PUTTING LABOR MARKET INFORMATION IN THE RIGHT HANDS: A GUIDE

Labor market information (LMI) is a crucial component for states when designing, implementing and updating high-quality Career Technical Education (CTE) programs at the secondary and postsecondary levels. Labor market data should be used to justify the need for CTE pathways – to ensure that there are career opportunities with family-sustaining wages awaiting learners at the completion of those pathways and that employers will have a pipeline of qualified workers being prepared for their industries. States and regions can also use LMI to identify gaps in program offerings, and focus on where programs should be started or expanded to meet industry demand and ensure that enough learners have access to those opportunities.

Despite the value of LMI, state and local leaders often face challenges in making it available in a format that is both easy to use and accurate. The information can be difficult to collect, and different state agencies often have different data sources and definitions. Additionally, gathering data can be expensive, as some state agencies charge other agencies for access, and the technological platforms to conduct analysis tend to come with high price tags. Once states have collected the data, much work has to be done to verify the data's accuracy, analyze the data, and present the information in a way that makes sense to relevant individuals, whether or not they have a background in statistical analysis. Disseminating the information to other stakeholders across industry and education in precise, actionable and compelling ways, not to mention convincing stakeholders to use this information to inform their work, also can present challenges. Stakeholders must be empowered to interpret the data in their own context and should be provided the skills to change their practices accordingly. Unfortunately, most stakeholders are unfamiliar or uncomfortable with complex data analysis. Based on their specific context and needs, different stakeholder groups often use different definitions and terms for career pathways and industry sectors, and translation of terms can be difficult and fairly complex.

This guide examines these dissemination challenges and provides prompts to help state and local leaders develop LMI dissemination strategies for three key audiences: industry partners, local education leaders and learners. It also provides real-world examples of how states are effectively communicating and disseminating LMI to these key audiences. Two of the states discussed conducted a sizable part of their work while participating in Phase One of the New Skills for Youth (NSFY) initiative, a partnership of the Council of Chief State School Officers, Advance CTE and Education Strategy Group, generously funded by JPMorgan Chase & Co. and focused on transforming career readiness systems. The creation of this guide is also funded through NSFY. While this guide will not analyze or interpret LMI, it will help state leaders think about how best to share that information so that it may be used most effectively to anchor CTE pathways and programs of study.

What Is Labor Market Information (LMI)?

LMI should include accurate data on the current and projected number of openings in specific industry sectors, as well as data on salary and any technological or policy advancements that may affect the Career Clusters®. LMI, for the purposes of CTE programs, is most useful when it can be analyzed at both the state and regional levels. Many states analyze LMI on a wide number of professions but focus much of their attention on the most in-demand sectors as priority areas for the state economy.

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Data Systems and Data Dissemination

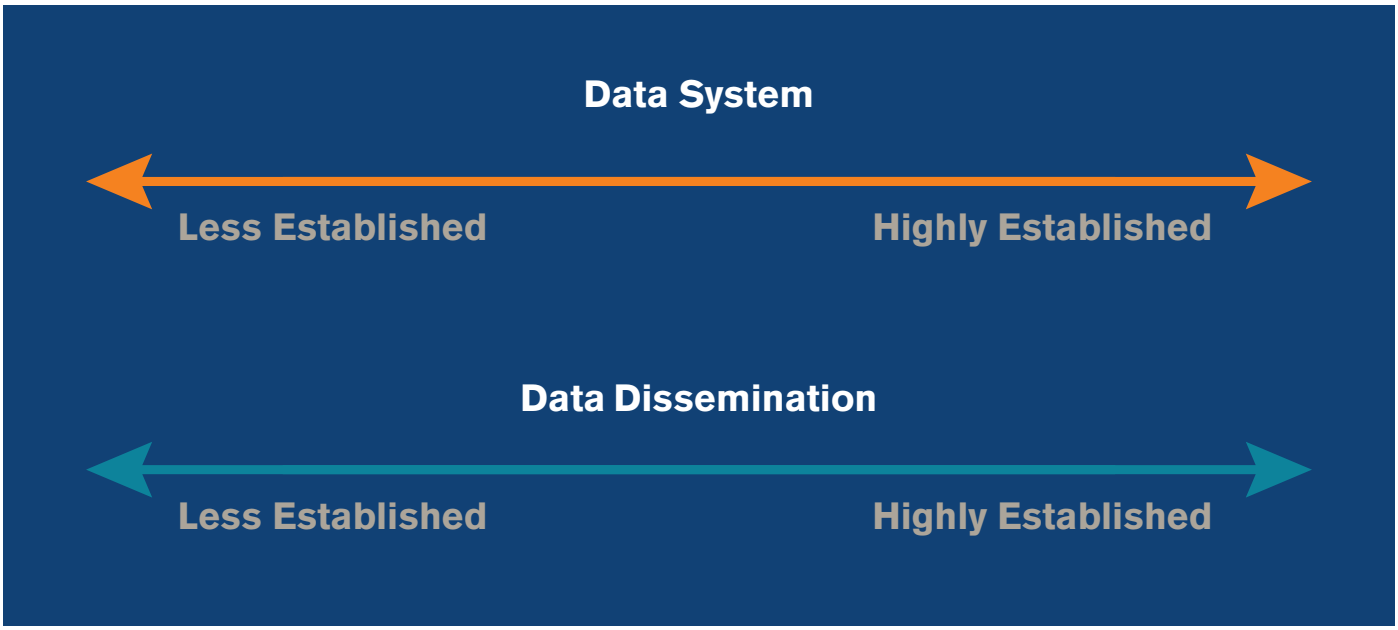
When thinking about the broad topic of LMI, it can be useful to divide it in two main categories: data system and data dissemination. "Data system" refers to the process of collecting and analyzing the data, while "data dissemination" refers to the process of communicating and using the data after they have been collected and analyzed. In both categories, a continuum represents how developed or established state processes are, depending on numerous criteria.

