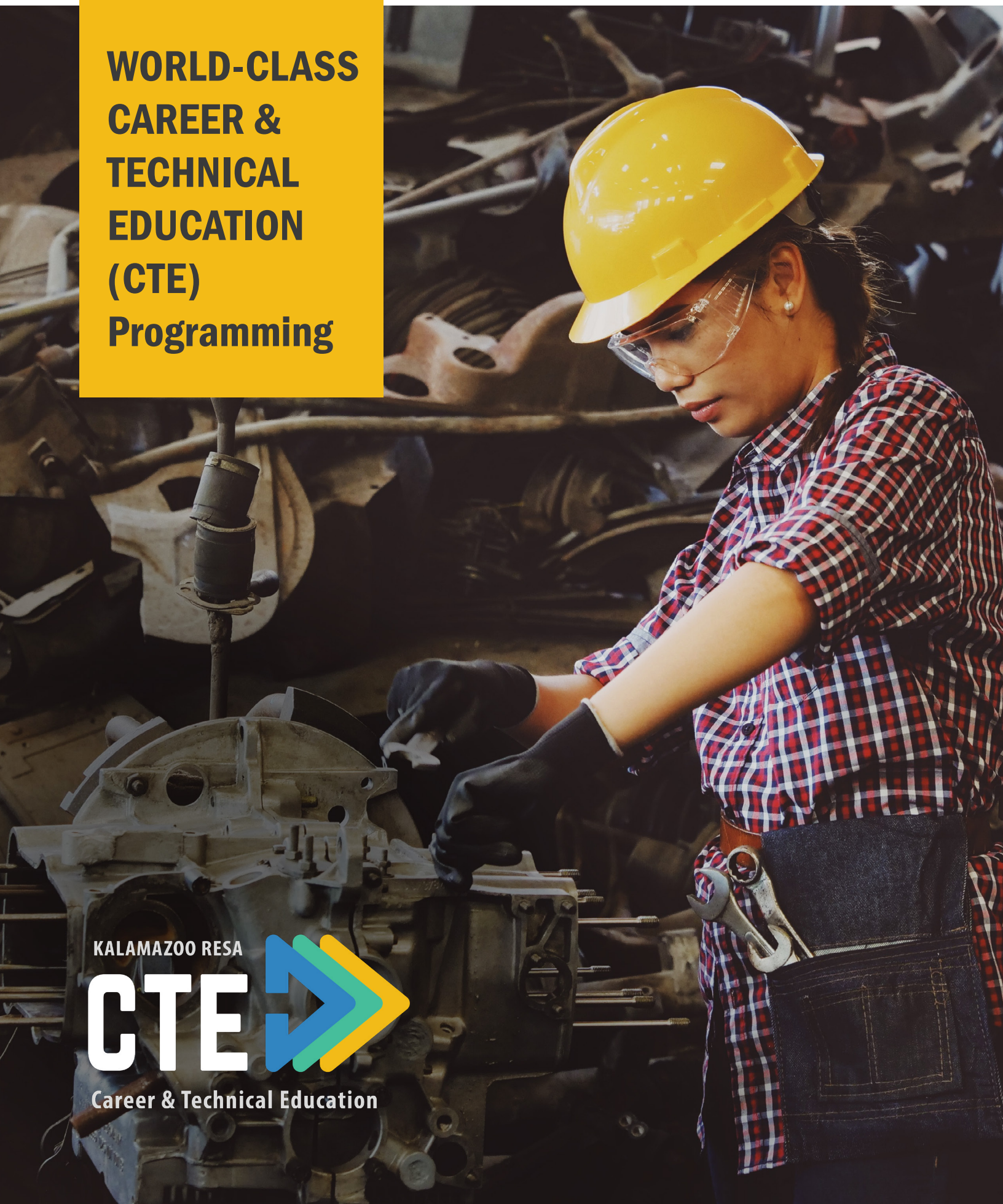
A Report to the Community | January 2021

# WORLD-CLASS CAREER & TECHNICAL EDUCATION (CTE) Programming



KALAMAZOO RESA

CTE

Career & Technical Education

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# LETTER FROM THE SUPERINTENDENT

Over two years ago, Kalamazoo RESA and our local district superintendents set out to assess our County's career and technical education (CTE) programming. We held a listening tour with more than 100 business and community leaders, families, teachers and students. We heard points of shared hope about the potential of the next generation; we also heard that if we do not address persistent inequities in our current system and adapt well to an evolving economy, technology, and hiring trends, this potential will go untapped.

When today's high school seniors and their families look ahead to graduation, many are anxious about what life will look like afterward. And understandably so—the world is changing, and with it, the economy and the job market. We heard from businesses, too, that are looking toward a similarly uncertain future with retirements looming and skilled workers becoming more challenging to find. In the midst of the COVID-19 pandemic and our country's reckoning with race, the need for CTE redesign is only more urgent. Our community's task is to design a diverse, equitable and inclusive CTE system that corrects historic and systemic inequalities, captivates students in engaging, hands-on learning in this time of great uncertainty, and equips students of all identities with the skills and competencies required to build sustainable careers, all while supporting the needs of employers.

We have examined CTE systems across the country and the world, drawing upon the work of Marc Tucker, the former president and CEO of the National Center on Education and the Economy and his book, "Vocational Education and Training for a Global Economy." From Michigan to Switzerland, we found that the world's top programs, though very different, share a few key features. Each relies on ongoing partnerships with business and community; they prioritize high-demand, well-paying careers; they support equitable opportunity for all learners; they engage students in project-based learning and employer-generated work simulations; and they design flexible programming that ensures that students are prepared with the skills, competencies and aptitudes required to navigate the rapidly changing world of work.

To tailor a system for our community, this past fall, we again engaged business and community members, along with two research partners, with the goal of identifying CTE programs that will lead to well-paying, high-demand careers here in southwest Michigan and prepare students for long-term success. I want to thank the more than 100 community and business leaders who lent their perspectives in our employer survey and series of focus groups, supported generously by the W.E. Upjohn Institute for Employment Research and Southwest Michigan First. Thanks are also due to the W.E. Upjohn Institute for Employment Research and the University of Michigan Youth Policy Lab for their national and local labor market analyses.

We look forward to utilizing research insights, detailed in this report, to guide program selection. Given the rapidly changing nature of our world, cross-community dialogue must not end here. With your continuing support, we are excited to move forward and implement the next stages of our systemic CTE redesign, including the creation of a centrally located CTE Career Center that prepares all students for success in the promising world of CTE.

Yours for young people,

Dave Campbell, *Superintendent*



# OUR JOURNEY

In 2018, based on a deep review of data, local community, business and educational leaders came to the consensus that Kalamazoo County's current career and technical education program, Education for Employment (EFE), needed to be redesigned. Across the state of Michigan, business leaders struggle to fill high-tech and high-demand jobs, citing a lack of qualified talent. Meanwhile, too many students graduate without a plan for the future. Enrollment in EFE had been steadily declining since 2015, and the system in its current form has yielded inequitable participation and outcomes.

In 2018, Kalamazoo RESA convened a strategic visioning committee that determined the need to redesign the current system to eliminate barriers to participation, ensure equity of access and opportunity for all students, and better equip students to succeed in the world of work upon graduation and over the course of their careers. A year later, three design teams comprised of 70 leaders of the education and business communities outlined their findings in the Designing a World-Class Career & Technical Education System: A Report to the Community.

