

State Council of Higher Education for Virginia



Report on SCHEV's Higher Education and Workforce Alignment Project



July 2020

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EXECUTIVE SUMMARY

Efforts across higher education, economic development, workforce development and secondary education address alignment, which SCHEV Council defines *as helping individuals prepare for and obtain meaningful careers while also meeting employer needs. Specifically, the relationship between workforce needs and higher education academic programs to reduce labor market imbalances.* An evolving aspect of alignment focuses on deepening efforts related to specific *skills* and *competencies* needed across various industry sectors.

Alignment efforts within the Commonwealth often operate independently and rely on different data sources to identify a workforce need. In order for education and training to truly serve as an engine of growth in Virginia, we need to develop a more robust understanding of the connections between education and the labor market, including supply/demand imbalances that can inhibit the growth of businesses or result in poor employment outcomes for individuals.

No resource exists currently that identifies those supply/demand labor market imbalances and assesses the adequacy of higher education programs to address those imbalances on a routine, consistent basis. While pockets of excellence exist, the Commonwealth currently lacks a binding component, connecting individual activities and analyses. A coordinated, comprehensive workforce and higher education ecosystem can build capacity and inform student and policy decisions, academic programs, workforce development, economic development and other related efforts.

Summary of Findings

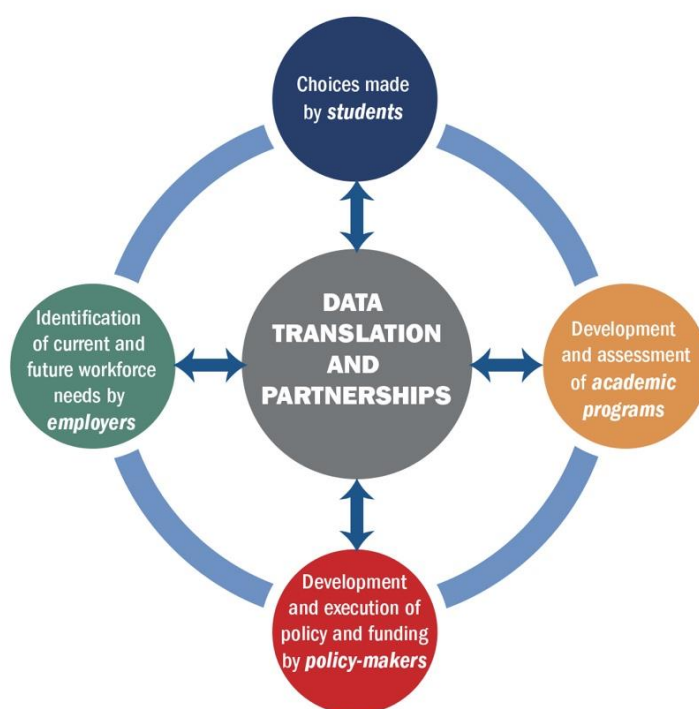
Overall, stakeholders engaged as part of this project indicated the need and support for improved coordination of the various alignment initiatives and a consistent, routine source of labor supply, demand and shortage analysis and data translation to support such efforts. Any efforts to improve coordination should consider the following:

1. Higher education, students, policy-makers, employers and labor market data must be connected to effectively address alignment.
2. Alignment is a complex issue.
3. Efforts already in existence should be coordinated and leveraged.
4. Buy-in from stakeholders is paramount to coordination and success.

Summary of Recommendations

The higher education and workforce alignment project and resultant recommendations aim to fill in the gaps and connect these various ecosystem elements in an intentional manner resulting in comprehensive policy and program development via an incremental approach. The intent is to create the framework of connectivity organically through these recommendations. A visualization of this framework is included below.

Higher Education and Workforce Alignment Ecosystem



Core Recommendation

The five components of an aligned higher education and workforce ecosystem include:

- 1) **Data Translation and Partnerships:** Establish a clear owner of this function that has the capability, capacity and stability to provide data analysis and translate that insight to other partners.
- 2) **Students:** Choose majors or certificate programs that align with a student's interests and capabilities, but also with programs that are aligned with workforce needs.
- 3) **Higher Education Institutions:** Develop programs and modify educational instruction to better align with the skills and competency needs of employers.
- 4) **Policy-makers:** Access consistent, translated data analysis in order to inform strategic planning, policy development and funding decisions.
- 5) **Employers:** Engage employers further to define skills and competency needs.

Each of these elements need to be integrated in an intentional manner; data translation and partnerships serves as the connective tissue – binding these ecosystem elements.

Near-Term Recommendations

In service of achieving the broader vision outlined above of an aligned higher education and workforce ecosystem, SCHEV recommends the following specific steps to take toward an ideal higher education and workforce alignment system:

1. Cultivate a framework for coordinated workforce data analysis, translation and partnerships.
2. Use labor data and vetted methodology to perform targeted supply/demand shortage analyses.
3. Identify top competencies needed in the workforce (short- and long-term) and how these are cultivated by Virginia's higher education institutions.
4. Update SCHEV's program productivity review process to reflect institutional as well as student-as-consumer productivity measures.
5. Identify and support connections between career exploration and guidance in K-12 with what occurs in postsecondary higher education.
6. Inventory and assess existing alignment efforts within Virginia and identify successful programs, policies and interventions that have helped create a more education/workforce aligned system in other states and countries.

The above six deliverables will provide strong building blocks for making the case for a permanent ecosystem framework with a dedicated funding mechanism and governance structure necessary for Virginia to realize its core vision of creating an aligned higher education-workforce ecosystem.

INTRODUCTION

Almost every day, a news article or blog highlights some aspect of higher education and workforce alignment such as shortages in the healthcare, trades and IT sectors well as the critical need for more well-trained workers. Or, in the wake of the recent COVID-19 pandemic, the surge of unemployed individuals now looking for work. National and international reports and studies on alignment offer recommendations but no clear roadmap for cultivating a statewide ecosystem to address alignment. Furthermore, various state and regional entities in Virginia use and/or produce different workforce supply or demand data or focus on specific issues related to higher education and workforce alignment. All of these efforts are independent and source different data; no common thread exists in the Commonwealth to translate abundant data and inform partnerships, policy and academic programs as well as students.

SCHEV Council has given the topic of alignment considerable attention over the past year while recognizing that meeting workforce needs/talent development, is one of the many important functions of higher education. Council defines *alignment as helping individuals prepare for and obtain meaningful careers while also meeting employer needs. Specifically, the relationship between workforce needs and higher education academic programs to reduce labor market imbalances.* An evolving aspect of alignment focuses on deepening efforts related to specific *skills* and *competencies* needed across various industry sectors now and in the future.

SCHEV's Higher Education and Workforce Alignment Project serves as the formal outgrowth of Council's ongoing discussions on this topic. Virginia's current ecosystem includes a variety of partnerships as well as policy-driven and program-related activities. However, a lack of coordinated, comprehensive data analysis, translation and partner outreach dilutes these impacts.

Many efforts in higher education, economic development and secondary education address workforce needs. These efforts often operate in silos and rely on different data sources to identify a workforce need. A review of needs in the state often focuses on the demand for jobs and the supply of workers, but no resources exist that identify workforce imbalances and assess the adequacy of higher education programs to address those imbalances on a routine, consistent basis. A coordinated, comprehensive workforce and higher education ecosystem can inform policy decisions, academic programs, workforce development, economic development as well as students (prospective and current).

This is not a data project but a capacity building and coordination project to culminate with findings from stakeholder input and internal research as well as recommendations.

The project's goal is to fill in the gaps and connect these various ecosystem elements in an intentional and incremental manner resulting in strategic, comprehensive policy and program development.

While pockets of excellence exist, the Commonwealth currently lacks a binding component.

Continuing the status quo of independent activities and varying data points will not adequately address the complex issue of alignment. Now more than ever, there is a need and urgency for consistent data analysis, evaluation and translation as well as coordination of efforts.

ALIGNMENT PROJECT PROCESS

The alignment project commenced in October 2019, with two designated Council members and SCHEV staff leading the effort along with guidance from the Governor's Chief Workforce Advisor and consultation with the Virginia Economic Development Partnership. The project work plan focused on three tiers of stakeholder input: other states that possess state-level alignment ecosystems from which Virginia can learn; Virginia state-level workforce and higher education stakeholders who produce or consume workforce data and engage in specific activities; and Virginia higher education institutions. The following breaks down the composition of the more than 35 stakeholders interviewed since the project began. For more details on the process and stakeholder engagement, refer to Appendix A.