A highly established data system likely involves one central aggregator of information within the state that is trusted and used by all relevant state agencies. It provides current and projected labor market opportunities and wages based on the state and/or region's priority industry sectors, and stakeholders generally accept that this information is as accurate and up to date as possible.

Highly established data dissemination, on the other hand, signifies that all state and regional agencies and institutions have streamlined access to LMI, with commonly used data definitions and practices. In states with highly established dissemination strategies, employers are involved in the validation of the information; districts, institutions and individual CTE programs are guided in the use of the data to inform program design and modification; and parents, students and other stakeholders understand the role LMI plays in their decision making.

Becoming highly established in either category is a significant undertaking for a state and can require considerable commitments of financial and human capital resources. An informal scan of states conducted by Advance CTE revealed that states vary widely in where they fall on both continua. Fortunately, the nationwide trend seems to be in the direction of requiring CTE programs to use LMI. However, many states are less developed in one category and highly developed in the other, and many have prioritized creating the data system over data dissemination. Multiple states indicated that they require CTE programs to justify their existence using LMI, but they do not specify which data source programs should use, often encouraging a few sources but allowing programs to choose, potentially creating situations in which CTE programs can cherry pick their data. Only a few states base funding decisions specifically on LMI and the priority sectors identified from LMI, so this lever could be used more in the future.

A highly established data system is ultimately only as effective as the state's data dissemination strategy. State leaders must be able to share the data and instructions for using them, most importantly with critical industry partners, local programs, and individual learners. The sections below will guide states through this process and provide illustrative examples from three states.



Related Resources

Numerous other resources and state examples are available to state leaders who are committed to further developing state data systems, in addition to building data dissemination strategies. Here are a select few Advance CTE suggests starting with:

>>> **Data Policy Toolkit:**[i] This toolkit from the Workforce Data Quality Campaign describes common data challenges — from establishing longitudinal data systems to authorizing data sharing — and provides legislative templates that can provide a basis for new bills or executive orders.

>>> **Interactive labor market analysis tool:**[ii] This tool from CNA is intended to help CTE stakeholders identify high-wage, high-demand jobs and associated education/training requirements. The tool was created using data from the **Bureau of Labor Statistics' national job projections through 2024.**[iii]

>>> **Workforce Information Agenda:**[iv] The Workforce Information Advisory Council, an official 15-member body of LMI experts representing national, state and local data users and producers, recently published its vision of challenges and opportunities for strengthening LMI.

>>> **Webinar on dashboards:**[v] Experts from states participating in the National Skills Coalition's State Workforce and Education Alignment Project (SWEAP) shared data tools that their agencies have been developing with support from this project. These tools include dashboards on education and employment outcomes across programs, supply and demand reports that identify fields of study with skill gaps, and career pathway evaluators. Policy leaders can use these tools to improve the alignment of workforce and education programs with employer skill needs.

>>> **Guide on LMI and community colleges:**[vi] This guide, created in partnership with WestEd and the California Community Colleges Chancellor's Office Vocational Education Research and Technical Advisory Committee, provides a brief overview of LMI sources. The guide is structured around the types of questions that community colleges commonly ask related to developing new programs, designing curriculum, writing grant applications, conducting program review and engaging in regional planning.

>>> **Colorado's return on investment tool:**[vii] Using data from the Colorado Department of Higher Education and the Colorado Department of Labor and Employment, **http://launchmycareercolorado.org** allows users to compare the earnings potential of various career options. It also enables students to determine if a chosen career will enable them to meet their desired lifestyle goals and how many working years it will take for their earnings to exceed the total net price of a particular educational program.

>>> **Montana's data visualizations:**[viii] This report, developed by a cross-sector group of state leaders, contains numerous data visualizations about LMI, including a helpful visual on page 7 showing a breakdown of approaches to supply and demand analysis.

>>> **Ohio's Workforce Supply tool:**[ix] This website allows individual learners and jobseekers to look up specific occupations statewide or by region and learn more about average earnings and workforce demand.

>>> **Michigan's LMI Fast Facts:**[x] This website from the Michigan Department of Technology, Management and Budget provides information on employment outcomes, earnings, long-term job outlook and more by occupation and region.

LMI and Industry Partners: Gathering Input and Securing Validation

The first step in disseminating LMI is to share it with industry partners, not just to inform them, but also to gather their input and feedback on the information. Industry partners provide crucial context to data and can assist in breaking down the data by industry and region in a way that makes sense for specific regions. Additionally, they can help by lending their support to the authenticity of the data, in case local districts and institutions are otherwise wary of information being handed down by the state. Having the validation of trusted industry partners is crucial in generating buy-in with districts and institutions later on. And industry partners may have information on regional or local job opportunities that are not captured by a statewide system. Use the questions below to strategize sharing this information with industry partners.

In the Field:

The state of **Nevada** began its current efforts around coordinated and efficient use of LMI in 2011 with the formation of the Nevada Governor's Office of Economic Development (GOED), which focuses on attracting and stimulating business expansion and growing the state's economy. GOED, in partnership with the Department of Employment, Training and Rehabilitation's (DETR) Research and Analysis Division, analyzes LMI and then presents the results to the state's eight Industry Sector Councils for review and approval. The final result of this process is an inventory of current workforce capacity developed by analyzing occupational trends and forecasts needed to meet each sector's staffing demands, particularly in high-growth and high-demand industries. After the Workforce Innovation and Opportunity Act (WIOA) was passed in 2014, the state used information supplied by GOED to identify priority industry sectors where it could focus these analyses.