To fund such a systemic redesign, Kalamazoo RESA added the Career & Technical Education (CTE) Operating Millage proposal to the November 2019 ballot asking voters to approve a one-mill tax increase, which would levy $166 million over 20 years

**Voters across the Kalamazoo RESA service area voted strongly in favor of the CTE millage with a 60% approval margin, thereby funding a centralized programming model with a specialized Career Center that is poised to provide:**

- Increased equity, efficiency and quality of K-12+ CTE programming
- A centrally located career center to support equitable access and opportunities for student learning
- State-of-the-art technology and equipment to prepare students for high-demand, high-skill, well-paying careers
- Skill development to support long-term career success and a lifelong learning orientation
- Additional career coaches, career planning, apprenticeships and work-based learning opportunities to expose students to a wide variety of careers
- Additional support staff and training for staff, students and families to increase engagement and inclusion of underrepresented populations
- Industry-recognized credentials and certificates
- Enhanced partnerships with employers and colleges to prepare students for successful 21st Century employment
- More young people equipped with the skills needed to earn a good living

# EXECUTIVE SUMMARY

As our global economy continues to evolve rapidly, the way we think of education must adapt along with it. Today, if students are to graduate fully ready for the future, they will need more than a diploma. They will need to be equipped with in-demand skills and experiences that lead to successful employment and the ability to successfully navigate the ever-evolving world of work. The redesign of Kalamazoo County's CTE system offers a unique opportunity to align educators and employers in a shared vision for our region's prosperity, and to address inequities in the present system. This shared vision for CTE must place diversity, equity and inclusion at the center to ensure that all students - and especially youth historically underrepresented in CTE - benefit from cutting edge educational opportunities, and that employers, in turn, realize the benefits of increasing pools of talent right here in our community. Together, educators, employers, and community partners must design a system that will promote cross-sector cooperation and address historic inequities, supporting both student and employer success, and leading to a brighter future for the communities of Kalamazoo County.

KRESA is working in lockstep with education, business, and community partners to design a CTE system that will carry students from cradle to career, with exposure to a wide variety of career fields and awareness of options, and 21st-Century skill[1] development starting at the elementary level, tailored programming at the middle and high school levels around in-demand occupational fields of today, and preparation in CTE courses and related programming for long-term success in an ever-changing economy. Doing so requires that we help students cultivate two sets of skills: technical skills required for immediate employability in well-paying, high-demand fields; and a suite of competencies that support lifelong learning and the ability of CTE graduates to navigate – and succeed – in a constantly evolving employment landscape. The economy of the future is hard to predict. KRESA's Public-Private Partnership, convened by Southwest Michigan First to help coordinate employer engagement with CTE and support the development of a Career Center,  affirms the need for labor market studies to project tomorrow's high-demand, well-paying jobs and the skills they require.

In fall of 2020, KRESA set out to gather insights from businesses in the region through an employer survey and series of focus groups that explored the kinds of training and skills students will need to be successful today and in the future, while also working to understand trends affecting the future of work. KRESA linked arms with the W.E. Upjohn Institute for Employment Research and the University of Michigan's Youth Policy Lab to gain insights into the shape of our local economy and future trends that will affect the composition and skill needs of our workforce in the years ahead.

Our studies confirm that trends like automation and digitization will continue to reshape our workplaces, and experts suggest that rapid changes induced by COVID-19 are accelerating these trends.[2] Changes to how work gets in done in our economy mean CTE must remain agile and redouble the focus on developing 21st-Century skills like problem-solving, communication, and teamwork that will support students' professional success no matter what the future holds.

Research findings underscore how vital it will be for educators to stay in close alignment with industry partners to continuously improve programming, ensure CTE is teaching cutting-edge skills, and support student attainment of in-demand credentials. It will be our shared work to ensure CTE is equitable and inclusive. With the latest economic and labor market analysis in hand, KRESA looks forward to convening a Steering Committee comprised of local education, business and community leaders, along with the KRESA CTE Leadership Team, to review and inform key programming and facilities decisions. Together we will continue to work in lockstep to design the CTE system that all our County's students deserve.


[1] **21st Century Skills** | Also known as soft skills, these are the skills and abilities identified as being required for success in the workplace. As identified by employers, they include Communication, self-management, problem-solving, critical thinking and collaboration.

[2] https://time.com/5876604/machines-jobs-coronavirus/
https://www.wired.com/story/pandemic-propelling-new-wave-automation/


# SUMMARY OF FINDINGS

## 1. Components of a World-Class CTE System

- **Diversity, Equity and Inclusion:** To overcome pervasive and systemic inequities, KRESA CTE must work in concert with fellow educators, employers and community partners to design inclusive programming and create equitable opportunities for all students, including students historically underrepresented in CTE.
- **Experiential Learning:** Integrated learning that employs hands-on experiences, integration of workplace standards and real-world cross industry lessons are cornerstones of world-class CTE and will deepen student engagement, career readiness and employer engagement.
- **Ongoing Partnership with Business and Community:** Successful CTE hinges on the depth of employer engagement – and regional employers are enthusiastic about being involved.

## 2. Labor Market Analysis

- **Key Industries Today:** Trade, transportation and utilities; education and health services; and manufacturing industry clusters account for nearly half of total employment in the Kalamazoo-Portage region.
- **Looking Toward the Future:** Significant growth is anticipated in the areas of Health and social assistance. Future shifts due to COVID-19 and automation are still evolving, but estimates reinforce the need for an agile workforce and robust CTE system.

## 3. Selecting CTE Course Areas

- **Well-Paying Positions:** KRESA CTE is committed to helping students prepare for well-paying jobs that pay above the median for our area and support a living wage for single wage earners. A 2019 annual wage of $41,600 ($20 hourly) or higher serves as a general guideline for identifying "well-paying" jobs within the local labor market and will be one variable that informs CTE course selection.
- **CTE Courses for the Future:** Courses that align to industry trends, lead to well-paying, in-demand occupations in our region, and that support lifelong learning and successful career navigation will be priority for the CTE Center. As we move forward, we will continue to monitor changing economic conditions and respond with updates to our programming.

## 4. Key Educational Outcomes for a CTE Program

- **21st Century Skill Development:** Skills that lead to success in the contemporary workplace and support successful career navigation over the long-term are mission critical.
- **Integrating Applied Learning and Academics:** Employers value the development of foundational hard skills supported by academic preparation in the core areas of math and literacy.
- **Hard Skills:** Students will need job- and industry-specific skills that will allow them to leave the classroom and succeed in the workplace after graduation.
- **Credentials and Certifications:** KRESA CTE must balance the need for students to have portable credentials with the needs of employers to ensure that employees have the skills required to succeed on the job.



# OUR APPROACH

Designing and implementing "cradle-to-career" programing of the scope we envision, with programming K-12+, requires forethought, intentionality, as well as ongoing support and input from the community.

## KRESA is committed to offering CTE programs that:

- prepare young people for well-paying, high-demand occupations in our local labor market that require less than a four-year degree;
- are aligned to anticipated industry trends;
- are equitable and inclusive of a diverse student body;
- and help students gain skills and competencies required to navigate an ever-changing employment landscape.

