are:

- Alignment – Between what is taught in technical centers and labor market needs
- Collaboration – Among secondary and postsecondary institutions and between schools and regional employers, business and industry partners
- Accountability – For improving academic outcomes and expanding technical skills and employability skills levels, and
- Innovation – To support systemic reforms leading to the implementation of more effective practices at the local level.[xvii]

Many other organizations – including The College Board,[xviii] the Council on Chief States School Officers,[xix] even Harvard University[xx] – have also generated lists of the primary elements of effective career pathways and CTE career readiness systems (Graph VII). Though the wording may differ, similar components are evident in these reports as well.

Graph VIII. Additional Summaries of High Quality CTE Components

The College Board, *The Promise of High-Quality CTE*

- Career-Oriented Educational Systems
- Strong Options for Students
- Rigorous Academic Curricula
- Rigorous Technical Skill Development
- Employability Skills Development
- Professional Development for Teaching Staff and Leaders
- Support Services for Students
- Assessment and Accountability

SREB Commission on CTE, *Components of High-Quality Career Pathways*

- Teach college-ready academics, technical skills and workplace know-how
- Align instructional courses and programs with state and regional labor market opportunities
- Help students understand 21st century careers and the necessary employability skills required to solve authentic problems through real workplace experiences,
- Attract students at all educational and achievement levels
- Support students with strong career guidance with many routes to further education and training
- Advance students toward earning industry and postsecondary credits/credentials while in high school

National Research Center for CTE, *Guiding Principles for the Redesign of Kentucky CTE*

- **CTE is a vital and integral component of public education in Kentucky**
- **The emergent system should prepare young people to prosper in the global economy**
- **For high school students to be prepared to make meaningful career choices, career development must begin in the early grades and continue throughout their educational experience**
- **Career pathways, linked to Kentucky's long-term economic plans, offer the best organizing framework for connecting career development to education and connecting education to the labor market**
- **The goal for all Kentucky high school students is to graduate career and college ready…with a mastery of critical academic knowledge and understandings, a command of the behaviors and predispositions to succeed in a variety of workplaces, and the technical skills valued by industry**
- **The long-term vision for CTE is a fully integrated and elevated system of career and technical education tailored and designed to give all students the best possible opportunity for career preparation in a unified system of secondary CTE**

The American Federation of Teachers (AFT) used a different perspective to address the question of what comprises a world-class, high quality CTE system. A 2014 AFT study asked the nation's CTE teachers to identify the challenges that must be overcome in order for "CTE to be comprehensive and successful." The five factors ranked the highest were about ensuring:

- Equipment, technology and instructional resources are widely available and regularly updated
- Educators have time to develop work-based learning experiences, such as internships and apprenticeships with employers and the community
- Class sizes and learning environments are appropriate to meeting student needs,
- Program offerings are diverse enough to engage more students and serve labor-market needs
- Funding is adequate to support high-quality CTE programs, especially in economically challenged and isolated urban or rural settings[xxi]

World-Class from a Global Competitiveness Perspective

Pursuing a unified world-class CTE system must naturally include a perspective on technical education from various parts of the globe. Since one of the primary functions of CTE in a world-class system is education, the educational attainment of a state or nation's workforce can be viewed as a fundamental determinant of global competitiveness. Recent trends around the world indicate that education and training beyond the secondary level will increasingly be needed to attain the knowledge and skills proficiency required for higher skill, higher paying careers.[xxii]

Of 87 U.S. states and countries, Kentucky's educational attainment ranks 64th for adults from age 25-64, with approximately 30% completing postsecondary education. From a national perspective, that means the educational attainment of Kentucky's workforce is 11 percentage points below the U.S. average and, internationally, equals the average rate of Organisation for Economic Co-operation and Development (OECD) member countries.

When comparisons are made with the youngest age cohort of Kentucky's workforce, ages 25-34, the overall educational attainment rate is higher at 34% but drops 3 percentage points below the average of the same aged adults in OECD countries (Graph IX).

Educational attainment data provides an incomplete picture of global competitiveness. Many states and nations provide workforce training that results in postsecondary credentials and industry certifications below the associate's degree level, but these numbers are not included in national or international statistics. Germany, for example, has a relatively low educational attainment rate past high school (26%) but one of the world's most competitive workforces because of a world-class technical education system.

Kentucky moves closer to being a world-class CTE system- and raising the competitiveness of the state's workforce in the world economy - as more and more students participate in pre-apprenticeship programs, earn industry certifications and complete college credits toward an associate's degree.