In 2016, GOED and the Nevada Department of Education (NDE) worked together with a new independent agency, the Governor's Office of Workforce Innovation for a New Nevada (OWINN), to reform the state's career readiness system under the NSFY initiative. A key piece of the NSFY effort involved leveraging the restructured Industry Sector Councils. The membership of these councils consists of industry partners, who were tasked with issuing recommendations based on short- and long-term employment and occupational forecasts and on the necessary skills, training and educational requirements for in-demand jobs based on LMI.

The renewed push for industry involvement with LMI and priority sectors was helped by specific and consistent communications from Nevada's governor, who views workforce development as a high priority for the state. These council meetings provided an opportunity for private-sector employers to discuss their own workforce-related challenges as well as review LMI. As a result of the 2016 Industry Sector Council meetings, OWINN published the *2017 In-Demand Occupations and Insights Report*[xi], which lists industries' job growth and salary information for identified priority sectors (Table 1) along with a crosswalk for employers and CTE practitioners that identifies which occupation titles fall into which career pathways (Table 2). This report, which could not have been created without intensive industry input, will now inform the work of NDE's Career and Technical Education department. The department is using this information to align its programs of study to ensure that students have access to strong career pathways based on rigorous LMI. Additionally, future versions of this report will move away from the current terminology of occupational titles and toward the use of skill sets to reflect the 21st century environment in which individuals might pursue multiple careers over their lifetimes. This move also allows for more precision in descriptions and requirements, as job titles can vary highly across regions and over time.

Table 1

SOC	Occupational Title	2016 Wages	2016 Employment	New Jobs in Occupation Due to Growth by 2024	Total Openings Due to Growth and Replacements by 2024	Jobs Above or Below National Average	Typical Entry-level Education
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	$33.53	2,960	641	1,210	(777)	High school diploma or equivalent
51-1011	First-Line Supervisors of Production and Operating Workers	$27.38	2,700	714	1,110	(2,386)	High school diploma or equivalent

Table 2

Occupation	Aero-space	Information Technology	Construc-tion	Health & Medical	Manu. & Logistics	Mining & Materials	Natural Resources	Tourism, Gaming, Entertainment	Count
First-Line Supervisors of Mechanics, Installers, and Repairers	X		X		X	X	X	X	6
First-Line Supervisors of Production and Operating Workers	X		X		X	X	X		5

The NSFY team also has developed a formalized annual process for engaging employers in the development of career pathway frameworks, based on the process used by GOED in the creation of the Learn and Earn Advanced career Pathway (LEAP) framework for Advanced Manufacturing. The process begins with the creation of a steering committee consisting of postsecondary institutions, school districts and relevant state agencies as well as a small group of employers to develop a draft framework based on an inventory of current courses and an analysis of LMI provided by GOED. Once the draft framework has been developed, it is reviewed by a wider industry audience in a series of intensive sessions to provide feedback. Once industry input has been incorporated, employers endorse the framework. In the case of LEAP Advanced Manufacturing, they also made qualifications obtained at the various stages of the framework development preferred hiring requirements, and they guaranteed interviews for students.

Recently, OWINN led a process with the state's Industry Sector Councils and other employers to identify industry-recognized entry-level credentials that meet national quality standards, are recognized by third parties, support improved employment prospects and have market value. The process began with OWINN conducting research into credentials. OWINN then convened employer working groups to provide insights on the relevancy and value of the credentials, followed by a final round of input and endorsement from the Governor's Workforce Development Board Industry Sector Councils. Although identifying credentials is an ongoing process, credentials have so far been identified for five of the eight priority industries.

NDE looks to continue to partner with GOED, OWINN, DETR, and the state's Industry Sector Councils to align program offerings and make decisions based on rigorous labor market data and industry feedback.

The **Kentucky** Department of Education (KDE) also works closely with industry partners to validate LMI. Before the information is distributed anywhere, KDE works with the Kentucky Workforce Innovation Board (KWIB) and local Workforce Investment Boards to gather input and corrections on state LMI. Therefore, any LMI shared with other stakeholders is a combination of state data and local industry input. The process of creating this feedback loop was beneficial for KDE in other ways as well. Partnering with the KWIB and the Cabinet for Economic Development allowed KDE to move from LMI occupation titles to actual titles used in industry. This move made the data more meaningful when presented to business and industry partners, as well as educators. KDE, with input from these partnering groups, then aligned occupations to CTE career pathways.

For example, the industry title of Engineer — Process/Manufacturing was aligned with the following career pathways: electrical engineering, engineering and technology design, manufacturing engineering technology technician and robotics and automation. Each career pathway was further explained by including the assigned course sequences, which for robotics and automation includes Foundations of Engineering Technology, Foundations of Robotics, and Robotics Design Essentials and Systems, among others. With this translation, school leaders know that those specific career pathways are all aligned with one occupation title, and industry partners are aware of the career pathways that they should engage in if they have expertise related to that occupation title.

Guiding Questions:

1) With which industry partners does or will the state share this information?

Is there a statewide advisory committee or even a workforce investment board or industry association with local chapters that could be leveraged to reach industry at multiple levels across the state? What level of engagement do industry partners currently have, and does that engagement vary across sectors or regions?

2) What terminology does or will the state use with industry partners when discussing LMI?

Depending on the level of their involvement in the state's CTE and workforce development efforts, industry representatives are not likely to understand certain CTE terms, such as "Career Clusters" and course codes. Instead, states must think about how to translate these terms into job titles and descriptions that will make sense to industry representatives. A few online tools are available to help states get started with these translations, *including one*[xii] from Advance CTE.