**To tackle the specific task of aligning CTE course areas with opportunity areas in the labor market and with industry trends, KRESA partnered with the University of Michigan Youth Policy Lab and the W.E. Upjohn Institute for Employment Research to conduct several interrelated studies:**

NATIONAL LABOR STUDY – Analyze the southwest Michigan economy and compare the local labor market to employment levels and projected growth at the State and national levels.

LABOR MARKET ANALYSES – Identify industry clusters with high-growth, well-paying positions in southwest Michigan.

EMPLOYER SURVEY AND FOCUS GROUPS – Identify near-term employment projections by industry, and in-demand skillsets and credentials within firms. Assess current employer perceptions of CTE.

- **Employer Survey:**
  - Large and small businesses represented across sectors and industries
  - 451 surveyed, 100 responses
- **Employer Focus Groups:**
  - The focus groups, organized by industry, included sessions exploring trends in manufacturing, information technology, construction trades, automotive, health care, supply chain and design.

Findings from these partners help us to answer the following questions:

- Which industries and specific occupations can be considered "high-demand?"
- What industry trends should we be aware of that will shape the future of work in our region?
- What counts as "well-paying" in Kalamazoo County?
- Which CTE courses align with in-demand, well-paying industries and positions?

In addition to KRESA's research efforts, the largest urban school district in the County, Kalamazoo Public Schools (KPS), has been interested in exploring answers to similar questions as they consider related programming to serve the 13,000 students in the district. KPS commissioned a study from the Washington, DC-based Urban Institute to assess the composition of the local labor market and identify opportunity areas for potential apprenticeship programs. We summarize key research findings here from our studies and incorporate insights from the Urban Institute. Please note, the datasets from these studies are large and detailed. We encourage interested readers to explore full reports from each research partner should they wish to dive into the next level of detail.



# COMPONENTS OF A WORLD-CLASS CTE SYSTEM

Every student deserves a high-quality education that will serve them throughout their life and career. Our community's challenge is to design world-class CTE programming that will prepare our students to be competitive not only in our regional economy, but also the global economy upon graduation and over the course of their careers. We analyzed the most successful examples of CTE programming world-wide to gather information that will guide us in designing cutting-edge curriculum, facilities and programming. Our findings support the conclusion that if we are to design such a system, we must place explicit emphasis on the following: diversity, equity and inclusion; experiential learning; and ongoing partnership with business and community.

**Diversity, Equity and Inclusion:** To overcome pervasive, systemic inequities, KRESA CTE must work in concert with educators, employers and community partners to design inclusive programming and create equitable opportunities for all students.

KRESA is committed to serving all students. In 2021, that means serving an increasingly diverse population of young people – in fact, the most racially and ethnically diverse generation of students in our nation's history.[3] Students in Kalamazoo Public Schools alone come from more than 50 different language backgrounds.[4] In addition, the roughly 38,000 students in the nine local districts KRESA serves encompass the full spectrum of gender expression, religious affiliation, legal status, sexual orientation and ability. An "all students" commitment in 2021 thus asks stakeholders within the CTE network – most especially educators, administrators, employers, and community partners – to deepen perspectives on diversity, equity, inclusion, anti-bias and anti-racism, and to work together to put learning into action.

To ensure equitable outcomes for all students, we must prioritize better serving under-represented populations with an eye towards ending intergenerational poverty. We must engage students and families with career awareness and exploration programs early, establish networks of support and level institutional disadvantages to help every student realize the future they wish to live. Only when we do this work together can all students in Kalamazoo County fully benefit from the promise of a world-class CTE system and our economy in southwest Michigan can see full benefits from all that this inspiring next generation has to offer.

The task before us is significant. A 2019 report from the MDRC Center for Effective Career and Technical Education makes plain the inequitable history of CTE. Vocational education, CTE's precursor, was "too often used to 'track' low-income minority students away from college and into low-paying jobs that did not offer clear opportunities for career advancement." Today's model aims for a vastly different outcome: "In contrast [to vocational education], many of today's CTE initiatives attempt to offer access to middle-skill jobs in high-wage, high-demand fields." [5]

[3] https://www.pewsocialtrends.org/essay/on-the-cusp-of-adulthood-and-facing-an-uncertain-future-what-we-know-about-gen-z-so-far/
[4] https://www.kalamazoopublicschools.com/Page/1150
[5] https://www.mdrc.org/sites/default/files/CTE_Equity_Brief_2019.pdf

Even with these objectives in mind, gender and racial disparities persist in career and technical education. **An October 2020 briefing from The Hechinger Report elucidates "deep racial disparities" in CTE:**

> A Hechinger Report/Associated Press analysis of CTE enrollment data from 40 states reveals deep racial disparities in who takes these career-oriented courses. Black and Latinx students were often less likely than their white peers to enroll in science, technology, engineering and math (STEM) and information technology classes, according to analysis, which was based primarily on 2017-18 data. Meanwhile, they were more likely to enroll in courses in hospitality and, in the case of Black students in particular, human services. The reasons for these racial inequities are multiple, ranging from the courses in which students of color are steered to enroll, to the availability of the STEM and IT courses at their school. Young people may also select courses in fields such as culinary arts because those professions are familiar and employ people who look like them.[6]

Gender disparities are also significant in CTE. Young women participate in CTE courses at low rates compared to young men. When females do make their ways into CTE, they typically opt into course areas associated with positions offering lower-median hourly wages than their male CTE counterparts.[7] This frame considers only students identifying as male or female, signaling another area of investigation in CTE. Students with disabilities face additional obstacles accessing meaningful opportunities in CTE, and many struggle to integrate into the workforce. In 2019, just 19% of adults in this population were employed, compared to 66% of adults without disabilities.[8] The absence of women and racial minorities in many industry sectors—specifically mentioned in IT, construction, automotive, healthcare—must be addressed through recruitment at younger ages through pipeline strategies, retention and work-based learning in educational and professional settings.

Making good on the promise of CTE in Kalamazoo County requires deliberate work to create opportunities for all students and to address historical inequities associated with traditional vocational education. **At a minimum, this work includes:**

- Building trust with communities skeptical of CTE owing to historical disenfranchisement
- Addressing persistent race and gender gaps in CTE participation
- Creating meaningful opportunities for students with disabilities
- Reducing the stigma associated with the types of work typically associated with CTE-related career fields
- Close alignment between educators and employers on strategies to advance diversity, equity and inclusion

KRESA is committed to integrating our internal Anti-Racism, Anti-Bias (ABAR) team into the design of this work, and to following best practice leaders like the National Center on Education and the Economy (NCEE) and the MDRC Center for Effective Career and Technical Education.

[6] https://hechingerreport.org/how-career-and-technical-education-shuts-out-black-and-latino-students-from-high-paying-professions/
[7] https://www.nwlc.org/sites/default/files/pdfs/Final%20CTE%20Fact%20Sheet.pdf
[8] https://www.bls.gov/news.release/disabl.nr0.htm



Shared strategies that advance diversity, equity and inclusion and ensure access allow all students to benefit from high-quality CTE and make informed plans for their futures. Benefits also accrue to employers in the form of expanding talent pools. While the potential gains for industry are compelling, equity and access in CTE emerged as secondary points of emphasis in employer focus groups. More work is needed to increase employer and educator alignment on this critical topic. Suggested steps from focus group participants include:

- implementation of required diversity, equity and inclusion training for adults engaging with CTE as a first step so employers and volunteers are better prepared to engage and support the success of all students who are not yet professionals and who represent diverse backgrounds;
- and the formation of a community and employer-based task force as a long-term structure to support the work. The task force would partner with CTE leadership and KRESA's ABAR team to improve equity and access for all students, with special attention paid to disparities in race, gender, ableism, economic status and geography.