Table VII. Kentucky's Workforce: Global Context

Percentage of Kentucky Adults 25-64 with an Associate Degree or Higher

Compared with the same age range and educational attainment on an international scale (2009 data)

District of Columbia	54%	
Massachusetts	50%	Canada
Connecticut, Colorado	46%	
Minnesota, New Hampshire, New York, New Jersey	45%	Israel
Maryland, Vermont, North Dakota	44%	Japan
Virginia, Hawaii, Rhode Island	43%	
Washington	42%	
Illinois, Nebraska	41%	**United States**
Iowa, Kansas, Oregon	40%	New Zealand
Utah, California, South Dakota, Maine, Delaware	39%	Korea
Montana, Wisconsin, North Carolina, Pennsylvania	38%	
	37%	Finland, Australia United Kingdom,
Florida, Georgia, Michigan	36%	Estonia, Ireland
Alaska, Missouri, South Carolina, Wyoming, Arizona, Ohio	35%	Switzerland, Luxembourg
Idaho, New Mexico	34%	Denmark
Texas, Indiana	33%	Belgium, Sweden, Netherlands, Iceland
Tennessee, Oklahoma, Alabama	32%	
Kentucky Nevada	30%	**OECD average**, Spain
Mississippi	29%	France
Louisiana	28%	
Arkansas	27%	
West Virginia	26%	Germany
	24%	Chile, Greece
	23%	Slovenia
	21%	Poland
	20%	Hungary
	19%	Austria
	16%	Mexico, Slovak Republic, Czech Republic
	15%	Portugal, Italy
	13%	Turkey
	11%	Brazil
	5%	China

Kentucky ranks **64th out of 87** geographies, when comparing across 36 OECD Countries and 51 U.S. territories and states

Kentucky's 30% of adults 25-64 holding an Associate Degree or higher is 11 percentage points lower than the U.S. average of 41%

In many nations, including the U.S., the proportion of occupations requiring high tech skills is approaching 60%, with half of these jobs requiring education and training below a Bachelor's degree level. Increasingly, the world's most competitive economies will have occupational structures in which the education and skill requirements are divided relatively equally:

- 1/3 requiring baccalaureate and graduate degrees,
- 1/3 requiring Associate's degrees in technical fields, industry certifications or apprenticeship training,
- 1/3 requiring semi-skilled or unskilled labor.

World-class CTE programs, in America and abroad, value integration of academic rigor with technical skill development without tracking students into one or the other. In Finland, for example, high schools programs are three years long and prepare students to enter either a university or a polytechnic institution. In Norway, high school students completing Career and Technical Education programs may advance directly to technical colleges or complete an additional year of high school to complete preparations to be admitted to a university.[xxiii]

Even with larger proportions of students enrolled in technical education programs, many countries maintain high overall academic performance because they require technical education students to meet both technical and academically rigorous standards. In Switzerland, 42% of the students who score highest on the Program for International Student Assessment (PISA) exams choose to stay in the vocational system, primarily because of the work experience component, which students believe better qualifies them for further education or higher paying jobs.[xxiv]

Common Components of a World-Class CTE System

Multiple research reviews of high quality and world-class technical education programs point to twelve indicators identified as common components. These components fall into three broad categories; Instruction, Supports and Leadership.

INSTRUCTION

The core of a unified world-class technical program is its focus on students; especially student preparation, performance and success. High quality CTE programs have these components in common:

1. Rigorous academic learning that prepares students for work and successful transition to postsecondary education and training.
2. Rigorous technical skill development in career areas that align to regional and state economic and workforce needs.
3. Employability skills development to ensure students have the problem-solving, communication, persistence and other "soft skills" – including a strong work ethic – that are essential for success in a career and in college/postsecondary education.

4. Work-based learning experiences that allow students opportunities to get out of the classroom and onto jobsites where they can explore and experience the "real world." These experiences also rely on creating and fostering robust relationships between educators and employers.
5. Opportunities for earning college credits, postsecondary credentials and industry certifications during high school, and
6. Engaging students in creating pathways that allow them to see how their coursework links to their future postsecondary plans.

SUPPORTS

Though often overlooked, creating and sustaining effective, high quality CTE programs rests on at least three foundational supports:

7. Student Supports – The intentional guidance, counseling and career and postsecondary knowledge, actions and planning that all students need to link their secondary experiences with their future plans.
8. Instructor Supports – Student learning does not happen without robust, practical and regular, up-to-date professional development and training for teachers, counselors and administrators.
9. Financial & Material Supports – Technical program success and alignment with industry needs requires adequate funding for equipment, supplies, salaries and benefits, curricular materials, facility maintenance and upkeep, utilities, technology (including hardware and software) and other financial and material supports.