3) In what format does or will the state present the LMI to industry partners?

How data are presented is as important as what the data actually say. States should refer back to *this guide*[xiii] from the Workforce Data Quality Campaign when thinking about various data visualization options. Because information will be presented with the understanding that it can be updated as appropriate by industry partners, providing the information in a format that allows for easy updates, such as a spreadsheet, is important. Also, states should present the information most crucial to their audience up front. If a particular industry representative is from one career sector, states should have the LMI on that sector be front and center.

4) What information can be changed based on industry input and what cannot?

Identifying up front what types of feedback and input states are looking for from their industry partners is important. For example, providing information on job opportunities and requirements at the local and regional levels that do not show up in a statewide data system will be extremely useful. However, it will be less useful for industry partners to push for changes in the state's priority sectors that are not supported by the data. State leaders must also establish the threshold required to make changes — one partner should be prevented from dominating the conversation when others do not necessarily agree.

5) What do state leaders want industry partners to do with the LMI once they have provided their feedback?

Once industry partners have provided input and validation for the state's LMI, states must decide if they would also like industry partners to help disseminate it to other stakeholders or if there are other actions partners should take. For instance, if a particular occupation shows a very high level of future demand, asking industry representatives to increase their recruitment efforts and work-based learning opportunities around that position would be appropriate. State leaders must make requests of industry clear and base them in the data they have just validated.

Local CTE Programs: Supporting CTE Program Design and Modification

Once the state has presented LMI to state- and local-level industry partners and received validation of those data, the information must then be shared with local school districts and postsecondary institutions. These stakeholders must be given the information as well as empowered to use it to drive their program development and modifications, especially those that affect career readiness initiatives and CTE programs of study. Generating buy-in that this information is necessary and having industry agreement that the information is accurate is extremely important, particularly when the data support phasing out programs in career pathways that are not aligned with "high-demand," "high-skilled" or "high-wage" career opportunities. State leaders should use the examples and questions below to direct efforts for building the will to value LMI as an important factor in program approval, updating and dissolution.

In the Field:

Kentucky has been working for several years to build a statewide culture of using LMI to inform career pathway and program design. As of 2016, every major state CTE initiative is built around the priority sectors identified using LMI and industry input. The work began in early 2016 when the KWIB and the Cabinet for Economic Development began partnering with KDE to use LMI to identify the top industry sectors in the state and align programs and policies to those sectors. High-demand sectors in Kentucky are defined as sectors with the most projected job openings over the next five years that also have an average annual wage for the entire sector of at least $35,000. Those agencies worked with the Kentucky Center for Education and Workforce Statistics (KCEWS) to gather the information required and they collaboratively used it to examine career pathway student data at the secondary and postsecondary levels.

The Kentucky Center for Education and Workforce Statistics (KCEWS) was created in 2012 to expand upon the work of the Kentucky P-20 Data Collaborative, including maintaining the Kentucky Longitudinal Data System, a statewide system that facilitates the integration of data from the Kentucky Department of Education, the Council on Postsecondary Education, the Educational Professional Standards Board, the Kentucky Higher Education Assistance Authority, and the Kentucky Education and Workforce Development Cabinet. KCEWS has the authority to collect and link data to evaluate education and workforce efforts in the commonwealth. Its work includes developing reports and providing statistical data so policymakers, agencies and the general public can make better informed decisions about Kentucky's education systems and training programs.[xiv]

Once KDE and KCEWS had completed their initial analysis, and after KDE had worked with Workforce Investment Boards (WIBs) to validate the information, they convened regional institutes for district K-12 superintendents and CTE coordinators. During these institutes, KDE walked through the findings using the table and maps below and provided instructions for attendees to disseminate this information to their schools, CTE programs and advisory committees. KDE staff made clear that the priority sectors that had been identified would be central to state decision making and that grant funding, program approval and other policies would depend on justification through labor market data. KDE held additional institutes in spring 2017 and conducted trainings during summer 2017.