As employers struggle with the lack of qualified candidates, we recognize that our community will need an all-hands-on-deck approach to achieve the economic success for all. KRESA looks forward to engaging a wide array of educators, employers and community stakeholders to build equitable, inclusive and accessible CTE together in Kalamazoo County.

**Experiential Learning:** Learning that employs hands-on experiences, integration of workplace standards and real-world, cross-industry lessons will deepen student engagement, career readiness and employer engagement.

The CTE redesign affords us an opportunity to reimagine how CTE could be delivered. Employers shared their enthusiasm for several keystones of world-class CTE:

- Immersive simulation experiences across course areas
- Integration of workplace standards into the CTE Career Center to help students transition successfully from education to career
- Curricular integration across program areas to mimic the world of work and to continue exposing students not only to the variety of career fields available, but also to how those areas interact in real-world businesses. For example, how might students in course areas related to construction trades, supply chain, information technology and health care partner together on shared projects within the CTE Career Center? What foundational skills would students in each program area employ to accomplish a shared task? Employers see value in this type of approach not only to develop practice technical skills, but also as a vehicle for developing 21st Century skills.

**Ongoing Partnership with Business and Community:**
Successful CTE places employers at the center, not the periphery – and regional employers are enthusiastic about being involved.[9]

Across industries, employers were enthusiastic about supporting KRESA CTE. **They shared the desire to support the development and relevance of CTE training in two primary ways:**

1. **Curriculum and Technology:** Working with the CTE team to keep curriculum and technologies current.
2. **Project-Based Learning:** Partnering with CTE to create project-based learning experiences to give students hands-on opportunities to engage with real work challenges.

Advisory committees are the natural vehicles for ongoing employer engagement and, connection and continued insight into industry trends. Required of each CTE program, advisories serve as a primary vehicle for engaging with employers and gaining feedback on projects, curriculum design, relevant technology and more. For employers, advisory groups not only help deepen connections with CTE programs, but also provide valuable opportunities to develop and strengthen connections with peers.

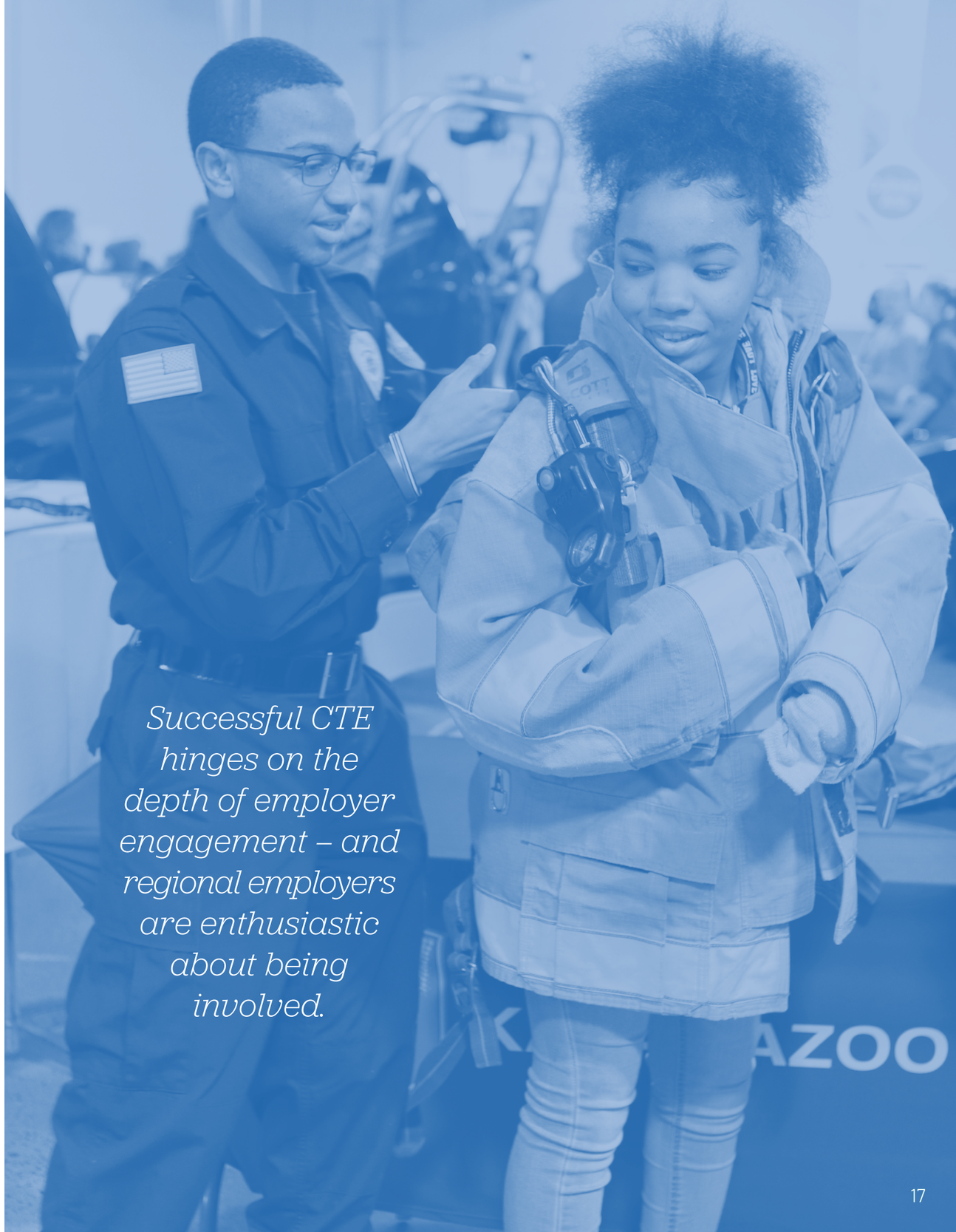
Focus group participants identified employment growth areas to consider for future course offerings. For example, employers in the automotive group noted that reprogramming could become as common as oil changes as automotive technologies evolve. Participants in the construction trades group spoke to the continued growth of LEED in the industry and the increasing use of fiber optics as two trends that will shape job functions of the future. In healthcare, focus group participants identified surgical technician as a position that could be valuable and appropriate for a CTE environment.

Employers also expressed a desire to be physically present at the CTE Center and integrated into the learning environment. In particular, they emphasized the need to support peer-to-peer networking and relationship development.

Employer partners will continue to play a critical role in identifying trends that will shape the future of CTE. We look forward to next conversations with industry experts as we proceed with course selection and curriculum development.