States with comprehensive, coordinated alignment ecosystems:

- **Colorado** – [Colorado Talent Pipeline Report](#);
- [University of Georgia Board of Regents](#) (internal reports only);
- **Iowa** – [Future Ready Iowa](#);
- **Kentucky** – [KYSTATS Future Skills Reports](#);
- **Missouri** – [Missouri Economic Research and Information Center Workforce Research](#);
- **Montana** – [Montana Statewide Report on Workforce](#);
- **National Governor's Association** – for input on best practices;
- **Pennsylvania** – [High Priority Occupations](#); and
- **Texas** – [Texas Tri-Agency Report](#).

Input focused on how and why alignment ecosystems were coordinated at the state level, the configuration (governance, staffing, resource allocation), outcomes and lessons learned.

Virginia state-level workforce and higher education stakeholders:

- **The Governor's Chief Workforce Advisor/State Board of Workforce**
- **Growth and Opportunity Virginia (GO Virginia)**;
- **State Council of Higher Education for Virginia (SCHEV)**;
- **Virginia Business Higher Education Council**;
- **Virginia Chamber of Commerce**;
- **Virginia Economic Development Partnership (VEDP)**; and
- **Virginia Employment Commission (VEC)**.

Input focused around data analysis and translation needs and input on the Commonwealth's alignment ecosystem. Additionally, many of the stakeholders interviewed provided reference to other state models for SCHEV to explore.

SCHEV reached out to all public higher education institutions for input.

Fourteen of Virginia's higher education institutions responded including:

- **4-year and 2-year institutional representation;**
- **Provosts and vice provosts of academic affairs, academic innovation; and**
- **Career services departments.**

Input focused around data analysis and translation as well as employer engagement to validate workforce data for program development and on characteristics a statewide alignment ecosystem should include.

From all of the interviews conducted and internal research conducted by SCHEV, common themes emerged and led to the findings and recommendations outlined in subsequent sections of this report.

Other State Models

SCHEV conducted interviews with eight other states that possess alignment ecosystems from which the Commonwealth can learn. These states were identified via Virginia state stakeholder interviews, internal SCHEV research on “best in class” models and input from the National Governors Association. These states possess both a state level coordinated component and produce resources (web-based dashboards, publicly or otherwise distributed reports and findings) that translate data to inform students as well as alignment policy and programs. For detailed information on each state and their resources refer to Appendix B.

State and Alignment Ecosystem Model	Partnerships and Outreach	Policy Impacts	Academic Program Planning Impacts
Colorado Executive Council on Workforce and Department of Higher Education	Two partnering entities, regional qualitative input and sector specific input.	Legislature passed more than <u>30 bills</u> based on data and analysis from the reports.	No mandated use. Use by community colleges and four-year institutions but not quantified.
University of Georgia Board of Regents	Partners with Vinson Institute to perform additional alignment work and reports.	Internal work to influence policy.	Mandates apply to University of Georgia system.
Iowa College Aid with State Board	Input from State Workforce Board	Creation of additional financial aid funds for high demand occupations: Iowa Future Jobs Grant, Last Dollar Scholarship, apprenticeship development fund and employer innovation fund.	To be determined. First report released summer 2019.
Kentucky Center for Statistics (KYSTATS)/KY Secretary of Workforce	No formal qualitative input process. Extensive outreach to stakeholders.	Work ready scholarships based on report findings.	No mandated use. Use by institutions to expand programs as necessary.
Missouri Economic Research and Information Center (MERIC)/ Division of MO Higher Education and Workforce Development	No formal qualitative input process outside of regional data analysis.	To be determined.	No mandated use. Use by institutions but not quantified.
Montana Department of Labor and Industry	Montana Higher Education provides further insight. Outreach to and custom reports for higher education institutions.	Resulted in “Becoming an Alum) project to increase re-entry, completions and additional training and credentials.	Not mandated. Use by two- and four- year colleges (public and private) to expand health related programs to meet identified needs.
Pennsylvania Center for Workforce Information and Analysis /PA State Workforce Board	State and regional qualitative input via regional petition process.	Report drives annual workforce and training funding priorities.	Unknown.
Texas Tri-Agency (Texas Workforce Commission, Higher Education Coordinating Board and Education Agency)	Three partnering entities and other local/regional partners and industry.	Tied to specific legislative impacts and other initiatives.	No mandated use. Marketable skills goals set in Tri-agency report.

Four key takeaways or lessons learned from these states include:

1. Formal governance structure to engage key partners in cultivating the framework/connective tissue.
2. Dedicated staffing with data analytics, translation and outreach capabilities.
3. Perennial reports produced combined with direct outreach to institutions, policymakers, employers and students to make them actionable.
4. No mandated use but buy in via partnerships cultivated as part of the framework.

National and International Findings and Reports

Numerous reports continue to highlight the importance of alignment and critical ecosystem components. A synopsis of additional findings from these reports follows. For a thorough list of various alignment studies and reports refer to Appendix C.

Report: The Future of Jobs

Source: **World Economic Forum**

Findings:



The forthcoming fourth industrial revolution poses **opportunity** and **risk** depending on successful implementation of **comprehensive workforce development strategies**

Source: World Economic Forum, Future of Jobs.

Strategies must address human-machine interactions, emerging in-demand occupations, re-skilling, upskilling and adequately addressing skills gaps.

Report: [Principles of Policy Design for Connecting Education to Work](#)

Source: Education Commission of the States

Findings: The report identifies three main policy principles in alignment



- Design policy to support diverse needs of people engaging or re-engaging with work relevant education.
 - Collaborate to develop state and regional platforms that go beyond basic workforce investment act requirements.
 - Leverage existing data and investments to align with policy goals.
-

Report: [Talent Driven Economic Development](#)

Source: Brookings

Findings:

- Economic development entities should refocus activities and resources to address talent development and alignment to include such things as talent incentives and developing talent systems.
- Alignment efforts must include research (data analysis and evaluation), relationships (partnerships and outreach) and resources (policy and programmatic impacts).



The studies acknowledge existing efforts tend to be fractured and lack connection between data and various stakeholders (students, institutions, policy makers and employers).

Common findings of all three reports and studies support the need for ongoing labor market outcomes assessment – alignment efforts - in order to sufficiently meet evolving industry needs and for overall economic growth.

FINDINGS

More than 20 Virginia state entities involved in alignment activities, including higher education institutions, provided candid input on key features a statewide alignment ecosystem should possess. *Overall, stakeholders indicated the need and support for improved coordination of the various alignment initiatives and a consistent, routine source of labor supply, demand and shortage analysis and translation to support various partners' efforts. Any attempts to improve coordination should consider overarching themes identified through this process.* Input also identified key criteria to consider when facilitating such coordination. See Appendix A for detailed stakeholder input.

Overarching Themes

Four main themes emerged from collective stakeholder input and subject matter research on higher education and workforce alignment.

- 1. Higher education, students, policy-makers, employers and labor market data must be connected to effectively address alignment.**
- 2. Alignment is a complex issue.**
- 3. Efforts already in existence should be coordinated and leveraged.**
- 4. Buy-in from stakeholders is paramount to coordination and success.**

Higher education, students, policy-makers, employers and labor market data must be connected to effectively address alignment.

Data alone cannot solve alignment issues. Labor market data analysis and evaluation is an important building block but not the only important element. Consistent data analysis must be translated to alignment partners - higher education institutions, students, policy-makers and employers for use and resultant action. These partners must all be connected to that data translation framework and with each other to effectively address alignment.

Alignment is a complex issue.

Building from the first core theme, alignment is a complex issue with many interconnected components and related subtopics. Requisite coordination within the ecosystem must be broad-based to handle these complexities. The ecosystem must support and address fluctuating labor market issues over time, evolving and emerging industries, and a variety of

partnerships that can further inform policy and programmatic actions. Alignment is not a one time, one-size only problem, rather a cycle of issues that change over time.

Efforts already in existence should be coordinated and leveraged.

Perhaps the most predominate theme of this project, stakeholder input conveyed the importance of leveraging alignment activities already underway. Most of the Commonwealth's alignment ecosystem already exists as focused, independent activities. The components recommended from this project serves as the core and connective tissue to bind together and inform these various efforts. This will ultimately build capacity and the ability to share lessons learned, fostering an ecosystem that is greater than the sum of its parts. Examples of existing efforts include: existing sector-specific workforce councils, previously formed business advisory groups, and workforce data analysis via the VEC, the Virginia Board of Workforce, VEDP, and GO Virginia regional growth and diversification plans. The COVID-19 pandemic has further catalyzed the need for consistent, comprehensive workforce alignment data and enhanced coordination.

Buy-in from stakeholders is paramount to usage and success.