Kentucky High-Demand Industry Sectors and Top Occupations

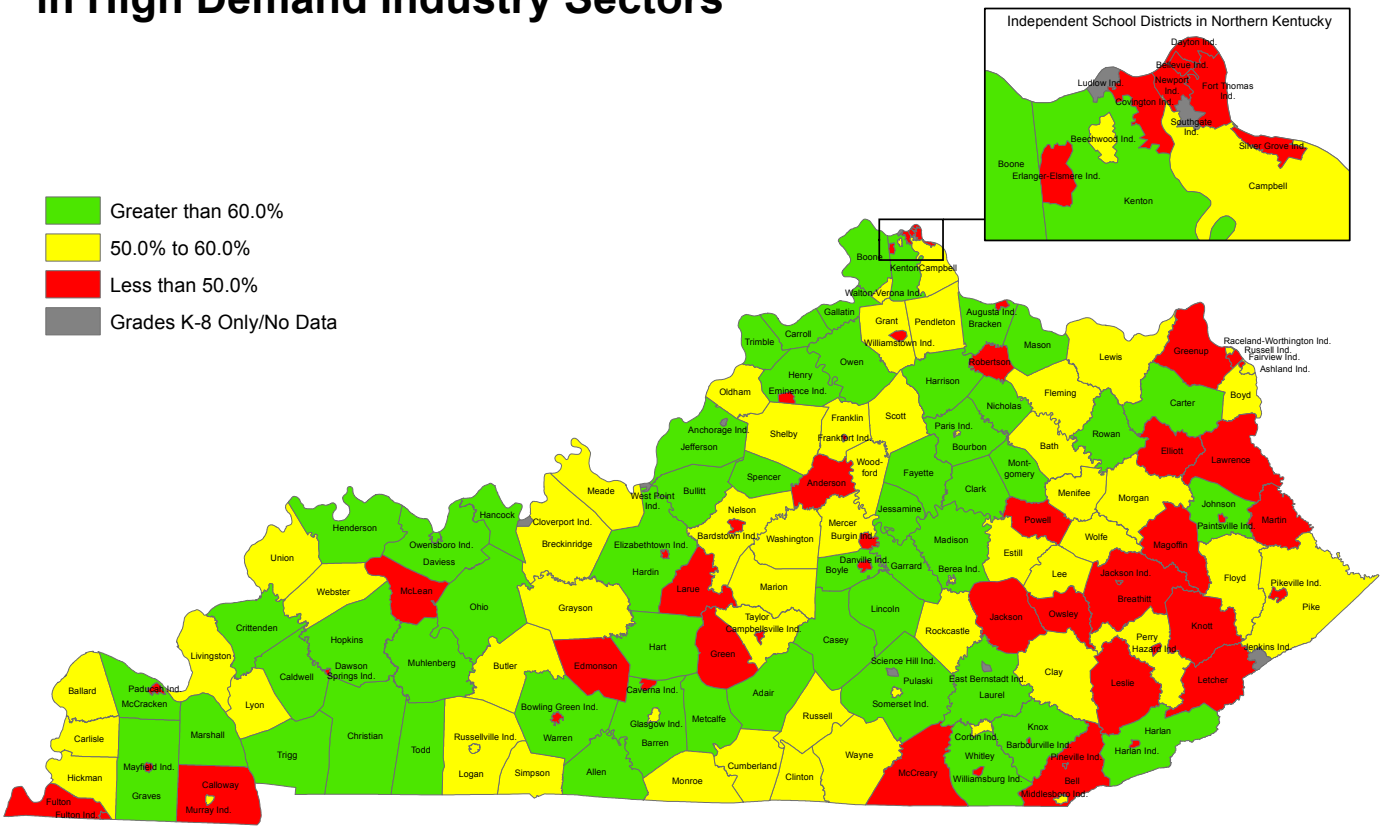
	Business & IT Services	Construction	Healthcare	Advanced Manufacturing	Transportation & Logistics	
	This sector comprises professional and financial services, information technology, wholesale trade, and scientific and technical occupations.	This sector comprises occupations primarily engaged in the constuction and maintenance of buildings.	This sector comprises both health care services and social assistance.	This sector comprises occupations in the mechanical, physical or chemicial transformation of materials, substances or components into new products.	This sector comprises occupations in industries providing movement of passengers or cargo, warehousing and storage, and those that plan, direct or coordinate the distribution activities of	
Top Occupations	Accountants and Auditors	Construction Laborers	Registered Nurses	Manufacturing Operator/Technician	Laborers, Packers, Movers	High Skill
	Managers, All Other	Carpenters	Personal Care Aides	Machine Maintenance Specialist	Heavy and Tractor-Trailer Truck Drivers	
	Management Analysts	Electricians	Nursing Assistants	Machinist	Light Truck or Delivery Services Drivers	
	Lawyers	Painters, Construction and Maintenance	Childcare Workers	Engineers - Process/Manufacturing	Industrial Truck and Tractor Operators	
	Software Developers, Applications	Plumbers, Pipefitters, and Steamfitters	Medical Assistants	Machine Tool Operator	Stock, Shipping, and Receiving Clerks	
	Computer Systems Analysts	Supervisors of Construction and Extraction Workers	Licensed Practical and Licensed Vocational Nurses	Inspectors, Testers, Sorters, Samplers, and Weighers	First-Line Supervisors	
	General and Operations Managers	Construction Managers	Healthcare Managers	Welders	Postal Service Mail Carriers	
	General Office Clerks	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Social Workers	First-Line Supervisors of Production and Operating Workers	Captains, Mates, and Pilots of Water Vessels	Middle Skill
	Civil Engineers	Operating Engineers and Other Construction Equipment Operators	Medical Secretaries	Manufacturing Managers	Cargo and Freight Agents	
	Customer Service Representatives	General and Operations Managers	Physicians and Surgeons, All Other	Engineers - Design	Bus Drivers	
	Software Developers, Systems Software	Electrical Power-Line Installers and Repairers	Physical Therapists	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	Dispatchers, Except Police, Fire, and Ambulance	
	Sales Representatives	Cost Estimators	Dental Assistants	Food Batchmakers	General and Operations Managers	
	Paralegals and Legal Assistants	Roofers	Social and Human Service Assistants	Production, Planning, and Expediting Clerks	Bus and Truck Mechanics and Diesel Engine Specialists	
	Computer User Support Specialists	Cement Masons and Concrete Finishers	Emergency Medical Technicians and Paramedics	Purchasing Agents, Except Wholesale, Retail, and Farm Products	Sailors and Marine Oilers	
	Market Research Analysts and Marketing Specialists	Heavy and Tractor-Trailer Truck Drivers	First-Line Supervisors of Office and Administrative Support Workers	Shipping, Receiving, and Traffic Clerks	Maintenance and Repair Workers, General	Low Skill
	Mechanical Engineers	Welders, Cutters, Solderers, and Brazers	Nurse Practitioners	Heavy and Tractor-Trailer Truck Drivers	Aircraft Mechanics and Service Technicians	
	Veterinary Technologists and Technicians	Sheet Metal Workers	Medical Records and Health Information Technicians	Slaughterers and Meat Packers	Machine Feeders and Offbearers	
	Tax Preparers	Telecommunications Line Installers and Repairers	Mental Health Counselors	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	Transportation, Storage, and Distribution Managers	
	Computer and Information Systems Managers	Brickmasons and Blockmasons	Medical and Clinical Laboratory Technologists	Meat, Poultry, and Fish Cutters and Trimmers	Airline Pilots, Copilots, and Flight Engineers	
	Photographers	First-Line Supervisors of Mechanics, Installers, and Repairers	Family and General Practitioners	Metal-Refining Furnace Operators and Tenders	Reservation and Transportation Ticket Agents and Travel Clerks	