[9]Tucker, Marc (2018, July 12). *An open letter to Secretary DeVos: How to create a world-class career and technical education system.* Education Week. https://www.edweek.org/teaching-learning/opinion-an-open-letter-to-secretary-devos-how-to-create-a-world-class-career-and-technical-education-system/2018/07





# LABOR MARKET ANALYSIS

In addition to incorporating the elements of world-class programming listed above, KRESA CTE must align programming to the regional economy to ensure students have access to opportunities today, while working to help students succeed in whatever the economy of the future may hold. Labor market studies with our research partners, the University of Michigan Youth Policy Lab and the W.E. Upjohn Institute, with insights from the Urban Institute, help us to identify key industry clusters, trends transforming those industries, and high-demand, well-paying occupations in our region. A summary of key findings is presented here.

**Key Industries Today:** Trade, Transportation and Utilities; Education and Health Services and Manufacturing are key industry sectors, comprising roughly 50% of employment in our region.

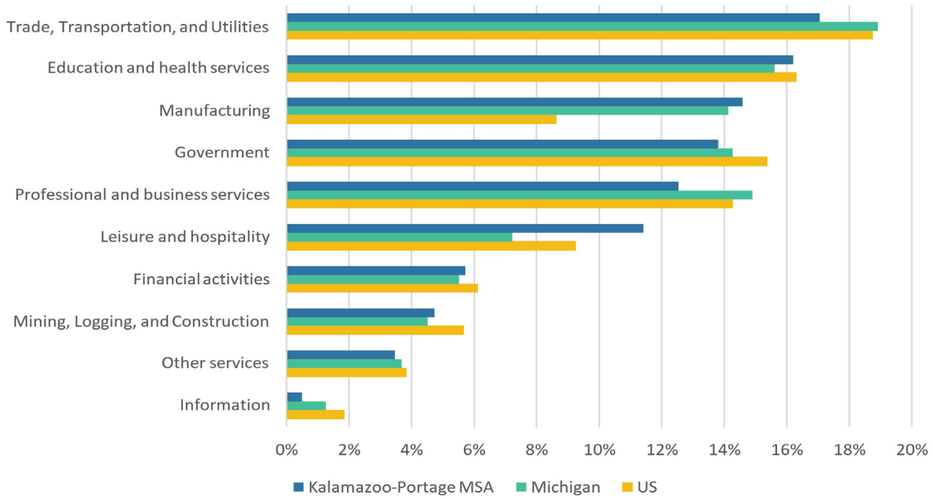
[10] Regional data are reported for the Kalamazoo-Portage MSA or Metropolitan Statistical Area, a technical designation describing a core geographical area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration.



Using publicly available datasets, all three research entities analyzed the composition of our local economy by industry. **The illustration below from the University of Michigan shows that three broad clusters account for nearly half of total employment in our region[10]:**

- Trade, Transportation and Utilities (17% of total employment)
- Education and Health services (roughly 16% of total employment)
- Manufacturing (roughly 14% of total employment)

## NON-FARM EMPLOYMENT BY INDUSTRY GROUP:




*Sources: Bureau of Labor Statistics Employees on Nonfarm Payrolls by Industry Sector and Industry Detail via The Employment Situation; Bureau of Labor Statistics Economy at a Glance data*

Not only do these clusters comprise a significant percentage of employment in the Kalamazoo area, but they also align well to established CTE course areas. Such alignment bodes well for a rich array of potential offerings in these areas.

At the time of this research and writing, the economy continues to be shaped by the COVID-19 pandemic. The Urban Institute notes significant layoffs across industry clusters as a result of COVID-19:

## FIGURE 1: TOP 5 EMPLOYER INDUSTRIES IN KALAMAZOO

| Industry | July 2016 | July 2017 | July 2018 | July 2019 | July 2020 | Percent Change Since 2016 |
|---|---|---|---|---|---|---|
| **Total Non-Farm Employment** | 146.6 | 147.2 | 150.0 | 149.8 | 137.3 | -6% |
| **Trade, Transportation, and Utilities** | 26.0 | 26.5 | 26.8 | 26.2 | 23.4 | -10% |
| **Education and Health Services** | 22.9 | 23.8 | 24.1 | 24.8 | 22.6 | -1% |
| **Manufacturing** | 22.3 | 22.3 | 23.0 | 23.3 | 20.5 | -8% |
| **Professional and Business Services** | 17.0 | 16.3 | 17.2 | 16.9 | 16.5 | -3% |
| **Government** | 18.3 | 18.1 | 18.2 | 18.2 | 15.9 | -13% |

*Source: Bureau of Labor Statistics - (1) Number of persons, in thousands, seasonally adjusted.*

As the table above from the Urban Institute reveals, government and manufacturing have been hit especially hard. By contrast, education and health-related fields have shown "signs of resilience" in the midst of the pandemic. KRESA CTE must work together with a wide variety of local stakeholders to weigh employment projections against opportunity areas in key industries in our region as the pandemic continues to unfold.


**Looking Toward the Future:** Significant growth is anticipated in the areas of Health and social assistance. Future shifts due to COVID-19 and automation are still unclear but estimates reinforce the need for an agile workforce and robust CTE system.

As the local employment landscape evolves, it is critical that KRESA CTE and stakeholders continue to examine the latest data to make informed decisions about CTE programming. We include here projections from our research partners on the outlook for employment in each industry locally. The chart below from the University of Michigan pulls data from multiple sources to provide a glimpse into ten-year employment projections at the national, state and regional levels. Prosperity Region Eight, listed below, encompasses Kalamazoo County.

An important note on industry groupings: data in the charts included in the previous section from both the University of Michigan and Urban Institute are pulled from the Bureau of Labor Statistics (BLS), which groups Education and Health Services together, and Trade, Transportation and Utilities into a single cluster. Employment projection data below are from different sources and organized more granularly by industry.



## THE CHART BELOW SHOWS THE NUMBER OF PROJECTED OPENINGS IN EACH INDUSTRY OVER A TEN-YEAR PERIOD:

| Industry | Prosperity Region 8 2016-26 | Michigan 2018-28 | National (in thousands) 2019-29 |
|---|---|---|---|
| Health care and social assistance | 4,660 (10.7%) | 41,900 (6.6%) | 3,079.1 (15.1%) |
| Leisure and hospitality | 2,850 (9%) | 2,540 (0.6%) | 1,115.6 (6.7%) |
| Educational services | 1,580 (5.8%) | 11,400 (3%) | 465.5 (12.4%) |
| Construction | 1,180 (11.3%) | 10,300 (6.1%) | 300.2 (4%) |
| Other services | 1,140 (7.6%) | -6,460 (-3.6%) | 280.9 (4.2%) |
| Retail trade | 760 (2.4%) | -19,680 (-4.2%) | -368.3 (-2.4%) |
| State and local government | 580 (3.5%) | -10,230 (-4.9%) | 320.6 (1.6%) |
| Transportation and warehousing | 490 (6%) | 6,020 (4.7%) | 326 (5.8%) |
| Wholesale Trade | 440 (4.2) | -6,780 (-3.9%) | -102.1 (-1.7%) |
| Financial activities | 400 (3.1%) | -4,480 (-2.2%) | 53.9 (0.6%) |
| Agriculture wage and salary | 370 (3.2%) | 460 (1.5%) | 35.3 (2.3%) |
| Utilities | 30 (1.2%) | -1,010 (-5%) | -42.3 (-7.7%) |
| Mining | -10 (-5.9%) | -350 (-6.4%) | 93.2 (13.6%) |
| Professional and business services | -110 (-0.4%) | 12,540 (1.9%) | 1,518.3 (7.1%) |
| Federal government | -180 (-4.8%) | -3,490 (-6.7%) | -183.6 (-6.5%) |
| Information | -190 (-9.5%) | -3,410 (-6.1%) | -6.2 (-0.2%) |
| Manufacturing | -550 (-0.9%) | -12,180 (-1.9%) | -444.8 (-3.5%) |

Source: Bureau of Labor Statistics Employment by Major Industry Sector data; Michigan Department of Technology, Management and Budget Long-Term Industry Employment Projections data

As the chart reveals, significant growth is anticipated in the areas of Health and social assistance. As researchers from the University of Michigan note, "projections suggest that approximately twice as many jobs will arise in this field compared to the next highest industry at each level of analysis" (p. 3). Additionally, the data show significant growth in the areas of Construction (11.3% projected increase in Prosperity Region 8 from 2016-2026), Leisure and hospitality (9%), Transportation and warehousing (6%), and Education (5.8%).