LEADERSHIP

From a systems perspective, several leadership qualities are commonly identified as the glue – perhaps called the electricity – that raise CTE programs to world-class status and ensure they continue to operate effectively, including:

10. Dynamic Vision – Usually established at the state level, a vision creates enthusiasm around building and maintaining high quality programs.
11. Action Plan – Visions fall flat unless there is a realistic, clearly articulated action plan that all involved understand.
12. Accountability and Incentives – Accountability systems that measuring student progress toward academic and technical skill readiness, attainment of postsecondary credits and credentials and other success factors are not only essential but can – if used correctly – be used to recognize and reward progress, and thereby inspire continued success.

Resources for a Unified World-Class CTE System

Juxtaposing the twelve components of a world-class CTE system with the current resource needs of Kentucky's CTE programs can aid in analyzing what additional resources are needed to reach and maintain world-class status. That is the goal of the table below.

Comparing what currently exists with what is considered exemplary or high quality can illuminate where gaps exist and where good work should be expanded.

The summaries of "Resources Needed" in the table below are descriptive rather than dollar-specific but provide a broad context for discussions regarding CTE resource needs. Likewise, labels in the "Funding Level" column oversimplify actual budget levels in order to help leaders pinpoint where the most critical CTE funding needs are. Color-coding in that column is also added to quickly delineate areas of highest need.

Table VIII. World-Class Components Compared to Resources Needed

	World-Class Components	Resources Needed	Current Status	Funding Level
INSTRUCTION	1. Rigorous academic learning	SEEK foundational funding supports academic achievement for all CTE students. Schools and centers are also required to use a portion of federal Perkins funds for rigorous academic instruction. Surveys and interviews did not reveal a significant demand for increased funding in this area.	Kentucky's academic targets for all CTE students are a continual work in progress. Students enrolled in CTE courses and pathways perform at or above state levels for all students. Graduation rates for CTE participants are higher than state averages and performance on state English and mathematics assessments are on par with all other students.	**Adequate**
	2. Rigorous technical skill development	State funding increased in the last year to cover the costs of the Kentucky Occupational Skill Standards Assessments (KOSSA) and WorkKeys assessments tied to earning the National Career Readiness Certificate. Discussions and decisions are needed to determine how schools and centers will support the costs of students earning industry certifications.	The state's Unbridled Learning Accountability Model sets clear, rigorous benchmarks for achieving college and career readiness. Half of all students not currently meeting the career readiness standards must be tested using the Kentucky Occupational Skill Standards Assessments (KOSSA). Continued funding for KOSSA and WorkKeys and support for earning industry certifications from the state will continue to strengthen this area.	**Additional support needed**
	3. Employability skills development	Employability skills standards are embedded in CTE courses and pathways emphasizing work-readiness skills in the classroom and on the job. WorkKeys assessments and industry certifications are both	Kentucky adopted the National Career Readiness Certificate (NCRC) in 2011, aligned with ACT's WorkKeys assessments, as the state's measure of employability skills competency and has, for the last two years, provided funding to	**Additional support needed**

		used as indicators of employability skills attainment.	cover these costs.	
INSTRUCTION	4. Work-based learning experiences	Funding for work-based learning is covered locally, in most cases, through alliances with local and regional business and industry partners.	Multiple work-based learning courses and resources are available to schools through the Kentucky Department of Education including a new manual work-based learning manual to be released in the spring 2015.	**Adequate**
	5. Opportunities for earning college credits, post-secondary credentials and industry certifications during high school	Dual credits and industry certifications are two critical components of the states Unbridled Learning Accountability Model. Additional state support is needed - according to survey respondents - to help students pay for certifications and for dual credit teachers, courses and credits for students.	New statewide dual credit guidelines for all schools, including CTE students, are in development for 2015. But like the technical and employability skills assessments, centers and schools are unclear to what degree local schools and families will be expected to cover these costs without state support.	**Additional support needed**
	6. Engaging students in pathways	Raising funding levels for categories 1-5, listed above, would support the creation and expansion of career pathways. But because state funding levels for technical centers are fixed, adding or expanding pathways pulls funding from all other programs. Financial resources are needed to expand enrollments in existing pathways and build new pathways in schools and centers around the state.	Requests for expanding pathways and initiating new programs currently exceed state funding amounts for these programs. Reaching world-class status will require an ongoing commitment to supporting current and new pathways or, alternatively, to targeted reductions in the total numbers of pathways based on state-specified priorities.	**Critical**
SUPPORTS	7. Student Supports	Though total and per-school spending amounts in this area are not available, students support is mentioned frequently by educators and state leaders as a vital function for world-class status.	Flexibility is provided to local schools and centers to use state and federal funding to finance academic, career and postsecondary guidance and counseling. No specific state dollars are targeted for this area.	**Additional support needed**
	8. Instructor Supports	The Kentucky Office of Career and Technical Education allots a portion of federal Perkins	New and ongoing professional development and training is a cornerstone of growth,	**Additional support needed**