High Demand Sectors - Sectors with the most projected job openings over the next 5 years, according to JobsEQ, that also have an average annual wage for th entire sector of at least $35,000.
Top Occupations based on the Forecasted Number of Growth and Replacement job openings over the next 5 years. Occupations not industry specific were removed.
Skill level is based on Bureau of Labor Statistics education attainment levels and approved by all NSFY grant partners.
Low Skill – Occupations requiring a High School Diploma or equivalent or less, Middle Skill – Occupations requiring a High School Diploma plus additional education less than a 4 year degree, High Skill – Occupations requiring a 4 year degree or more.

When sharing LMI with district superintendents and CTE coordinators, KDE was deliberate in how it presented the information so the LMI would have the most impact on policy with the least amount of confusion or varying interpretations. KDE staff started with the objective of showing locals both learner access to career pathways in priority sectors and learner opportunities to enroll in these career pathways. Using this objective, they created two maps, in addition to the tables that listed the priority sectors and top occupations. The first map showed access across counties, specifically the number of secondary career pathways that are offered within priority sectors in each county. Each county was given a red, yellow or green color rating based on the level of access for learners.

The second map showed opportunity, specifically the percentage of junior- and senior-level students entering priority career pathways compared with the level of demand for those fields. Each county was again given a red, yellow or green color rating. For the state overall, this examination revealed that Kentucky does not have much of an access problem, but it does an opportunity problem. Career pathways in the priority sectors exist, but students are not enrolling at the rate required to meet employer demand.

District Access to Pathways Leading to Top Occupations in High Demand Industry Sectors



***District access is determined by that district's pathway offerings in their high schools, locally operated centers, and the corresponding area technology centers. Percentage is based on the number of top occupations (94) that are aligned to the district pathway offerings.**

Prepared by: Kentucky Center for Education and Workforce Statistics (KCEWS)

KCEWS KENTUCKY CENTER FOR EDUCATION & WORKFORCE STATISTICS

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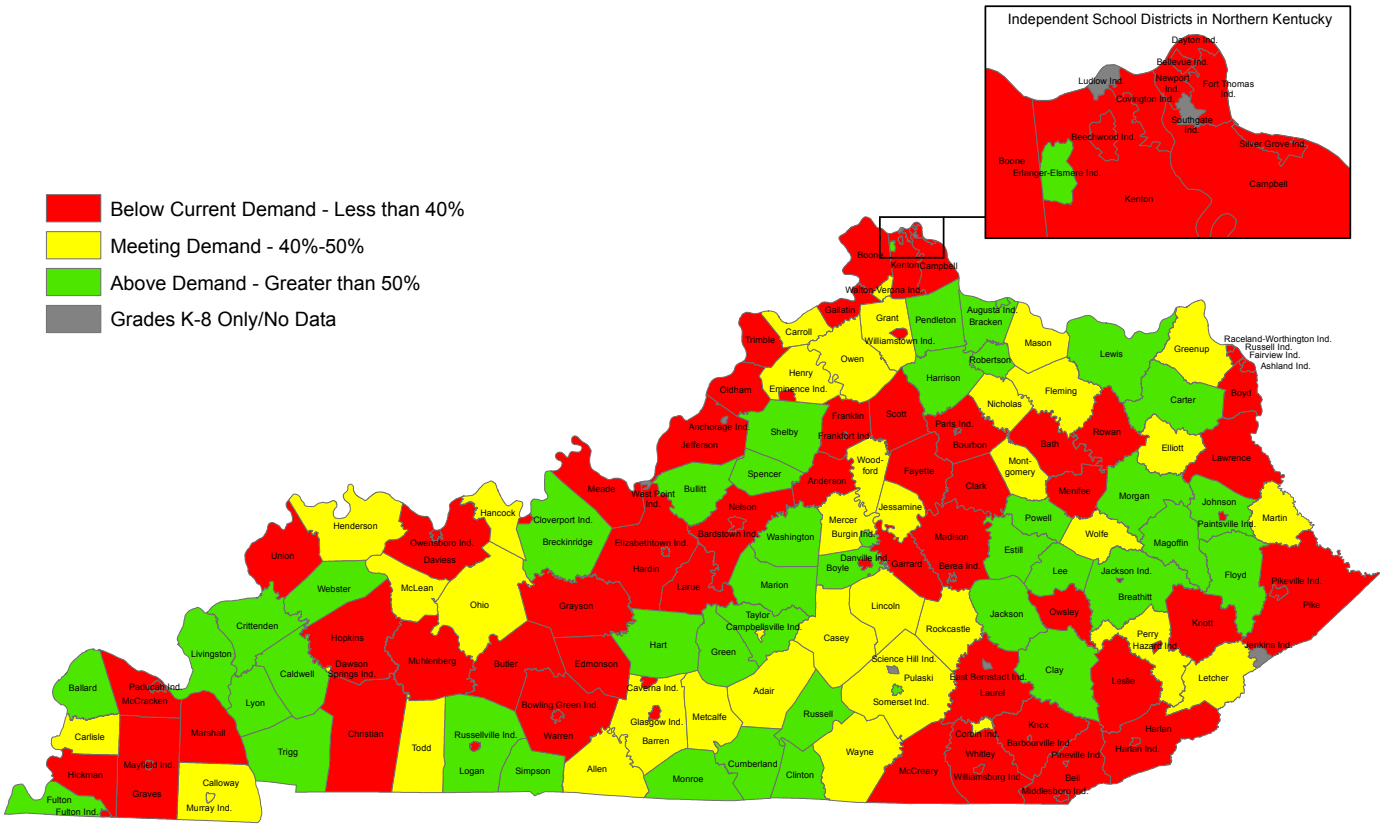
Percentage of Junior and Senior Students Concentrating in Pathways Leading to State Top Occupations in High Demand Industry Sectors