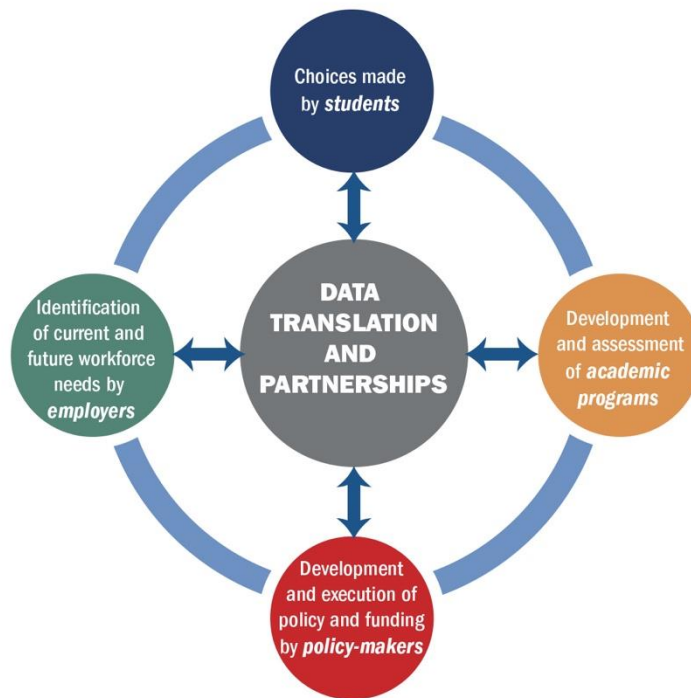
Those entities involved in independent efforts conveyed support for statewide data analysis, translation and coordination with partners. In particular, the importance of coming together, sharing insight and common data to maximize impact in addressing alignment issues. To the greatest extent possible, it is imperative for stakeholders to buy into and support the collective ecosystem coordination.

CORE RECOMMENDATION

The higher education and workforce alignment project and resultant recommendations aim to fill in the gaps and connect these various ecosystem elements in an intentional manner resulting in comprehensive policy and program development via an incremental approach.

The intent is to create the framework of connectivity organically through these recommendations. A visualization of this framework is included below. A summary of each component follows with detailed stakeholder input on these emergent themes in Appendix A.

Higher Education and Workforce Alignment Ecosystem



Core Recommendation: *Higher education and workforce alignment includes five ecosystem elements: 1) data translation and partnerships, 2) higher education institutions-academic programs, 3) students, 4) policy-makers and 5) employers. Each of these elements need to be integrated in an intentional manner; data translation and partnerships serves as the connective tissue – binding these ecosystem elements.*

The five components of a strong higher education and workforce alignment ecosystem include:

1. Data Translation and Partnerships: Establish a clear owner of this function that has the capability, capacity and stability to provide data analysis and translate that insight to other partners. This should:

- a) Function as the connective tissue binding the ecosystem elements.
- b) Address current and future workforce gaps.
- c) Leverage existing data sources as much as possible.
- d) Ensure high degree of use and be governed by stakeholders.
- e) Examine both technical skills and broader competencies.
- f) Consider short-term credential needs and longer-term programs (for example, BA/BS, MA/MS, PhD/MD).

2. Students: Choose majors or certificate programs that align with a student's interests and capabilities, but also with programs that are aligned with workforce needs. Related activities should include:

- a) Assessment of the adequacy of number and training of high school guidance counselors.
- b) Engagement with offices within each institution that are responsible for career counseling and advising.
- c) Production and dissemination of user-friendly data describing the costs and benefits of various post-secondary options.
- d) Translation of information targeted to parents, students, partial completers, career counselors and advisors, etc.

3. Higher Education Institutions: Develop programs and modify educational instruction to better align with the skills and competency needs of employers. This should include use of:

- a) Program approval and review processes to better align programs.
- b) Six-year planning process to enhance alignment with employer needs.
- c) Robust graduate outcomes assessment tools.
- d) Platforms to review data with key institutional stakeholders.
- e) Funding and incentive mechanisms to align with workforce needs.

4. Policy-makers: Access to consistent, translated data analysis in order to inform strategic planning and policy development. This should include:

- a) Data translation for and partnerships with the Governor, Chief Workforce Advisor, Department of Education, SCHEV and legislators.
- b) Policy and legislation creation to incentivize students and institutions to strengthen the alignment between higher education and workforce needs.
- c) Funding at appropriate levels to see impact in student and institutional incentives.

5. Employers: Engage employers further to define skills and competency needs. This should include:

- a) Feedback on effectiveness of training and academic programs.
- b) Direct involvement with student development through internships, capstones, funding etc.
- c) Coordination of employer engagement efforts at the regional level to maximize impact and mitigate engagement fatigue.

NEAR-TERM RECOMMENDATIONS

In service of achieving the broader vision outlined above of an aligned higher education and workforce ecosystem, SCHEV recommends the following specific steps to take toward an ideal higher education and workforce alignment system:

Recommendation 1: Cultivate a framework for coordinated workforce data analysis, translation and partnerships. While insufficient on its own as a means to address alignment, it is a critical building block and work could start here to address alignment ecosystem challenges as a whole. As captured in preliminary documents from VEDP, “workforce analytics is the “connective tissue” that creates the necessary foundation for Virginia to truly lead the way on talent. *In order for education and training to serve as an engine of growth, we need to develop a more robust understanding of the connections between education and the labor market, including supply/demand imbalances that can inhibit the growth of businesses or result in poor employment outcomes for individuals.* Such insights would help policymakers and educators to respond to the talent needs of our economy, while better enabling individuals to navigate the complex, often confusing connections between education and the labor market.”

Deliverables: Engage the VEDP and the Governor’s Chief Workforce Advisor and other stakeholders as needed to recommend any legislative actions for formally creating this framework. Look to information and detailed recommendations in the alignment report and VEDP’s working documents on this subject for further guidance and detailed next steps. Determine later stage framework and personnel needed at the institutional level to act on workforce analytics findings to inform program development, interface with college career counseling services and liaise with the business community.

Recommendation 2: Use labor data and vetted methodology to perform targeted supply/demand shortage analyses.

As a short-term step toward achieving coordination of various alignment efforts (recommendation 1), use labor data and vetted methodology to perform targeted supply/demand shortage analyses. Such analysis includes a crosswalk to academic programs. This could focus on specific industry sectors with forecasted future growth, a top 10 approach based on core industries in the Commonwealth, or focus relative to COVID-impacted industries.

Deliverables: Identify an appropriate methodology and data sources for the shortage analysis as well as scope of the analysis (future growth, existing sectors in Virginia, or COVID-impacted industries). Use a blended approach of various workforce data including

job ads to develop a clear understanding of needs and gaps along with qualitative input from employers. Look to the work and analysis from the Tech Talent Initiative and the Governor's COVID-19 Economic Strikeforce data work group as foundations to build from. Perform analysis/crosswalk. Work with key partners as appropriate to produce a report on that analysis. Engage VEDP and the Governor's Workforce Advisor as part of this effort. Host a forum or platform to share/translate information from the report. Use these findings as a "call to action." The approach could be more focused relative to COVID-related occupational shortages and used for reskilling or upskilling or look with a lens on current and incoming students and occupational needs on their horizon.

Recommendation 3: Identify top competencies needed in the workforce (short- and long-term) and how these are cultivated by Virginia's higher education institutions.

Leverage SCHEV's current student assessment requirements to address long-term workforce needs. Review the assessment policy periodically to ensure that the required competencies named in the policy continue to be aligned with foundational knowledge and skills necessary for workplace success, regardless of major.

Deliverables: Leverage SCHEV's Graduate Outcomes Survey to paint a picture of the current quality of life of graduates of Virginia's higher education institutions. Convene a cross-institution meeting approximately every two years (to include faculty, academic leaders, assessment professionals, career/workforce development staff, and/or employers) to determine how assessment results can be used to improve student success and better meet workforce needs.

Recommendation 4: Update SCHEV's program productivity review process to reflect institutional as well as student-as-consumer productivity measures.

Evaluate the SCHEV program productivity review process with the aim of incorporating program effectiveness more explicitly into decision-making about program closures and continuation. Outcomes from the process can inform institutional decisions and serve as a value proposition to prospective students. The evaluation to be performed should focus specifically on identifying criteria of effectiveness that go beyond enrollment and degrees granted.

Deliverables: Consult with IPAC and, if advisable, form a work group to perform the above described evaluation. The evaluation should include recommendations for a definition of program effectiveness and methods of incorporating that definition into the SCHEV

productivity review. The work group and/or IPAC should be charged with a timeline for proposing its recommendations and implementing them in the next productivity review.

Recommendation 5: Identify and support connections between career exploration and guidance in K-12 with what occurs in postsecondary higher education.

Learn how students in K-12 receive information on careers and how that connects (or does not connect) with what occurs in postsecondary, in particular in the context of the undergraduate experience.