		dollars each year for state-level teacher professional development and training. Some technical centers still list funding for professional development as a resource need.	improvement and innovation in a world-class technical center system.	
	9. Financial & Material Supports	Funding for teacher salaries, equipment (both for purchasing new and maintaining current equipment) and basic facility operation and management are the most frequently mentioned needs of ATCs, CTCs and schools. Across the state, educators and state leaders consistently claim that current funding levels for technical centers are inadequate and, in many places, at critically low levels for sustaining current programs.	Interviews and survey responses point to a significant need for higher levels of state funding for new equipment purchases, equipment and material upgrades, ongoing support for maintenance and higher state funding to cover facility and operations costs. Attaining world-class status would initially require the state to fund each of Kentucky's technical centers and schools offering CTE programs at high enough levels to reach "adequate" status, then determining what additional funding would be needed to reach world-class levels.	**Critical**
LEADERSHIP	10. Dynamic Vision	The state's vision for career and technical education is well-respected outside of Kentucky, is supported by CTE educators and professionals in schools and centers within the state and aligns with many components of a world-class career and technical education program. Specific funding may not be needed as much for continued visioning as for the hard work of realizing the state's vision.	A quality vision can be undermined by the lack of sufficient resources to achieve it. CTE programs in schools and technical centers around Kentucky seem willing to align themselves with the state's vision if foundational and continued support is provided to make the vision a reality.	**Adequate**
	11. Action Plan	Kentucky has several action plans in place for moving closer to a world-class CTE system with proactive strategies for improving career and technical education and overall college and career readiness of students. Additional funding is	Kentucky is respected among states for its CTE and college and career readiness measures, monitoring processes and overall action planning. Further action planning that consolidates and clarifies all aspects of the state's vision for its technical centers may be needed.	**Adequate**

		needed to consolidate, continue and clarify these plans to schools, centers and communities.		
	12. Account-ability and Incentives	Recent state support for the KOSSA and WorkKeys assessments has helped schools meet the state's Unbridled Learning Accountability Model requirements. Financial support and clarity regarding industry certifications and dual credits will also help.	Continued state guidance regarding industry certifications and dual credits will be welcomed. New dual credit guidelines are anticipated soon as is a new incentive program using federal set aside dollars to promote and provide support for innovative CTE programs.	**Additional support needed**

Summary Section III

Determining the exact resources needed to create a unified world-class CTE system in Kentucky will require a more detailed examination of current funding amounts and predicted funding needs. But, perhaps more importantly, local and state discussions are needed around critical questions of the state's level of commitment to adequate and equitable funding and the additional dollars needed to reach world-class status.

Key Points:

- While there is no one list of what comprises a "world-class" CTE system, a review of the research literature points to twelve common components including:
    1. Rigorous academic learning
    2. Rigorous technical skill development
    3. Employability skills development
    4. Work-based learning experiences
    5. Opportunities for earning college credits, post-secondary credentials and industry certifications during high school
    6. Engaging students in pathways
    7. Student supports
    8. Instructor supports
    9. Financial and material supports
    10. Dynamic vision
    11. Action planning
    12. Accountability and incentives
- Looking at current conditions, adequate funding levels appear to be critically low in support of student pathways and in the area of financial and material supports, especially for equipment, educator salaries and facilities and operations.
- Additional support appears to be needed to reach adequate levels of funding for:

- Rigorous technical skill development
- Employability skills development
- Opportunities for earning college credits, post-secondary credentials and industry certifications during high school
- Student supports
- Instructor supports
- Accountability and incentives

IV. Critical Questions

Analyses of education funding systems typically lead to calls for increased funding. Logically, there is always more to be done in public education and more money needed to better prepare students for career and postsecondary success. Nevertheless, putting more money into an education system does not automatically result in improved outcomes. Perhaps the most important focus of this analysis is to address several critical questions about how to ensure adequate and equitable funding for Kentucky's CTE programs at schools and technical centers and what is needed to move closer to a unified world-class system. The critical questions listed below are intended to guide thoughtful discussions and subsequent decision-making.