The Kalamazoo region is especially rich in manufacturing compared to the composition of the national economy. According to figures from the University of Michigan, the number of manufacturing jobs in the Kalamazoo area, and Michigan as a whole, is roughly 70% higher than in the United States overall. Data in the table above suggest that the manufacturing industry stands to lose more jobs by volume over a ten-year period than any other in the region. The report highlights automation as a potential driver of both job loss and job transformation in the industry. Automation, the report notes, is not something that will transform the industry over night and could take many years to implement. This does, however, speak to a labor market that will continue to evolve for the foreseeable future, requiring young people to be prepared with a core set of 21st century skills and an orientation toward lifelong learning, whether on the job or in formal learning settings, that help them navigate transitions over the course of their careers. [11]

Manufacturing remains a key industry in our region. McKinsey Global Institute refers to the Kalamazoo area as one of "America's makers" owing to the prevalence of manufacturing jobs in the region.[12] America's maker's face divergent trajectories. The McKinsey report notes that while places like Greenville, SC have found ways to maintain stable economies, other locales like Springfield, OH are struggling.[13] What is Kalamazoo's likely trajectory as one of "America's makers?" Though it is impossible to "crystal ball" an accurate portrait of the future, the University of Michigan report makes clear that "the availability of a skilled workforce can influence the growth or decline of an industry. Ensuring a strong pipeline of skilled manufacturing workers could potentially mitigate regional employment losses" (p. 3).

The University of Michigan report suggests that Transportation, distribution and logistics could be a rich area for CTE owing to the number of occupations that show high demand in this industry and that pay well: "The transportation cluster also offers a variety of high-wage, high-demand-aligned programs." Working with industry partners to help expand the diversity of individuals engaged in such programs will be important to providing access to meaningful opportunities for students while also helping employers engage new talent pipelines. The University of Michigan report highlights the need for increased gender diversity: "Like programs in architecture and construction, however, these programs train students to work in overwhelmingly male-dominated professions. The Heavy Industrial Equipment Maintenance Technologies program stands out for its combination of future employment opportunities and earning potential" (p. 7). Ensuring equity of access by race and ability are also critical to ensuring that KRESA CTE works for all learners.

[11] McKinsey Global Institute (2017, December). *Jobs lost, jobs gained: workforce transitions in the time of automation.*
[12] McKinsey Global Institute. (2019). The future of work in America. pp. 4, 106.
[13] McKinsey *The Future of Work in America*, p. 25.



# SELECTING CTE COURSE AREAS

**Well-Paying Positions:** KRESA CTE is committed to helping students prepare for well-paying jobs that pay above the median for our area and support a living wage for single wage earners. A 2019 annual wage of $41,600 ($20 hourly) or higher serves as a general guideline for identifying "well-paying" jobs within the local labor market and will be one variable that informs CTE course selection.

A world-class CTE system must provide all students with opportunities to gain skills required to succeed in well-paying, high-demand jobs. As the University of Michigan Youth Policy Lab suggests, "students trained in these programs should graduate equipped to thrive, whether they stay in southwest Michigan or relocate elsewhere" (p. 8).

KRESA is mindful of the important role CTE courses play in preparing young people for quality positions that provide for individual and family sustainability. When we look for "well-paying" occupations, we seek at a minimum positions that pay above the median wage for our area for full-time employment, and that represent a living wage for a single wage earner. We recognize that the needs of individual wage earners vary greatly from those of individuals supporting multiple dependents, and that some positions on a career pathway may serve as a stepping-stone to higher-wage roles. For this reason, KRESA CTE will evaluate not only individual occupations but also clusters of occupations that support meaningful career pathways that support family-sustaining wages. The W.E. Upjohn Institute compared wage information from various job classifications, federal poverty thresholds, and regional median income data and findings are summarized below. A 2019 annual wage of $41,600 or higher (representing an hourly wage of $20 with full-time work) meets the twin criteria of being above the median and supportive of a living wage for a single wage earner.

**For additional reference, annualized wages of $41,600 are:**

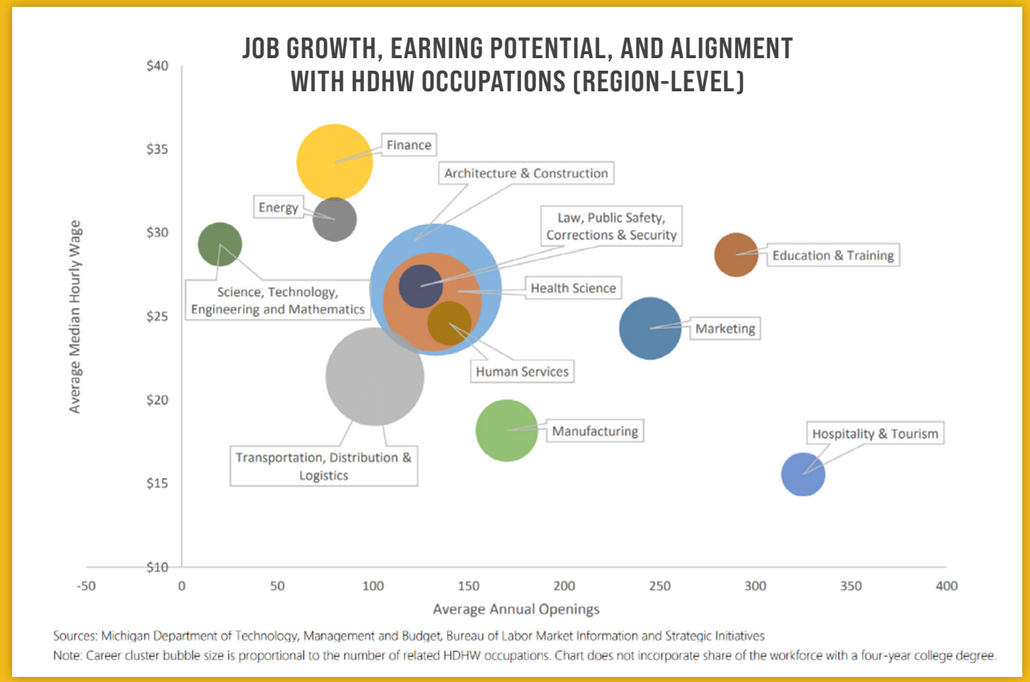
- 3.3 times the poverty level of $12,760 for a single individual;
- 2.1 times the state-mandated minimum wage in Michigan of $9.65;
- 1.8 times the living wage ($11.35 an hour) in Michigan;
- above the median annual wage for the nation, for the state of Michigan, and for the Kalamazoo-Portage Metropolitan Statistical Area;
- 1.98 times the average Michigan single adult household survival budget of 2017, according to the ALICE in Michigan: A Financial Hardship Study commissioned by the United Ways of Michigan[14];
- and at the higher end of a middle-wage job range of $27,500-$54,200 annually, as classified by McKinsey Global Institute's July 2019 report, *The Future of Work in America*.