Deliverables: Work with VDOE partners to understand career clusters work being done in K-12. Work with requisite postsecondary partners to understand postsecondary career services activities. Produce an action plan, as needed, for improving coordination and impact of those activities including a public outreach component based on findings. Engage offices within each institution that are responsible for career counseling and advising.

Recommendation 6: Inventory and assess existing alignment efforts within Virginia and identify successful programs, policies and interventions that have helped create a more education/workforce aligned system in other states and countries.

Significant national and state data and survey work highlight existing employer engagement with higher education and workforce development entities. Build from existing efforts in this area to identify models and best practices for implementation in the Commonwealth.

Deliverables: Perform an environmental scan of existing employer-higher education-workforce development engagement activities within the Commonwealth. Identify disjointed or duplicative activities as well as models for statewide scale up. Building on research from the higher education and workforce alignment project, identify applicable models from Virginia, other states or countries. Leverage existing partnerships regionally, across the state as well as nationally. Assess a handful of 'best fit' models for the potential to implement and scale in Virginia.

The following chart distills the recommendations and deliverables.

Recommendation	Description	Deliverables
<p>#1 - Cultivate a framework for coordinated workforce data analysis, translation and partnerships.</p>	<p>While insufficient on its own as a means to address alignment, it is a critical building block and work could start here to address alignment ecosystem challenges as a whole. Data analysis, translation and partnerships function as the connective tissue bringing together various efforts, analysis and entities</p>	<p>Engage the VEDP, the Governor's Chief Workforce Advisor and other stakeholders as needed to recommend any legislative actions for formally creating this framework.</p> <p>Look to information and detailed recommendations in the alignment report and VEDP's working documents on this subject for further guidance and detailed next steps.</p> <p>Determine later stage framework and personnel needed at the institutional level to act on workforce analytics findings to inform program development.</p>
<p>#2 - Use labor data and vetted methodology to perform targeted supply/demand shortage analyses.</p>	<p>Use labor data and vetted methodology to perform targeted supply/demand shortage analyses. Such analysis includes a crosswalk to academic programs. This could focus on specific industry sectors with forecasted future growth, a top 10 approach based on core industries in the Commonwealth, or focus relative to COVID-impacted industries</p>	<p>Identify an appropriate methodology and data sources for the shortage analysis as well as scope of the analysis (future growth, existing sectors in Virginia, or COVID-impacted industries).</p> <p>Use a blended approach of various workforce data including job ads to develop a clear understanding of needs and gaps along with qualitative input from employers.</p> <p>Work with key partners as appropriate to produce a report on that analysis. Engage VEDP and the Governor's Workforce Advisor as part of this effort. Use these findings as a "call to action."</p> <p>Host a forum or platform to share/translate information from the report.</p>
<p>#3 - Identify top competencies needed in the workforce (short- and long-term) and how these are cultivated by Virginia's higher education institutions.</p>	<p>Leverage SCHEV's current student assessment requirements to address long-term workforce needs.</p> <p>Review the assessment policy periodically to ensure that the required competencies named in the policy continue to be aligned with foundational knowledge and skills necessary for workplace success, regardless of major.</p>	<p>Leverage SCHEV's Graduate Outcomes Survey to paint a picture of the current quality of life of graduates across Virginia's higher education institutions. Convene a cross-institution meeting every two years (to include faculty, academic leaders, assessment professionals, career/workforce development staff, and/or employers) to determine how assessment results can be used to improve student success and better meet workforce needs</p>
<p>#4 - Update SCHEV's program productivity review process to reflect institutional as well as student-as-consumer productivity measures.</p>	<p>Evaluate the SCHEV program productivity review process with the aim of incorporating program effectiveness more explicitly into decision-making about program closures and continuation.</p> <p>The evaluation to be performed should focus specifically on identifying criteria of effectiveness that go beyond enrollment and degrees granted.</p>	<p>Consult with IPAC and, if advisable, form a work group to perform the above described evaluation.</p> <p>The evaluation should include recommendations for a definition of program effectiveness and methods of incorporating that definition into the SCHEV productivity review.</p> <p>The work group and/or IPAC should be charged with a timeline for proposing its</p>

<p>#5. Identify and support connections between career exploration and guidance in K-12 with what occurs in postsecondary higher education.</p>	<p>Learn how students in K-12 receive information on careers and how that connects (or does not connect) with what occurs in postsecondary, in particular in the context of the undergraduate experience.</p>	<p>recommendations and implementing them in the next productivity review.</p> <p>Work with VDOE partners to understand career clusters work being done in K-12.</p> <p>Work with requisite postsecondary partners to understand postsecondary career services activities. Produce an action plan, as needed, for improving coordination and impact of those activities including a public outreach component based on findings.</p> <p>Engage offices within each institution that are responsible for career counseling and advising.</p>
<p>#6. Inventory and assess existing alignment efforts within Virginia and identify successful programs, policies and interventions.</p>	<p>Build from existing efforts in this area to identify models and best practices for implementation in the Commonwealth.</p>	<p>Perform an environmental scan of existing employer-higher education-workforce development engagement activities within the Commonwealth.</p> <p>Identify disjointed or duplicative activities as well as models for statewide scale up.</p> <p>Building on research from the higher education and workforce alignment project, identify applicable models from Virginia, other states or countries.</p> <p>Leverage existing partnerships regionally, across the state as well as nationally.</p> <p>Assess a handful of 'best fit' models for the potential to implement and scale in Virginia.</p>

The above six recommendations and associated deliverables will provide strong building blocks for making the case for a permanent ecosystem framework with a dedicated funding mechanism and governance structure necessary for Virginia to realize its core vision of creating a higher education-workforce aligned ecosystem.



ACKNOWLEDGEMENTS

SCHEV staff extend sincere gratitude to Council members Ms. Katie Webb and Ms. Marianne Radcliff for their guidance on this project. The report findings and recommendations derive from many hours of thoughtful input provided by a multitude of parties ranging from state agencies, efforts in other states, education stakeholders including 2- and 4-year public higher education institutions and Council as outlined in Appendix A. SCHEV is grateful for the time and insight these stakeholders provided in support of this effort. Dr. Megan Healy, Dr. Stephen Moret, Ms. Pam Harder and Ms. Debbie Melvin are also recognized for their consultation throughout this process and their efforts to move this project toward implementation of a statewide alignment framework.

APPENDICES

Appendix A: Stakeholders Engaged and Additional Input Details

List of stakeholders and entities interviewed for input on this project.

Entity	Date(s) interviewed/engaged
DHCD - GO Virginia	10/30/19 and 1/16/2020
Virginia Chamber of Commerce	11/8/19
Virginia Employment Commission	11/25/19
Governors Chief Workforce Advisor	Ongoing
Virginia Economic Development Partnership - CEO	11/18/19 and 4/24/20
Virginia Economic Development Partnership – Strategic Talent Initiatives	Ongoing
National Governors Association	11/6/19
Virginia Business for Higher Education	11/20/19
SCHEV – Academic Affairs	11/20/19
SCHEV – Assessment Policy and Analysis	11/19/19
SCHEV – Policy Research and Analytics	12/13/19
Kentucky Center for Statistics	11/8/19
Iowa College Aid	11/21/19
Colorado Department of Higher Education	11/25/19
Colorado Department of Higher Education and Colorado Workforce Development Council	12/18/19
Colorado Workforce Development Council	1/16/20
Montana Department of Labor and Industry	11/21/19
Pennsylvania Center for Workforce Information and Analysis	11/13/19
State Higher Education Executive Officers Association via Tom Allison (SCHEV)	12/3/19
Missouri Economic Research and Information Center	12/5/19
University of Georgia Board of Regents and Vinson Institute	12/13/19
Texas Tri-Agency	
SCHEV Student Advisory Committee	11/8/19
SCHEV IPAC	Ongoing
SCHEV GPAC	Ongoing
SCHEV Council	10/28/19, 1/7/20, 5/19
Virginia Military Institute	1/21/20
James Madison University	1/22/20
Radford University	1/23/20
Richard Bland College	1/22/20
Virginia State University	1/28/20

Longwood University	1/29/20
University of Mary Washington	1/24/20
George Mason University	1/31/20
Old Dominion University	2/3/20
Virginia Commonwealth University	2/5/20
Virginia Tech	2/5/20
University of Virginia	2/21/20
John Tyler Community College	2/14/20
Virginia Commonwealth University	2/21/20
Virginia Healthcare Workforce Advisory Council	3/9, 5/4, 7/13/, 9/11, 11/6 scheduled meetings plus weekly meetings relative to COVID-19 pandemic specific issues.

The below table summarizes emergent themes from Virginia stakeholders on alignment data analysis and translation needs.