1. **How much additional state funding is required to reach adequate funding levels for Kentucky's CTE programs?**
    - The most critical gap in current funding for Kentucky's CTE programs appears to be for new equipment, maintenance of current equipment, teacher and staff salaries and the basic costs of opening and maintaining facilities. Is the state committed to funding this gap? If so, at what level?
    - How much additional funding would be required each year to maintain adequate funding status, accounting for growth in student enrollments, inflation and subsequent increased costs for personnel and equipment? Can the state sustain this additional funding over time?
2. **What changes are needed to equitably fund both locally operated career and technical education centers (CTCs) and state operated area technology centers (ATCs)?**
    - Should ATCs fall under local school control? If so, how can the transition be made with the least disruption to current staffing patterns and without losing effective ATC programs? How can this be accomplished with assurances that students will continue to have access to quality CTE courses and programs at a level at or above what they are receiving now?
    - Should all CTCs become state operated centers like ATCs? What processes would be required to do this? How would the current relationship between local schools and centers have to change to make this work? Would technical centers remain nimble enough to respond to regional business/industry needs?
    - If current funding streams for ATCs and CTCs are kept separate, how must the funding formula change to ensure that per pupil funding is equitable between technical centers and schools? How can this be conveyed to schools and centers in order to change the perception of inequitable funding?
3. **What gaps in instruction, support or leadership identified in the 12 components of world-class technical centers are state priorities?**
    - Are there certain CTE courses, programs or pathways that should receive priority consideration over others?

- Given limited funding and state economic/workforce needs, are some CTE career preparation programs or content areas more important than others?
- Are there priority student performance outcomes on which to base budget decisions? For example, should the state place a higher priority on student enrollment in CTE courses versus earning industry certifications or dual credits?

4. **Is the state of Kentucky committed to a unified world-class CTE system?**
   - Can state funding for CTE in Kentucky increase to levels required to not only adequately meet current funding needs but also the expanded financial requirements to reach world-class status?
   - How much state funding is required to reach world-class status?
   - To reach world-class status, to what extent should state funding for CTE be more closely tied to student and/or program performance? Regional and/or state workforce demands?
   - How could the state's new Oversight Taskforce be utilized to look comprehensively at CTE and other workforce readiness programs in the state?
5. **How can innovation and expansion of high quality CTE programs be achieved given state budget limitations?**
   - Though Kentucky has established vigorous career readiness goals and student performance metrics through the Unbridled Learning Accountability Model, funding for career and technical education is based on estimates of available dollars not on calculations of the funding required to reach the state's goals.
   - How could the state funding formula change to encourage, not discourage, expansion of effective CTE programs, opening new centers and creating new CTE courses, programs and pathways that respond Kentucky's workforce needs?
   - Given the reality of state budget limitations, what process is best to determine what new CTE courses or programs needed and which are outdated, need revisions or should be eliminated. And what group is best to decide this?
   - How can current state funding processes be changed to allow locally operated technical centers and schools to set and keep a consistent budget through the entire school year?
6. **What is the state's responsibility for funding CTE versus support from local business, industry and community groups?**
   - Is the state committed to adequately funding career and technical education in its current form or is there an expectation of a level of financial support from local business, industry and community groups? If so, where is the line between the state's commitment to CTE and local funding expectations?
   - To what degree does the state expect a student or family to pay for industry credentials and/or dual credits? To what degree, if any, should state and local funding support these efforts?
   - Should the state offer guidance to help schools and technical centers discern and clarify the limits of state funding against local expectations?

V. Recommendations:

Toward an Equitable and Adequate CTE Funding System

Three predominate "needs" appear repeatedly in this analysis; 1) the need for improvements to current state funding processes for CTE at schools and technical centers, 2) a need to increase and adjust state support for CTE to ensure adequate and equitable funding and, 3) the need for intentional discussions about the state's commitment to reaching world-class status. The following recommendations suggest ways of addressing these needs.

1. **Base funding for Career and Technical Education on state goals and business and industry needs.** Ideally, the state's goals for career and technical education should align to the priority needs of the top economic drivers and emerging industries of the state, and so too should state funding for CTE. Current funding decisions for CTE in technical centers and schools appear to be made based on available dollars instead of state goals and expectations. Judging by comments from state leaders and CTE educators, current CTE funding levels are below what is required to sustain current programming and alignment to meeting the priority workforce needs of the state is unclear.

2. **Convene a committee to explore ways of funding state operated and locally operated centers equally.** Whether true or not, a widespread perception exists that either state operated or locally operated technical centers are receiving more funding than the other. The sense of inequity works against efforts to advance the goal of a unified world-class CTE system. A state-established committee is needed, convened with representatives of state and locally operated centers, to examine the detailed specifics of equitable funding options; including options in which all centers are state funded and operated, the option of all centers under local control or various additional options that result in a clearer, more effective and more efficient alignment of state CTE funding to technical centers and schools. Additional options could include:
    a. A one-time or phased in appropriation that maintains both ATCs and CTCs but equalizes funding to all centers,
    b. Incentive funding for performance improvement, growth and/or service to historically underrepresented student populations,
    c. Requiring a regional budgeting plan agreed upon by the regional technical center(s), local schools and area community college, workforce development, business/industry and economic development representatives.