We see this figure as a general guideline for identifying "well-paying" jobs within the local labor market. Applying this pay criterion to occupations with a corresponding CTE course provides KRESA with one of several filters for decision-making as it undertakes the process of determining which course areas are to be offered. It is important to note, however, that the $41,600 annual wage is not intended to serve as a hard cut-off in making these determinations. Many occupations are part of career pathway in which wage growth can be expected as an individual progresses in their career. If an occupation with median wages falling below the $41,600 annual rate is not a meaningful part of a career pathway, related course areas may be disqualified as potential offerings.

Please note, the term "high-wage" is used in our researcher partners' work and in CTE as a general term. We prefer the term "well-paying" given that many occupations fall within what could be considered a middle wage.

**CTE Courses for the Future:** Courses that align to industry trends, lead to well-paying, in-demand occupations in our region, and that support lifelong learning and successful career navigation will be priority for the CTE Center. As we move forward, we will continue to monitor changing economic conditions and respond with updates to our programming.

KRESA CTE is committed to preparing students for well-paying, in-demand careers in our region that do not require a four-year degree for entry. Identifying the slate of related course areas requires analyzing in one view data points related to industry / occupation growth, wage and level of education required for entry. Exhibits from our research partners will aid a Steering Committee in its decision-making regarding which programs KRESA CTE should offer. **The following chart from the University of Michigan, for example, helps to visualize opportunity areas for students, plotting industry growth against wages:**



Sources: Michigan Department of Technology, Management and Budget, Bureau of Labor Market Information and Strategic Initiatives
Note: Career cluster bubble size is proportional to the number of related HDHW occupations. Chart does not incorporate share of the workforce with a four-year college degree.

[14] https://changethestory.org/wp-content/uploads/2020/01/19ALICE_Report_MI_Refresh_02.26.19b_Final_Lowres.pdf, "ALICE in Michigan: A Financial Hardship Study," pg. 8

In addition, Appendix A of the University of Michigan report provides extensive detail showing "every HDHW [high-demand, high-wage] occupation with a CTE program that trains students to work in that specific job" (p. 9).

The Upjohn Institute similarly combines several critical variables into one visual to aid in identifying which course areas meet the parameters of well-paying, high demand, requiring less than a four-year degree for entry. **The chart below is an example of the kind of data present in the report that allow readers to see in one view several data points related to CTE course areas:**

- Critical/high growth score – a combined variable from the employer survey that shows:
  - the percentage of firms that say a CTE course is Very critical or Critical to the success of their business.
  - expected growth in occupations related to this course will be Very high or High over five years.
- Level of education typically required for entry into occupations related to the course area (KRESA CTE will prioritize occupations that require less than a four-year degree)
- Median wages for occupations related to the course area
- And growth projections for the occupations, with figures at the local, state and national levels.

| Appendix C - Table 1 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CIP Code / Course | | 52.0299 Business Administration Management and Operations | | | Very critical/critical - Very high/high growth score | | 10.8% | | |
| Occupation code | Related occupations from the survey | Education typically required for entry into the occupation | Kalamazoo/Portage MSA | | Michigan | | U.S. | | |
| | | | 2019 Annual Wage | Percent change in employment 2016-2019 | 2019 Annual Wage | Percent change in employment 2016-2019 | Percent change in employment 2018-2028 | 2019 Annual Wage | Percent change in employment 2016-2019 | Percent change in employment 2019-2029 |
| 11.3010 | Administrative Services and Facilities Managers | Bachelor's degree | $ 91,370 | 47.4 | $ 96,900 | 38.1 | 1.0 | $ 106,550 | 15.4 | 6.5 |
| 43.1011 | First-Line Supervisors of Office and Administrative Support Workers | High school diploma or equivalent | $ 57,470 | 31.3 | $ 57,570 | 5.8 | (6.4) | $ 60,130 | 3.1 | (3.0) |
| 43.4161 | Human Resources Assistants, Except Payroll and Timekeeping | Associate's degree | $ 37,530 | - | $ 39,630 | (2.0) | (8.6) | $ 42,620 | (14.4) | (5.0) |

The datasets from the University of Michigan and from the Upjohn Institute will serve as critical filters for decision-making as a Steering Committee convenes to guide course selection.



*KRESA CTE is committed to helping students prepare for well-paying jobs that pay above the median for our area and support a living wage for single wage earners!*

# KEY EDUCATIONAL OUTCOMES FOR A CTE PROGRAM

To help expand on our findings from the regional and national labor market analysis, we again consulted with our regional partners in business and industry. Our goal was to identify the experiences, skills and educational outcomes employers are looking for when hiring for well-paying, high-demand positions. We convened focus groups made up of a diverse pool of regional employers and surveyed local business leaders across industries.

**Each focus group session explored the following topics:**

- Discussion of critical course areas, as defined by preliminary results from the CTE survey
- Related hard skills and desired technology
- Valuable credentials and certifications
- 21st Century skills
- Employer engagement
- Aspirations for world-class CTE system

The summary that follows outlines key takeaways from the employer focus groups.

**21st Century Skill Development:** Skills that lead to success in the contemporary workplace and support successful career navigation over the long-term are mission critical.

In-demand technical skills have the power to open doors to well-paying jobs, but it will likely be a very different skillset that helps students establish themselves professionally and progress in their careers, thanks to an ever-evolving economy and changes in how skilled work gets done. McKinsey Global Institute's July 2019 report, The Future of Work in America, anticipates an increasingly symbiotic relationship between worker and machine: machines will do much of the hard labor, while humans will spend their time and talent interfacing with machines or robots that enable productivity. The report explains that as machines take on an increasing share of "rote and manual tasks…the skills that match up with machine capabilities will lose value in the labor market. At the same time, demand is growing for skills that machines cannot provide: creativity, empathy, critical thinking and the ability to program and operate technology systems themselves" (p. 35).

The evolution outlined in the McKinsey report underscores the importance of cultivating 21st Century skills alongside technical skills. In business environments, much of the 21st Century skill cluster is referred to as "soft" skills. There is nothing "soft," of course, about any of these skills. In fact, 21st Century skills are, in many ways, harder to develop, master, and assess than technical skills. Whatever the nomenclature, educators and employers agree these skills are critical to success in the contemporary workplace. Not only will these skills support students' immediate success in the world of work, they will also provide a foundation upon which students can continue to progress in their careers. CTE must help students develop these skills, along with a lifelong learning orientation, for students to successfully navigate evolving workplaces and job demands.