***The projected job openings in the Top 5 sectors equate to approximately 40% of Kentucky's job openings over the next 5 years. A 10% surplus is requested to meet the demand for these sectors.**

Prepared by: Kentucky Center for Education and Workforce Statistics (KCEWS)

KCEWS KENTUCKY CENTER FOR EDUCATION & WORKFORCE STATISTICS

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The key in this finding is that the LMI on its own did not present a quick solution or action item for local superintendents and coordinators to follow. It simply provided them with the right questions to ask when looking for solutions that work for each region and industry sector. These individuals were then able to take this information back to their regions and examine whether the lack of enrollment was due to existing programs being at maximum capacity, in which case the programs would require additional resources, or whether it was due to a lack of student interest in or knowledge of the programs, which would require additional recruitment efforts and resources. KDE was able to communicate all of these findings in simple terms through effective data visualization and deliberate delivery of the data through regional convenings.

Guiding Questions:

1) At what level(s) does or will the state share the LMI?

Depending on state structure, regional education centers or district and postsecondary system-level leaders may be positioned to share information and professional development with individual institutions and schools. If that is the case, sharing this information directly with those intermediaries and then providing them with the tools for sharing LMI with specific institutions likely makes more sense.

2) In what format does or will the state share the LMI?

Sharing the data in easy-to-understand visualizations that showcase both statewide and regional information is important so that each CTE program can understand where it fits within the larger picture. States also must ensure that the data are presented in enough detail to be useful but not so much detail that they become confusing and/or intimidating.

3) How strongly does or will LMI influence the way state leaders discuss CTE programs with local administrators and institutions?

When providing new data to locals, states must make clear the ways in which this information will inform state policies and initiatives. No one should be put in a situation where a program approval application is turned down based on LMI, if they were not made aware that the information would play such an important role. If local CTE administrators understand that the state is prioritizing this information, they will know to prioritize it as well.

4) What should CTE programs and administrators do with the LMI provided?

When sharing LMI, sharing the "so what" of that information is also imperative — what interventions or changes should programs enact based on the information provided? Is the information supposed to influence existing programs or only new ones? Will any programs be closed based on these data? How are locals expected to justify their own programs using the LMI?

5) How does or will the state follow up with CTE programs and administrators?

Once LMI has been shared and local leaders know the actions they are required or encouraged to take, what happens next? How will state leaders know if those actions have been taken? State leaders must also communicate to local leaders about the schedule of data updates and other check-ins.

Learners and Parents: Providing Data for Informed Choices

In addition to sharing LMI with industry partners and local schools and institutions, states should take the information directly to learners. Learners and parents benefit from seeing information on salary and projected growth for specific sectors and occupations that learners may be interested in pursuing. In addition, learners can use LMI to determine which skills and competencies are important to develop to obtain employment in their chosen sector. Some states may choose to create web portals to allow learners, parents and jobseekers to explore the data, while others may focus on integrating the information into other career advising activities, such as school counseling conversations and development of individual graduation plans (and some do both). Either way, each state must present the information in a simple, easy-to-understand way and be very deliberate in marketing its use to learners. The questions below will guide state planning in this area.

In the Field:

The state of **Washington** provides LMI directly to K-12 and postsecondary learners, parents and adult jobseekers through a one-stop, online portal, *Career Bridge*.[xv] This portal was created and is managed by the state's Workforce Training & Education Coordinating Board, a governor-appointed partnership of nine voting members from government, business and labor charged with coordinating all of the state's workforce services and programs.[xvi] Originally launched during the height of the 2009 recession, Career Bridge has since expanded its focus from unemployed workers seeking career-centered education programs to a wider audience that includes middle and high school students, parents and counselors. As the site expanded its reach into K-12 education and postsecondary planning, the number of education programs featured on it grew, reaching more than 6,500 programs. This number includes public and private programs, one-year certificates, two-year associate degrees, bachelor's degrees, master's degrees and beyond. The site also includes a wide range of apprenticeship opportunities. In 2016, the site reached more than 7 million page views.

Career Bridge's Find Education section features details about thousands of individual education programs, including a brief program description, cost and length of training, certification information, key program contacts, and whether a program qualifies to be on the state's Eligible Training Provider List. The Workforce Board's research staff match student records provided by schools and colleges with wage records provided by the state's Employment Security Department to independently evaluate program performance, including the percentage of graduates who land jobs, how much they earn, and the industry in which they went to work. Programs that meet the employment, earnings and completion thresholds established by the Workforce Board are part of the state's Eligible Training Provider List and qualify for federal training dollars under the WIOA. As a public-facing website, Career Bridge provides all Washington residents with "consumer reports" on thousands of education programs, helping citizens make informed decisions about where to invest their time and money to reach their career goals. As the home of the state's Eligible Training Provider List, Career Bridge is also used every day by job counselors at the state's WorkSource career centers, who select programs from this list to help their WIOA customers receive education and training that lead to jobs.