3. **Provide adequate funding for CTE in order to accomplish state determined priorities.** Career and Technical Education budgets for facilities, operations, equipment, salaries and maintenance need to be adequately funded and sustained over time, a goal that most state and local CTE leaders and advocates say is not close to being met. If state budget limitations prevent this, the state should provide guidance as to how CTE budgets could be adjusted to meet the state's highest priority goals and student performance outcomes.

4. **Create a proactive, intentional process of funding large equipment purchases and maintaining and/or upgrading current equipment.** A detailed analysis is needed of the costs of new equipment purchases, updates and ongoing equipment maintenance for CTE programs at centers and schools. A state agency, or a committee of the state legislature, led by Kentucky's business and industry representatives should be tasked with annually reviewing the ongoing costs of purchasing, updating and maintaining equipment at schools and technical centers to determine what annual amount – or additional per student formula weight – is needed to reach an adequate funding level of equipment and materials. The analysis should also account for possible enrollment increases, inflation costs and costs of staff training. The committee could also work with the state to diminish red-tape delays in budget requests for equipment and supplies so that schools and technical centers are able to nimbly adjust to changing industry needs. If total cost estimates are too high for the state to sustain support, a process should be created to prioritize equipment purchases and maintenance costs based on highest priority state and regional economic needs.

5. **Allow locally operated centers and schools to set a budget for the entire school year.** The current process of providing budget estimates to schools and locally operated CTCs in the summer and adjusting those estimates to actual enrollments in the middle of the school year is an inefficient budgeting process. Most states rely on methods that allow schools to set and keep a budget for the entire school year, much like what is done with the state operated ATCs. The state then makes budget adjustments for the next school or reimburses schools for actual costs after the school year is over. Kentucky could do something similar, basing funding amounts for local centers and schools on the previous year's enrollment. A concerted effort to streamline this process for locally operated centers and schools eliminates unnecessary paperwork and frustration in the middle of the school year and allows CTE programs to remain focused on educating students.

6. **Consider an additional per-pupil funding formula weight tied to state-prioritized occupational and program areas based on state and regional industry needs.** Along with per-pupil funding and weighted formulas for higher cost CTE programs, consideration should be given to a funding calculation that provides monetary

incentives to districts that align technical education programs directly to Kentucky's workforce needs. Doing so also provides a method for schools and centers to make budget decisions if total state funding levels are reduced.

7. **Explore CTE performance funding.** When state funding for CTE is truly adequate and equitable, and the state has set clear and realistic student performance targets, performance funding is a strategy that can advance Kentucky's CTE program to world-class levels. However, adopting performance-based funding for CTE without first addressing funding adequacy, equity and priorities can backfire. Creating a state study committee to explore performance-based CTE funding is recommended.

VI. Conclusion

Kentucky's Career and Technical Education system has many robust, high-quality components. CTE student academic and technical skill performance is high, the Unbridled Learning Accountability Plan has set a high bar for ensuring students are college and career ready and the state has a vision to develop a world-class CTE system. Yet, much remains to be done.

CTE leadership, key decision-makers and those who work with CTE students every day believe the state's Career and Technical Education system is underfunded, leading to gaps between students' skills and the demands of the state's industry and employers. Without aligning the state goals with Kentucky's workforce needs and state CTE funding, there is a risk of further widening the gap between what happens in schools and centers and what the state needs of its graduates. By discussing the critical questions and recommendations highlighted in this report, the state can address the current adequate and equitable CTE funding needs that must first be met in order to propel Kentucky's CTE program toward the world-class status that the state's economy demands.

Appendix A: Sample Technical Center Budgets – CTCs and ATCs

	SAMPLE CTC BUDGETS						SAMPLE ATC BUDGETS					
	Carter County CTC	% of total	Henderson CTC	% of total	Ballard Co. CTC	% of total	Boone ATC	% of total	Floyd ATC	% of total	Webster Co. ATC	% of total
Personnel Expenses	**$116,527**	**66.4%**	**$1,608,390**	**76.8%**	**$534,620**	**84.0%**	**$614,198**	**83.1%**	**$959,960**	**89.8%**	**$460,749**	**89.9%**
Salaries	$105,225		$1,528,888		$519,938		$614,198		$706,778		$331,634	
Benefits	$11,302		$79,502		$14,682				$253,182		$129,115	
Operating Expenses	**$58,860**	**33.6%**	**$485,299**	**23.2%**	**$101,936**	**16.0%**	**$125,308**	**16.9%**	**$109,485**	**10.2%**	**$51,559**	**10.1%**
Facilities	$42,017[a]		$206,371[a]		$70,817[a]							
Rentals							$3,000		$8,510		$4,250	
Maintenance/Repair							$3,000		$1,000			
Utilities							$53,240		$47,025		$20,130	
Equipment	$4,000		$69,724		$10,264		$0[j]		$0[j]		$0[j]	
Supplies							$16,324		$30,155		$12,293	
Course materials			$103,479		$11.072							
Software			$8,486									
Other supplies	$11,343		$10,002		$3,814						$600[g]	
Telecommunications							$5,179		$2,100		$1,350	
Commodities							$40,565		$7,000		$7,990	
In-State Travel							$2,500		$6,581		$3,100	
Dues/Subscriptions									$6,614		$100	
Prof. Dev.			$87,237		$5,969							
Miscellaneous/Other	$1,500[b]						$1,500[d]		$500[d]		$1,746[h]	
TOTAL	**$175,387**		**$2,093,689[c]**		**$636,556**		**$739,506[e]**		**$1,069,445[f]**		**$512,308[i]**	