According to the World Economic Forum's recently released study, The Future of Jobs Report 2020, there are several core cross-functional skills that continue to emerge as critical to key employers. These include groupings such as critical thinking and analysis, problem-solving, and skills related to self-management, such as resilience, active learning and flexibility.[15]

**The Center on Education and Workforce at Georgetown University identifies "the five most in-demand competencies across the labor market:"[16]**

1. Communication
2. Teamwork
3. Sales and customer service
4. Leadership
5. Problem solving and complex thinking

The findings above are consistent with responses to KRESA's employer survey. When asked about the value of a "21st Century skills" curriculum, encompassing 11 different competency areas, roughly 70% of CTE survey respondents indicated that offering a rigorous 21st Century skills curriculum in CTE would be "very" or "somewhat" valuable to their business. Employers identified project-based learning as the desired approach for cultivating these skills.

[15] http://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf
[16] https://cew.georgetown.edu/cew-reports/competencies/

## 21ST CENTURY SKILLS IDENTIFIED BY REGIONAL EMPLOYERS AS MOST VALUABLE:

**SELF-MANAGEMENT**
Taking initiative, personal accountability, punctuality, strong work ethic, self-directed, integrity, empathy, perseverance

**COMMUNICATION**
Good listening skills, ability to present ideas, good reading and writing skills

**PROBLEM SOLVING**
Ability to identify problems and suggest solutions, setting goals, managing workloads, willingness to ask questions

**CRITICAL THINKING**
Analyzing, comparing options, independent thinking, understanding logical connections

**COLLABORATION**
Working in teams, building relationships, valuing diversity, exercising leadership

**Integrating Applied Learning and Academics:** Employers value the development of foundational hard skills supported by academic preparation in the core areas of math and literacy.

Across industry clusters, employers underscored the significance of cultivating foundational skills that are transferrable across job functions. Employers stressed the importance of students leaving the K-12 system with strong skills in core academic areas of math and literacy to support the application of technical skills on the job. Employers gave examples of how valuable core academics are in an applied setting, such as the ability to perform mental math and clear communication in speech and writing. These skills are built in large part in a traditional classroom environment. It will be necessary to collaborate with local districts to align classroom learning and core academics with the kind of applied learning that will support success in CTE and in the world of work.

**Hard Skills:** Students will need job- and industry-specific skills that will allow them to leave the classroom and succeed in the workplace after graduation.

Career and technical education is best known for its development of "hard" or technical skills, and employers continue to celebrate CTE as a valuable skill-building experience for students. Desired technical skills and knowledge vary by industry and include skills unique to manufacturing and construction such as proficiency with hand tools, basic drafting, the ability to take accurate measurements and mastery of basic safety practices. Examples of industry-specific foundational skills include technical troubleshooting in information technology and taking vitals in health care. Foundational skills such as these prepare students for various skill-development pathways within a CTE framework and across the workforce.

With basic skills and habits established, employers support next-level skill development in more advanced courses that prepare students for entry-level skill employment upon graduation from a CTE program. We have been using the metaphor of "filling the cup half-full," meaning CTE students should leave the program with enough skills to be able to contribute to a work setting. Employers will then do their part to continue skill development with on-the-job training opportunities as students transition from CTE to career or into their next chosen setting. The employers we consulted agreed with this metaphor since individual students, once hired, will need to accumulate skills specific to their workplace, position and responsibilities.



**Credentials and Certifications:** KRESA CTE must balance the need for students to have portable credentials with the needs of employers to ensure that employees have the skills required to succeed on the job.

## DID YOU KNOW? OUT OF EVERY 10 JOBS:


Source: *(Re)Defining the Goal: The Truth Path to Career Readiness in the 21st Century*, Kevin J. Fleming, PH.D. July 2016

Industry-specific credentials and certifications are an important piece of the career and technical education puzzle, increasing employment opportunities and boosting earnings potential. A 2014 study from the Council of Chief State School Officers underscores the need for credentialing beyond a high school diploma: "The conclusions drawn by labor economists are clear: a postsecondary or industry credential is fast becoming a pre-requisite for students to be competitive in the job market and earn meaningful employment in the 21st Century economy" (p.11).[17] In addition to securing initial employment, acquiring new credentials can help workers improve their employability and adapt to an evolving labor market.[18] While specific credentials can support career progression and higher wage attainment, the Council of Chief State School Officers study cautions that not all certifications are equally valuable. Employers echoed these sentiments in focus groups. Looking ahead, it is our intent to integrate employer feedback and partner with the industry certification organizations and the federal apprenticeship office representative to establish credentialing programs in identified CTE subject areas.

[17] http://edstrategy.org/wp-content/uploads/2017/09/CCSSOTaskForceCareerReadiness20114.pdf
[18] McKinsey (2019). The Future of Work. p. 9.

The "cup half-full" analogy identified above in training/skill development situations holds true for credentialing, as well. In focus groups, employers identified several high-value, industry-specific certifications and credentials that would set new-to-workforce CTE graduates apart in their employability. For example, employers in both manufacturing and construction identified HVAC Technician and OSHA/MIOSHA safety-related certifications as valuable. In health care, CNA and EMT certifications were deemed valuable for a direct hire. IT professionals pointed to A+ and Network+ certifications. Auto identified I-CAR training as valuable. Across industries, safety training leading directly to or supporting certification was seen as valuable. Focus group participants also shared that driver's licenses can be a barrier for many students. Since a driver's license is required for job entry in some industries, helping students obtain a license during their time at a CTE Center could be a valuable credential that would eliminate a meaningful barrier for graduates seeking employment. Employers underscored the need to evaluate certification and credentialing options not only for their value in the marketplace but also for the kind of experience students will have in the process of obtaining the credential. Some trainings can be quite dry and for that reason could decrease student engagement or dampen excitement for a career field. Employer insights like these are invaluable as we design programming that engages and prepares students for success on the job.

Employers shared the view that credentials can help students stand out and gain entry into the workforce. Employers were clear, however, that credentials are only as valuable as they are useful in a specific work environment, and some desirable, technology-specific credentials can only be attained with the support of a sponsoring employer. KRESA CTE must continue to balance student needs with the needs of employers.



# NEXT STEPS

The critical information we have gained through these national, regional and local studies is an important component in the next steps of the KRESA CTE redesign process. The results prepare us to tailor purposeful programming around in-demand industries and well-paying occupational fields, assist students in earning the most valuable industry recognized credentials, support 21st-Century skill development and an ability to navigate the changing world of work over the course of a student's career, and bring inclusive, equitable, accessible and at-scale programming to life in Kalamazoo County.

As we continue this important work, we will remain steadfast in our dedication to continuous improvement, to recruiting and retaining top talent and remaining responsive to our evolving economy. In the face of this significant task, work is already being done to reduce silos within KRESA Career and Talent Development and increase coordination across our program areas, including CTE, Education for the Arts, Early/Middle College, Young Adult Program and YOU, to ensure a seamless, high-impact experience for students. Additionally, a Career Education Planning District (CEPD) accountability administrator has been appointed to, among many other roles, initiate, facilitate, and help to implement an interagency approach to providing CTE services to special populations students enrolled in CTE.

Now that we have identified the well-paying occupations of the future, aligned with the needs of our local and regional employers, we are ready to begin the process of selecting courses for the CTE Career Center and consider options for the location and needs of a facility. The next step to addressing these key questions will be convening the CTE Steering Committee, which will be comprised of educators, business and community leaders, and colleagues within the field of workforce development, to analyze key datasets, select program areas based on data analysis and develop engaging and rigorous and curricula to guide our students on the pathway to career success.

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