Data Analysis and Translation Insights

Input from state entities involved in alignment activities:

- A tremendous amount of workforce data is publicly available.
- No occupational shortage data exists on a consistent and routine basis or includes a crosswalk to academic instructional programs.
- Across state entities, the source, use and analysis of workforce data is inconsistent and non-routine.

Higher education instructional input:

- Within and across institutions, the source, use and analysis of workforce data is inconsistent and non-routine.
- Supply, demand and/or occupational shortage data do not generally drive program development.
- Access to different data sources and platforms varies by institution.

Feedback pertaining to employer engagement focused on validating workforce data. However, stakeholders also offered abundant input on the ways that they engage employers more broadly that include discussing workforce needs and career opportunities, for example. The table below offers a summary of frequent comments.

Partnership/Employer Outreach Insights

Input from state entities involved in alignment activities:

- Employers are not engaged by state entities regularly to validate workforce data.
- Various state entities seek input from employers on workforce issues and talent needs. These activities are not consistent or routine.
- Employer (and partner) engagement fatigue exists. The alignment ecosystem must find a way to mitigate this. For example, a business may be called on for input from K-12, higher education, local, state and

regional economic development and more for a variety of input – career pathways, workforce issues, experiential learning and job fairs are just a few examples. Seek to maximize input and reduce outreach.

- Sector specific advisory councils, roundtables and other groups exist for many industries; use these existing resources and streamline for consistency as appropriate.

Higher education institutional input:

- Institutions engage employers for curriculum input, experiential learning and career opportunities. Employers are not typically engaged to validate workforce data for program planning.
- Employer engagement varies by department, school and institution.
- Employer/higher education signaling issues arise when engagement occurs:
 - Graduates: What credentials and competencies do graduates possess relative to what employers need? How can graduates effectively signal such credentials vs. competencies to employers when there is not always a 1:1 relationship?
 - Employer-Higher Education: Translation barriers exist both ways on the subject matter, curriculum and competencies. Terminology that industry uses may differ from higher education institutions.
 - Employers: Disconnect between a CEO's perspective and human resources implementation. A CEO may indicate desired credentials and competencies that contradict those advertised in job postings; this creates mixed signals.
 - Signaling is a substantial alignment topic yet to be explored comprehensively. A statewide effort to link efforts and perform data analysis and translation can facilitate such analysis relative to the above signaling issues, credentials, competencies and even signaling to underemployed individuals.

Collective Stakeholder Input: Critical (but missing) Components of Virginia's Alignment Ecosystem

- Access to consistent, legitimized data and data translation resources would be extremely helpful in program planning, strategic planning and career services activities and for policy development.
- Possess adequate staff resources and expertise to implement all aspects effectively.
- No overarching preference for a specific entity to own responsibility so long as endorsed by SCHEV.
- Design in such a way to incentivize stakeholder participation and data usage; do not mandate.
- Include an advisory council of key stakeholders: workforce development, higher education, K-12, employers and economic development.
- Leverage existing state and institutional resources within the ecosystem.
- Build a portfolio of tools to assess alignment to include institutional tools.
 - Data translator and outreach capabilities.
 - Consistent, detailed graduate outcomes data (within and outside of Virginia and by institution).
 - Employer data: points of contact, regional information and surveys.
 - Emerging industries, occupations, and related competencies and skills needed.
 - State and regional labor market data.
 - Custom institutional data.
- Create a framework that addresses traditional, high demand and emerging discipline higher education program development.
- Identify and articulate skills and competencies of graduates, underemployed, and non-completers.

Criteria to Evaluate Ecosystem Framework Options

Perception of neutrality	Operational efficiency
Credibility	Funding sustainability
Feasibility of implementation	Political durability
Adequate staffing	Collaborative framework



Using the above criteria from SCHEV research, interviews with other states that possess statewide alignment ecosystem models, and input from Virginia stakeholders resulted in the formulation of four potential statewide ecosystem framework options to facilitate coordination and consistent data analysis and translation via partnerships.

	Option 1: Existing state entity* assumes sole responsibility	Option 2: Formation of new entity to lead effort	Option 3: Federated or consortia-based approach	Option 4: Hybrid - existing entity takes the lead in formal partnership with other entities
Key criteria:**				
Perception of independence/neutrality	(-) Potential for entity's existing mission to drive focus.	Clean slate aside from secretariat residing under.	(+) Consortia composition can keep neutrality in check.	(+) Offers more neutrality than Option 1 as a stand alone.
Credibility/track record	Known quantity - good, bad, or neutral.	(-) No track record thus builds credibility from scratch and this takes time and resources.	(+) Credibility of whole can be greater than sum of its parts.	(-) Credibility of whole can be greater than sum of its parts based on lead entity and partnership ecosystem.
Feasibility of implementation	(+) Existing organizational structure and some initial capacity enables fairly quick ramp up.	(-) Time and resource intensive.	Requires clear delineation of roles, responsibilities and resources.	Requires clear delineation of roles, responsibilities and resources.
Adequate staffing with the right skill sets	No guarantee but existing agency likely has capacity in place for hiring practices.	No guarantee. Human resources capacity must be first established. Perception of employee uncertainty with a new entity.	No guarantee but existing members likely have capacity in place for hiring practices. Challenge in delineating those responsibilities and decisions.	No guarantee but lead entity likely has capacity in place for recruiting, screening and hiring. Partnerships could possibly widen net of qualified applicants.
Operational efficiency	(+) Aside from any advisory council formation and specific staffing, structure is already built in.	(-) Potential for duplicating efforts that exist elsewhere across or within other entities.	Potential to leverage existing internal capacities for external benefit. OR silos can still exist and create additional bureaucracy if not addressed at onset in a formal way.	(+) Potential for "best of both worlds" - existing structure brings inherent efficiency that can leverage additional partners to maximize impact. One entity with oversight can help ensure efficiency and coordination.
Funding sustainability	(+) Easier to expand capacity than start from scratch - smaller "ask".	(-) High risk: no track record of success, time and resource intensive and potential for duplicating efforts.	Unclear. If consortia members exit how will effort fare?	(+) De-risking - existing entity and partners with respective track records. Partnership can bring additional resources.
Political durability	(+) Better likelihood of enduring political changes as part of existing entity.	(-) High risk: no track record of success, time and resource intensive and potential for duplicating efforts.	(+) Better likelihood of enduring political changes with multiple entities involved and potential for multiple funding sources.	(+) De-risking - existing entity and partners with respective track records. Partnership can bring additional resources.
Collaborative framework	No guarantee or incentive aside from potential structure of any advisory council.	Clean slate to foster collaboration around effort but no guarantee.	(+) Consortia would be formed to facilitate collaboration.	Hybrid created to facilitate collaboration but no guarantee if there is a "lead entity."
Examples of other states:	Pennsylvania, Montana	Kentucky, Missouri	Colorado	Georgia,*** Iowa
<p>*Various state entities in the Commonwealth are independently focused on certain workforce data and alignment aspects. The Virginia Employment Commission produces data and industry projections (workforce demand) based on the existing workforce. The Virginia Board of Workforce (and local boards) provide data and services focused on the workforce supply. GO Virginia funds workforce projects and has identified targeted business sectors for each region via Growth and Diversification plans. The Virginia Economic Development Partnership routinely engages with new and existing employers and provides customized information on the workforce.</p> <p>** Criteria based on common stakeholder input regarding the ecosystem. Various alignment ecosystem options (based on models from other states) are coded by these criteria as favorable (+/green), neutral (yellow) or unfavorable (-/red). Note that (+)/green does not guarantee a favorable outcome and (-)/red conditions can be overcome.</p> <p>***Represents University of Georgia system via Board of Regents with partners as institutions.</p>				



The below summaries offer more details on the various options.

Option 1: An existing state entity assumes sole responsibility for linking existing efforts and providing consistent, coordinated workforce data analysis, evaluation and translation capabilities. An existing state agency leads this charge and all activities. While the entity/agency may engage partners from time to time for input or additional resource capabilities, the lead determines representation within an established governance structure, staffing and resources and sets priorities. These efforts may or may not be influenced by the entity's main mission.

Option 2: A new state entity is formed to lead the effort. In this option, a new entity is formed that can include merging of existing, separate entities. For example, merging of economic development research and analytics with education/higher education research and analytics departments or agencies to create a single new entity that links existing efforts and provides consistent, coordinated workforce data analysis, evaluation and translation capabilities. The goal of the option is to bring together these efforts for more comprehensive and collaborative outcomes. Other states that have pursued this option have had mixed outcomes.