a – Utility costs combined with facility expenses
b – Travel and student transportation
c – $804,099 of budget supported by state funding
d – $500 for postage/related services
e – $436,009 from General Fund, $262,932 from SEEK and $40,565 from federal Perkins funds
f – $619,289 from General Fund, $419,516 from SEEK and $30,640 from federal Perkins funds
g – Food
h – $600 for postage and $1,146 for miscellaneous services
i – $315,770 from General Fund, $185,848 from SEEK and $10,690 from federal Perkins funds
j – ATC equipment budgets are funded through the schools' Perkins funds

Boone County ATC – Supplies Budget Needs	
Automotive Technology	$12,000
Computerized Manufacturing & Machining	$14,000
Diesel Technology	$12,000
Electrical	$10,000
Health Science	$7,000
Metal Fabrication	$10,000
Welding Technology	$15,000
General Maintenance/Office Supplies	$10,000
Total Supplies Budget Needs	**$90,000**
Actual Allocation	**$16,324**
Supplies Budget Shortfall	**$73,676**

Floyd County ATC – Supplies Budget Needs	
Air Conditioning Technology	$10,000
Automotive Technology	$12,000
Business & Marketing Education	$5,000
Construction Carpentry (2 programs @ $12.000)	$24,000
Electrical	$10,000
Health Science (2 programs @ $7,000)	$14,000
Information Technology	$5,000
Welding Technology	$15,000
Math	$2,000
General Maintenance/Office Supplies	$10,000
Total Supplies Budget Needs	**$107,000**
Actual Allocation	**$30,155**
Supplies Budget Shortfall	**$76,845**

Webster County ATC - Supplies Budget Needs	
Business & Marketing Education	$5,000
Computer Aided Drafting	$5,000
Computerized Manufacturing & Machining	$14,000
Health Science	$7,000
Welding Technology	$15,000
General Maintenance/Office Supplies	$10,000
Total Supplies Budget Needs	**$56,000**
Actual Allocation	**$12,293**
Supplies Budget Shortfall	**$43,707**

The three tables above and at left provide a detailed breakdown of the estimated "Supplies" budget amounts needed to adequately operate the CTE programs at each of the three Area Technology Centers (ATC) listed on page 45. Actual budget allocations from the state for supplies were substantially lower than the requested amounts for each ATC.

The table below is one example of the budget shortfall at a locally operated Career and Technical Center (CTC) that must be made up through local board funding

Ballard County CTC – Local Board Funding Responsibility	
Total Budget Needs (see page 45)	$636,556
State/Federal Funding ($90,821 State/$14,508 Federal)	$105,329
Budget Shortfall (local board funding responsibility)	**$531,227**

Appendix B: Survey Responses

In an attempt to gain further insights into Career and Technical Education within Kentucky, Thomas P. Miller & Associates (TPMA) composed and conducted a survey of relevant CTE questions to CTE practitioners across the state in January 2015. Targets for this survey included local area CTE principals, educators and other leaders from across the state, all working within CTE on a day to day basis.

Surveys were distributed by the Kentucky Department of Education and the Kentucky Association for Career and Technical Education (KACTE). Eight-six (86) responses were received. Brief summations and highlights of the common responses are compiled below.

Question 1: If you could change state funding for CTE in any way, what current funding challenges or issues would you most like to address?
Responses: In terms of funding, survey replies fell within one of three categories: 1) Lack of operational funds, 2) budgeting forecasts, 3) funding for staffing and professional development.

- Lack of Operational Funds:

"We currently do not provide enough money for basic essential items like classroom and lab materials and textbooks. The price of everything has gone up in the past ten years but our budgets are smaller than ever."
"The major challenge is enough funding for needed material and replacement equipment. Starting a new program is extraordinarily prohibitive, and many needed and expensive machines for established programs simply cannot be purchased with current funding."
"The inability to purchase equipment equitable to industry standards in order that students can be adequately prepared."
"Technology is very expensive and now, ('14-'15) manufacturing statewide/nationwide is growing rapidly, but the supply funding for the 140 manufacturing programs has been reduced the last 5 years. Also, for the last 20 years we have not been able to adequately purchase new updated/higher technology equipment. Industry must obtain new technology to stay competitive, but we cannot keep up. So, we train students on older equipment and when they step onto the industry floors, they are already behind and overwhelmed. The future of KY is hurt by this with companies looking to build here."