Career Bridge provides a career exploration section for middle and high school students, as well as older users, who can readily examine a wide range of occupation options, including basic job details, how much jobs pay in Washington, and whether those jobs are projected to grow in the coming years. The career exploration section includes a quiz that students can take to assess their interests and abilities and how their skills relate to a career. At the end of the quiz, they see their top-ranked Career Clusters®. Students can then take a closer look at the inter-related occupations within that cluster and dig deeper to see current and projected salary and market demand information for that career within the state and within specific local regions. In some cases, occupations are marked with an InDemand logo. This logo signifies that the state has determined the occupations are growing relatively quickly and offer greater hiring opportunities and significant openings. Each "Job Details" page on Career Bridge includes links from a particular occupation to education programs in Washington, so users can find the education and training they need to get the job they want. Many of those education programs — about one-third — include performance data on employment, earnings and completion.

This seamless integration of LMI with information on education and training programs and career pathways allows the Workforce Board to communicate directly with middle and high school students, jobseekers and the general public. In particular, Career Bridge is increasingly being used by K-12 students across the state's 295 school districts, who can view the 6,500 postsecondary training programs and the options available to them. The site also includes a "Pay for School" section that includes a self-sufficiency calculator that shows students the real cost of living in cities and counties across the state, a necessary first step for youth to understand what it costs to pay the bills and what kind of occupations pay enough to live the lives they seek.

LMI is also available on the state's Employment Security Department website, though it is provided in a more complex format that may be difficult for learners, their parents and instructors to understand. With Career Bridge, Washington's Workforce Board has managed to make LMI available for learners in a format that is easier to understand and work with, while still ensuring accuracy.

Guiding Questions:

1) To what audience is or will this information be directed?

Will LMI be shared with middle and high schoolers who are just beginning to think through their post-high school plans and goals? Or will it be shared with current postsecondary students exploring their specialization options within a career pathway? How about adult jobseekers who need to know what industries have openings right away? Or all of the above? The answer to these questions affects the type of LMI that states share (projected vs. current, salary information, required knowledge and skills) and the way in which it is presented.

2) What other information, if any, is or will be shared with LMI?

Job projections and salary amounts on their own are useful only to a certain point for learners and jobseekers. It might also be helpful for states to include the associated competencies and credentials for each career pathway as well as any postsecondary education requirements. Additionally, states may share contact information for industry representatives that will allow learners to access more information on specific jobs and perhaps even pursue work-based learning experience.

3) How accessible will LMI be for learners?

Whether LMI is provided directly through an online portal or indirectly through a school counselor, will the state require that learners are made aware of it? What format is most appropriate for sharing LMI so that learners and parents want to engage and can understand what has been provided? How will the state and any intermediaries communicate the value of this information for making well-informed decisions about a learner's education and career?

4) How does or will the state share this information with learners?

Will the state reach out directly to learners and parents about LMI, or will it leverage intermediaries such as teachers, counselors or advisers to make those connections? Either way, states must include language about how this information will allow learners to plan for their education and careers so they can be prepared for their future.

5) How does or will the state share this information with other stakeholders?

Though the information may be designed primarily for learners and their parents, this level of LMI may also be useful for industry partners and instructors. In their communications materials, states should point out the ways that LMI can help multiple audiences and encourage those stakeholders to market it to learners on behalf of the state as well.

Conclusion

No matter how developed, accurate or sophisticated a state's LMI system is, the information will not be used effectively if the state does not disseminate it appropriately to each stakeholder. LMI should ideally come from one aggregating source for the entire state, and it should include accurate and up-to-date information on job openings, projected growth and salary level. Once a state has that information, it should be shared with industry partners to further develop the information and generate industry buy-in. States should share the information with local K-12 district and postsecondary institution leaders, ensuring that they have the knowledge and skills necessary to interpret the data appropriately and use it to drive program design and modification. LMI can also be shared directly with learners, as long as the bulk of the data interpretation has been done for the learner so he or she may focus on career and training exploration and planning.

Through each step of the process, communication and dissemination should be deliberate and clear. If that happens, then all of the necessary stakeholders within a state will be prepared to use LMI to improve the quality of CTE in their areas.

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[i] https://careertech.org/resource/data-policy-toolkit

[ii] https://www.cna.org/centers/ipr/education/quick-takes/labor-market-tool

[iii] https://data.bls.gov/projections/occupationProj

[iv] http://www.workforcedqc.org/news/blog/advisory-group-releases-workforce-information-agenda

[v] http://www.workforcedqc.org/resources-events/events/webinar-data-tools-workforce-policy

[vi] http://coeccc.net/COE/media/SupplyandDemandPageDocuments/Making-Use-of-Labor-Market-Information.pdf

[vii] http://www.workforcedqc.org/news/blog/colorado-releases-new-return-investment-tool

[viii] http://lmi.mt.gov/Portals/135/Publications/LMI-Pubs/Special Reports and Studies/StateCollegeReport.pdf

[ix] https://workforcesupply.chrr.ohio-state.edu/

[x] https://dmbinternet.state.mi.us/DMB/DTMB_blmisi/home.aspx

[xi] http://gov.nv.gov/uploadedFiles/govnvgov/Content/OWINN/features/[xi]. InDemandOccupationsSectorCouncilReport.pdf

[xii] https://careertech.org/sites/default/files/Perkins_IV_Crosswalk_Table_6_Cluster-Pathway-SOC-ONET-CIP.xls

[xiii] https://careertech.org/resource/data-policy-toolkit

[xiv] https://kcews.ky.gov/About/History

[xv] http://www.careerbridge.wa.gov/

[xvi] http://wtb.wa.gov/WorkforceBoard.asp

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