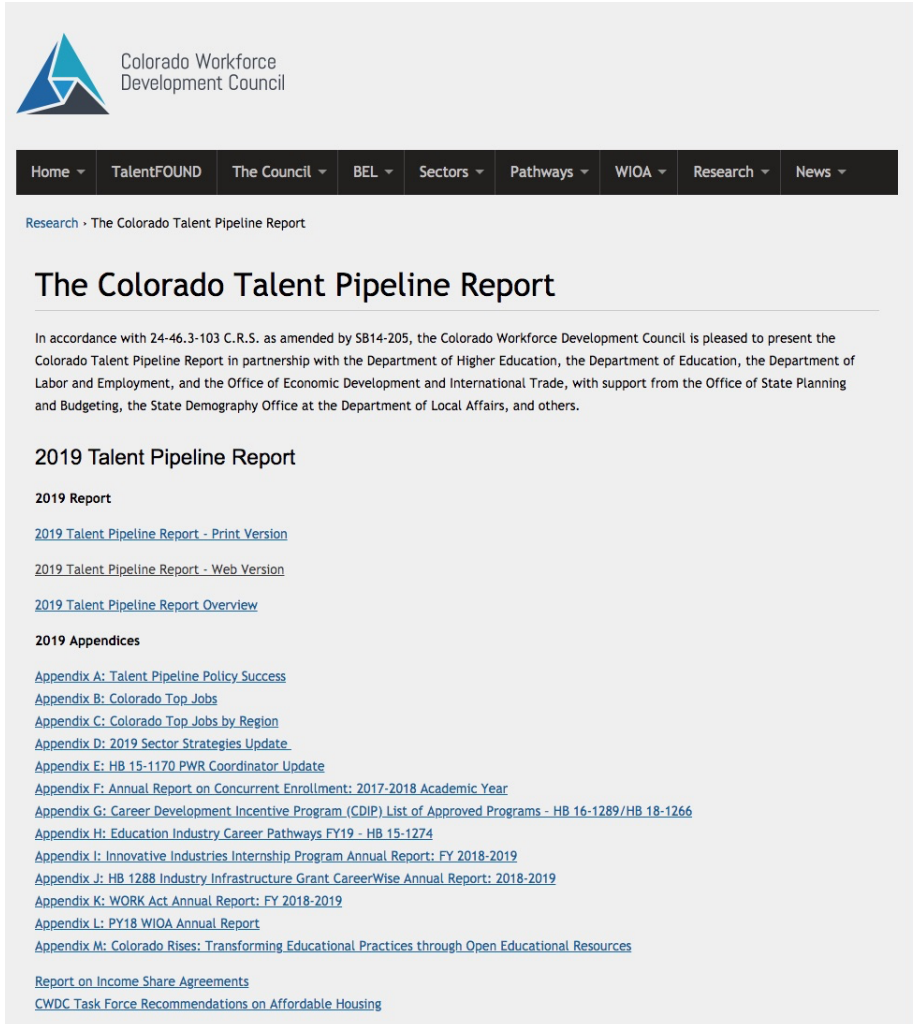
Option 3: A consortia of entities comes together to jointly lead the effort. A group of entities with a stake in alignment form a formal federation or consortia to bring together expertise, resources and leadership with the intent for a collaborative, unified effort. This collaborative approach influences the governance structure, staffing and other resources along with priorities. Each member entity of the consortia remains intact while participating in this unified approach. Option 3 boasts the strongest likelihood for collaboration but can be mired by having a large number of partners to agree on all aspects.

Option 4: Hybrid approach with a state entity leading the effort in formal partnership with other entities. Option 4 represents a combination of Options 1 and 3 whereby an existing entity (with existing capacity) leads the effort on a daily basis but has formal partnership agreements in place with other entities to support an advisory council, external resource capabilities and/or to achieve desired policy and program impacts. For example, the state economic development agency leads the effort but has formal agreements with the state higher education entity and others to provide guidance, additional insight and resources. Virginia's Tech Talent Initiative is an example of Option 4.

Appendix B: States Interviewed

Colorado Workforce Development Council

Colorado Talent Pipeline Report



The screenshot shows the website for the Colorado Workforce Development Council. At the top left is the council's logo, a stylized blue and grey triangle. To its right is the text "Colorado Workforce Development Council". Below the logo is a dark navigation bar with white text and dropdown arrows for: Home, TalentFOUND, The Council, BEL, Sectors, Pathways, WIOA, Research, and News. Underneath the navigation bar, the breadcrumb "Research > The Colorado Talent Pipeline Report" is visible. The main heading is "The Colorado Talent Pipeline Report". Below this is a paragraph of introductory text: "In accordance with 24-46.3-103 C.R.S. as amended by SB14-205, the Colorado Workforce Development Council is pleased to present the Colorado Talent Pipeline Report in partnership with the Department of Higher Education, the Department of Education, the Department of Labor and Employment, and the Office of Economic Development and International Trade, with support from the Office of State Planning and Budgeting, the State Demography Office at the Department of Local Affairs, and others." Below the text are two sections: "2019 Talent Pipeline Report" and "2019 Appendices". The "2019 Talent Pipeline Report" section includes links for "2019 Report", "2019 Talent Pipeline Report - Print Version", and "2019 Talent Pipeline Report - Web Version". The "2019 Appendices" section includes links for Appendix A through Appendix M, plus "Report on Income Share Agreements" and "CWDC Task Force Recommendations on Affordable Housing".

Source: [Colorado Workforce Development Council](#)

Colorado Talent FOUND

Colorado Workforce Development Council

Home ▾ TalentFOUND The Council ▾ BEL ▾ Sectors ▾ Pathways ▾ WIOA ▾ Research ▾ News ▾

TalentFOUND

TalentFOUND is the Colorado talent development network, comprising all the systems, partners, programs, and initiatives offering services to ensure students, job seekers, and workers have access to meaningful careers and businesses have access to skilled talent.

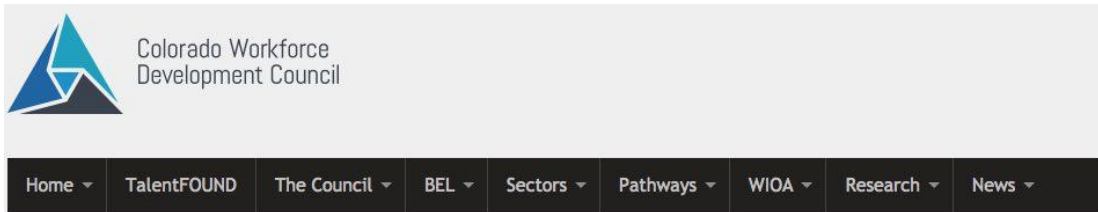
talent FOUND

CUSTOMERS SERVED
Students
Job Seekers
Workers
Employers

Business
Workforce Development
Economic Development
Community-Based Services
Pre-K - 12 Education
Postsecondary Education & Training

Source: [Colorado Workforce Development Council](#)

Colorado Sector Partnerships



Sectors · Sector Partnerships

Sector Partnerships

Colorado has been launching and growing sector partnerships for over 11 years through a framework that fosters industry-driven alignment across economic development, workforce development and education. The state has invested in regional, public-private partnerships targeting key industries that are vital to our regional economies. Important work is done throughout the state at these industry-led, public partner supported shared tables.



Positive Return on Investment

Partnerships are proven to provide greater economic opportunity, as well as shareholder profit. More than 750 businesses are actively involved in sector partnerships across Colorado.

Across sector partnerships:

- 83% increased participation by businesses in target industry and region
- 65% increased participation by education, training and student/jobseeker support organizations (K-12, postsecondary, workforce programs, other)
- 83% shared data across support organizations
- 83% increased collaboration across partner organizations on talent development
- 83% experienced joint or shared decision-making across support organizations (education, workforce development, economic development, etc.)
- 78% implemented joint or shared projects across support organizations

Source: Colorado Workforce Development Council

University System of Georgia

ECONOMIC DEVELOPMENT
University System of Georgia

Aligning Talent Demand with Talent Development

Home

Resources

Campus Economic
Development Contacts

Contact Us

The University System of Georgia (USG) and its 26 institutions have a \$16.8 billion impact on the State of Georgia. One of the USG's top priorities is to strengthen its partnership with Georgia-based businesses to address the critical need for talent throughout our state.

The USG's top economic development priorities and activities include:

- Facilitating employer and university partnerships to develop professional learning, academic curriculum, experiential learning, and innovation-driven research opportunities for the existing and future workforce.
- Conducting analyses of high-demand career sectors and create talent-development insights and playbooks with recommendations and initiatives for talent development with USG institutions.
- Mobilizing system-level assets and all USG institutions to address talent demand in high-demand career industries.

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Avery Hart

Project Manager

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Art Recesso, Ph.D.