- Budgeting Forecasts:

"I would address the fact that money could be cut or increased in February without our knowledge until it is done. It is not fair to plan something in the spring only to find out that it cannot be done because the money has been taken."
"Funding needs to be based on previous year data instead of current year. It is almost impossible to plan current year when actual funding is not certain until mid-year."
"I believe that the funds allocated in July should be the funds that the school

receives for the year with no adjustment in January/February each year. This causes schools to hold back funds in fear of having to payback money to KDE."

- Funding for Staffing and Professional Development:

"Raises to keep our best instructors from leaving back to industry. Professional development to help CTE Master Project Based Learning instructional strategies."
"Staff positions. There is an industry wide need for CTE teachers and programs in various workforce sectors. Staff increases are key to meeting enrollment in high needed areas."

Question 2: How would you ensure the equitable distribution of funds for Technology Centers (locally operated and state operated)?
Responses: The majority of replies related to an equitable distribution of funds for technology centers related to population. Additional comments surrounded funding formula transparency.

- Funding based on population:

"Probably the fairest way would be based on student populations, but there would have to be a formula that would provide more funding for students enrolled in the programs that require more money to operate such as welding."
At my ATC, I would consider not only the enrollment of each program, but also the program itself. Obviously welding is going to require more supply money than business would."

- Funding transparency:

"This is difficult to answer because the information has been guarded and top secret. If you ask for a funding formula and get no reply or that you can't have the formula. If everyone had the formula then they could budget better. Without truly knowing the current system it's hard to make recommendations."
"Transparency of current funding formula is a place to start. Both locally operated and state operated centers should be funded using the same funding formula."

Question 3: If legislature ultimately decides on a new system of funding CTE centers across the state, what would be the most effective way for this to be accomplished?
Responses: When looking at programmatic funding redesign, several themes appeared from the replies.

- Funding Following the Student:

"Funding following the students. However no program should be established without adequate start-up and maintenance funding assured."

- Adequate Funding:

"Funding of ATC's should be based on area need…age of the current facility and equipment, population serviced, quality and quantity of programs should all be taken into account. ATC's that require upgrades get a greater amount of funding to bring them up to par."

"All new programs should receive a startup budget. All existing programs should receive funding based on past needs. For example welding is more expensive to operate than health science so needs a larger budget to ensure students' needs are met."

Question 4: Current state CTE funding is distributed according to a three-tiered weighted formula based on CTE student enrollment, with high-cost technical and technical skill programs receiving higher weights in the formula. Which of the following would you suggest? Responses:

Keep the current distribution formula as is:	36%
Change formula to provide the same per pupil CTE funding for all types of programs:	23%
Change per pupil CTE funding based on degree of demand and strength of wages for occupational area:	13%
Provide greater funding for student populations at-risk of failing:	12%
Change CTE funding formula to account for student performance:	8%
I don't have enough information:	19%
Other:	16%

Question 5: Realizing the limits of state budgets, how would you define adequate funding?
Responses: Replies to this question focused on program maintenance and competitive workforce needs:

"I would define adequate funding as equal to or above the amount needed to maintain a program or school at a level needed to train students with materials and equipment in use by regional business and industry."
"I would argue adequate funding would include the ability of the local industry council to sign off that the program has enough resources to train students for entry level employment in the respective profession."

Question 6: How does limited CTE funding affect CTE student performance or outcomes?
Responses:

"Limited funding can effect students' passage rate for industry certifications and limit their meeting the benchmarks for career readiness."
"I've been in CTE a long time and for many years now we have been asked to do more with less. As professionals, we have always handled that challenge, but it has been frustrating and disappointing. Teachers at ATCs teach their technical and academic skills well, however, it is important for them to have "state of the art" technology to work with. Obviously student performance in the technical areas would be higher if the equipment was up to date, teachers had time to plan and prepare and attend PD in their program areas."

Question 7: What specific student outcomes would improve if more CTE funding was available?

Responses:

"CTE enrollments and performance across the board would rise."
"Fewer students would go to college for four years, earn a Universities Study degree and owe $50,000 or more in student loans – only to discover they are not employable. More students would take classes to earn certifications for positions in industries which we have and predict to have in the future. We must educate parents about training, college and jobs. We need to use the Outlook for Kentucky in determining what we need to train students for, surely their work is dependable."

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