Chief Innovation Officer
University System of Georgia
eCampus

art.recesso@usg.edu

Source: [University System of Georgia](#)

Iowa College Aid Future Ready Iowa



Future Ready Iowa connects Iowans to the education and training required for good paying jobs and careers to improve people's lives. The Future Ready Iowa goal is to have 70 percent of Iowans with education and training beyond high school by 2025.

FUTURE READY IOWA PROGRAMS

LAST-DOLLAR SCHOLARSHIP

Learn more about the Last-Dollar Scholarship.

[Scholarship Information](#)

EMPLOYER INNOVATION FUND

Business solutions that can help your organization.

[Innovation Fund Information](#)

REGISTERED APPRENTICESHIP

View information about registered apprenticeship programs in the state.

[Apprenticeship Information](#)



Source: [Iowa College Aid](#)

Kentucky Center for Research and Statistics

Future Skills Report



Kentucky Future Skills Report



Want more? Follow us @KYSTATS



Supply and Employment

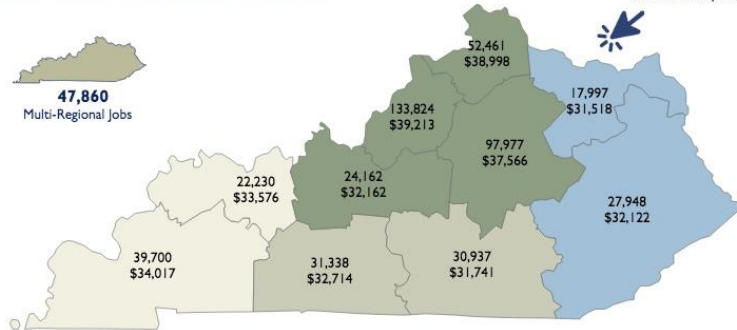
Future Demand

Technical Notes

Five Year Future Regional Demand (2019 - 2023)

Occupation Group: (All) | Specific Occupations: (All) | Educational Skill: (All)

Five Year Projected Demand and Wages by Local Workforce Area



Click the map to filter the dashboard.

Five Year Projected Outcomes by Occupation

Educational Skill

- Low Skill
- Middle Skill
- High Skill

Occupational Growth

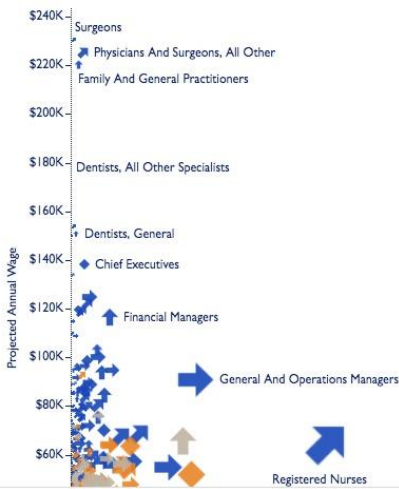
- Declining
- Stable
- Growing
- Fast Growing
- Very Fast Growing



526,434
Projected Job
Openings



\$38,868
Annual
Wages



Source: KYSTATS

Missouri Economic Research and Information Center

MISSOURI
Economic Research and Information Center

Home Data Economic Research Industry Research Workforce Research Regional Profiles About Us

Workforce Research

WORKFORCE RESEARCH

Career and Occupations Target Occupations Special Studies Library

Career Research

Occupational Employment and Wage Estimates (OES)
The Occupational Employment Statistics (OES) program is a Federal-State cooperative effort that produces employment and wage estimates for about 800 different occupations. In Missouri, the program is operated by the Missouri Department of Economic Development/Missouri Economic Research and Information Center (MERIC) in cooperation with the U.S. Department of Labor Bureau of Labor Statistics (BLS).

Occupational Projections
Employment projections give an overview of where the Missouri economy may be headed based on past and present trends.

Career Grades Report
Find out which jobs have the best pay, most openings and fastest growth by knowing their grade.

Career Pathways
Career pathways highlight different jobs in sectors, from entry-level to higher skill, that are in demand

Labor Supply and Demand

Missouri Labor Supply and Demand Analysis
Compare which jobs are in high demand yet have few job seekers chasing those opportunities.

Closing the Gap
Supply and demand gaps exist in healthcare, business, and science and technology jobs.

Real-Time Job Summaries
Real-Time Labor Market Summaries covering the past 6 months.

Jobs and Education

Quick Links

- Occupational Employment and Wages
- Occupation Projections
- Real Time Job Summary

Workforce Focus

STEM Degrees
As a % Graduates

Year	MO	U.S.
2015	28	32
2016	28	32
2017	28	32

.jpg ^ draft alignme....docx ^ draft alignme....docx ^

Source: [Missouri Economic Research and Information Center](http://www.merico.org)

Montana Department of Labor and Industry Meeting State Worker Demand

Home Industry Wage Occupation Employment Local Area Profiles Career Resources Publications Blog Find us on LinkedIn MCLIS Login

PUBLICATIONS

Search

Labor Market Publications

Montana Economy at a Glance - January 2020
The Montana Department of Labor & Industry's monthly economic newsletter.

Registered Apprenticeship Program Data Report
Data on apprentice demographics, program participation, and employment outcomes to provide insight to policy makers and program administrators.

Montana Employment Projections 2018-2028
Employment and labor force projections to provide insight into the occupational and skill needs of Montana's growing and changing workforce.

Labor Day Report - Montana 2019
Montana Department of Labor & Industry's annual report to the governor on the current state of Montana's economy.

Informational Wage Rates by Occupation
Wage Rates for wage and salary workers in nonfarm establishments covered by unemployment insurance.
Also available: [OES Brochure](#)

Minimum Wage Fact Sheet
Facts and statistics relating to Montana's current minimum wage.

Apprenticeship Works for Montana
A report citing statistics and information about the Montana Registered Apprenticeship Program.

Montana Brewing Infographic 2018
A visual representation of economic data about Montana's brewing industry. Now in a print-optimized resolution!

Meeting State Worker Demand
A report on the labor market outcomes of Montana colleges


The Status of the Nursing Workforce in Montana
Survey data on nurses' educational attainment, employment, earnings, and demographics to help determine whether the nursing supply is sufficient to meet demand.

Articles
Special Reports and Studies
Presentations

Source: [Montana Department of Labor and Industry](#)

Pennsylvania Center for Workforce Information and Analysis

High Priority Occupations



PAWorkStats > Products > High Priority Occupations (HPOs)

High Priority Occupations

High Priority Occupations (HPOs) are one component of Pennsylvania's industry-driven approach to workforce development. The purpose of the HPO lists is to align workforce training and education investments with occupations that are in demand by employers, have higher skill needs and are most likely to provide family sustaining wages. Combining statistical data with regional expert input allow for a complete picture of the actual workforce needs of the commonwealth.

2019 HPO Lists
These lists are valid from August 1, 2019, through July 31, 2020.

HPO Methodology
Explanation of the updated HPO process and how educational institutions and local Workforce Development Boards can submit documentation to have an occupation added to their local HPO list.

HPO Petition Form
Access the updated online HPO petition form, which can be used during the annual petition submission period in the spring or for emergency petitions throughout the year. In most cases, additional documentation is required.

[Sample documentation for Employer Demand Petition](#)
[Sample documentation for Career Pathway Petition](#)
[Sample documentation for Sector Partnership Petition](#)

Please consult the *HPO Methodology* document above for specific requirements.

The Pennsylvania CIP-SOC Crosswalk
View the most current version of the crosswalk file that aligns training programs (classified by CIP codes) and occupations (classified by SOC codes). This information is used to determine the eligibility of educational programs for workforce development training monies. Pennsylvania's CIP-SOC crosswalk has been and will continue to be modified from the national version based on input from various educational facilities and the Pennsylvania Department of Education.

If you require Accessible versions of documents on this site and no alternate versions are available, please call 1-877-493-3282 or send a request to workforceinfo@pa.gov.

Source: [Pennsylvania Center for Workforce Information and Analysis](#)

Texas Tri-Agency

[Texas Tri-Agency legislation](#)

Governor Abbott Charges Tri-Agency Workforce Initiative With Continued Transformation Of Workforce Development

February 13, 2020 | Austin, Texas | [Press Release](#)

Governor Greg Abbott today charged the Tri-Agency Workforce Initiative, consisting of the Commissioners of the Texas Education Agency (TEA), the Texas Higher Education Coordinating Board (THECB), and the Texas Workforce Commission (TWC), to marshal the combined resources of the three agencies to carry forward the reforms adopted by the 86th Legislature through the passage of House Bill 3 and to identify strategies to address long-term workforce development needs across the state. These charges will culminate with a report that will be presented to the Governor by September 1, 2020.

"The passage of House Bill 3 marked the most significant transformation of our education system in decades and an unwavering commitment to shaping the future of our workforce," said Governor Abbott. "We must continue in our efforts to ensure Texans of all ages have access to high-quality education and workforce skills training that empowers them to achieve their full potential. It is imperative that we build upon the resources of House Bill 3 and accompanying legislation to ensure today's students and tomorrow's workforce are prepared to meet Texas' long-term workforce needs in a comprehensive and efficient manner."

The Governor [has charged the Commissioners](#) with developing strategies to achieve the following:

- **Readiness:** The Commissioners should recommend strategies to ensure students are prepared for future growth at each stage in the educational pipeline.
- **Completion:** The Commissioners should recommend strategies to ensure students who pursue higher education and workforce educational programs can complete those programs in a cost-efficient and timely manner.
- **Transitions:** The Commissioners should analyze and make recommendations regarding strategies to streamline educational pathways, ensuring students can seamlessly transition into high-wage and high-demand careers.
- **Upskilling:** The Commissioners should recommend strategies for improving the capacity within the state to produce credentials of value aligned with the needs of high-wage and high-demand occupations.
- **Educator Pipeline:** The Commissioners should analyze and make recommendations to increase the supply of highly qualified and well-trained individuals entering the teaching profession across the state.
- **Partnerships:** The Commissioners should explore and recommend options for increasing economic activity in rural Texas, reducing regulatory burdens, and expanding educational partnerships between businesses, school districts, and colleges.
- **Infrastructure:** The Commissioners should identify strategies to align agency operations, increase program efficiency, improve data analysis and capacity, and to refine 60x30TX, if necessary, to ensure the state's goals continue to reflect the state's needs.

Governor Abbott [established](#) the Tri-Agency Workforce Initiative in 2016. The initiative assesses local economic activity, examines workforce challenges and opportunities, and considers innovative approaches to meeting the state's

Source: [Texas Tri-Agency](#)

Appendix C: Additional Studies and Reports

Below is a list and links to studies and reports used to research alignment issues, ecosystems and policy. This represents a thorough but not exhaustive list.

American Academy of Arts & Sciences:

[Improving Teaching: Strengthening the College Learning Experience](#)

Brookings:

[Talent-driven Economic Development](#)

Business and Higher Education Forum:

[Building Bridges to Success: Regional Business-Higher Education Partnerships to Grow and Diversify the STEM Workforce](#)

[Reskilling America's Workforce](#)

[Reskilling](#)

[Creating Purposeful Partnerships Aligning Postsecondary Education with Regional Workforce Needs: A Tale of Two States](#)

Business Roundtable:

[Closing the Skills Gap](#)

Chronicle for Higher Education:

[Responding to Workforce Needs Roundtable Report](#)

Education Commission of the United States:

[Postsecondary Workforce Development Policies](#)

[Principles of Policy Design for Connecting Education to Work](#)

[State Policy Models for Connecting Education to Work](#)

[Work-Based Learning Model Policy Components](#)

[Approaches to Workforce Development Systems](#)

Forbes:

[Turning Higher Education Upside Down](#)

Georgetown University Center on Education and the Workforce:

[ROI of Liberal Arts Colleges](#)

Hechinger Report:

[Colleges Take a New Approach to Anticipating and Meeting Workforce Needs](#)

[Pressure Mounts for Universities to Anticipate & Train People for High Demand Jobs](#)

Inside Higher Education:

[The Imperative to Improve College Learning](#)

Massachusetts Institute of Technology:

[Preliminary Report: The Workforce Education Project](#)

NASWA:

[Evidence-Building Capacity in State Workforce Agencies](#)

North Carolina State University:

[Job Disruption Index](#)

[Occupational Change in North Carolina](#)

Ohio University:

[Guide to Launching an Analytics Initiative](#)

PEW Charitable Trusts:

[How States Use Data to Inform Decisions](#)

Strada:

[The New Learning Ecosystem](#)

[Back to School? What Adults Without Degrees Say About Pursuing Additional Education and Training](#)

[Changing the Value Equation for Higher Education](#)

[2018 Alumni Survey Report](#)

[The New Geography of Skills](#)

United States Chamber of Commerce:

[Hiring in the Modern Talent Marketplace](#)

Walmart

[America at Work: A National Mosaic and Roadmap for Tomorrow](#)

World Economic Forum:

[Future of Jobs Report](#)

Appendix D: Workforce and Higher Education Data Inventory

The following inventory identifies existing, available data, sources and a brief description of the data. This inventory is not an exhaustive list and is sourced from VEDP's "Getting Smart on Virginia's Key Talent Focused Data Sources."

Virginia's Talent-Focused Data Sources <i>(not exhaustive)</i>				
Data Source	Data Set Owner	Focus of Data	Data Description	Most Granular Level of Data
Emsi Standard Industry & Occupational Employment	Emsi	Employment and Wages	<p>This Emsi data set focuses on industry & occupational employment in the US. It gives statistics on employment and wages by industry and occupation in order to understand the "talent profile" of a specific geography.</p> <p>Leverages the NAICS and SOC occupational classification systems. (SOC O*Net Codes).</p>	Zip Code
Emsi Job Analytics	Emsi	Job Postings	<p>A scrape of all US job postings across dozens of job posting platforms (e.g., LinkedIn, Indeed, etc.). Then Emsi assigns occupational codes, skills codes, and a clean query interface. Data includes: types of jobs individuals are being hired for, length of time the posting is active, and what 'skills clusters' exist.</p>	Zip Code
Emsi Profile Analytics	Emsi	Individuals with any professional profile	<p>Aggregate statistics of anyone with a professional profile. Can glean insights on people's skills, experiences, and connect the dots between degrees, jobs, skills, and location. Similar use case as Emsi Job Analytics, but instead of job postings, references professional profiles data (including Facebook).</p>	City Name or Place Name

Report on SCHEV's Higher Education and Workforce Alignment Project

Burning Glass	Burning Glass	Job Postings	A scrape of all US job postings across dozens of job posting platforms (e.g., LinkedIn, Indeed, etc.). Burning Glass's tool then de-duplicates, cleans, layers on insights around job market data, opportunities for training programs, and closer alignment of education & training initiatives. Also aims to help with improved site selection and recruiting decisions for companies.	Zip Code
O*NET	US Department of Labor	Employment	<p>1) O*NET is a classification system that is a generally accepted national standard for how to classify knowledge, skills, abilities and other information on various occupations. It covers all of the standard taxonomy of occupations (SOCs).</p> <p>2) O*NET also offers supporting tools, assessments, and job information to help individuals figure out what and where to get the credentials they need for any given occupation.</p> <p>3) O*NET also produces reports on estimated occupational employment projections and does research on occupational clustering and occupational compatibility.</p>	State
Skills aptitudes from PSAT Scores (under development - not yet released)	The College Board	High schoolers who took the PSAT or SAT	Skills aptitude and assessment based on PSAT and SAT data, which has 90% participation amongst American high schools nationwide. Connector between skills developed in high school to postsecondary education and training programs.	TBD

Report on SCHEV's Higher Education and Workforce Alignment Project

<p>Census Data</p>	<p>US Department of Commerce</p>	<p>Individuals who reside in the United States</p>	<p>Extensive datasets, but the major data sets used are:</p> <ul style="list-style-type: none"> - Population estimates - American Community Survey <p>The above data sets provide demographic and socioeconomic characteristics of inhabitants of the US. Data sets are useful in understanding the relationship between college major and occupation.</p>	<p>Ranges from country level to census block (depends on the data set).</p>
<p>Longitudinal Employer-Household Dynamics (LEHD)</p>	<p>US Department of Commerce</p>	<p>Workers employed in the US</p>	<p>Major datasets used:</p> <ul style="list-style-type: none"> - Quarterly Workforce Indicators (QWI) - Origin-Destination Employment Statistics (LODES) - Job-to Job flows (J2J) <p>Covers most workers employed in the US. LEHD makes available several data products that may be used to research and characterize workforce dynamics for specific groups.</p>	<p>QWI is county LODES is county J2J is MSA</p>
<p>Bureau of Labor Statistics</p>	<p>US Department of Labor</p>	<p>Workers employed in the US</p>	<p>Major datasets used:</p> <ul style="list-style-type: none"> - Quarterly Census of Wages and Employment (QCEW) - Occupational Employment Statistics (OES) - Current Employment Statistics - Local Area Unemployment Statistics (LAUS) <p>BLS provides data on what industries people work in, which occupations they work in, the typical level of education needed for those occupations, how much they get paid - and whether or not they are working.</p>	<p>QCEW is county OES Is MSA LAUS is county</p>

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			Covers most workers employed in the US.	
Superintendent's annual report	VA Department of Education	High schoolers who attend a Virginia public K12 school	Every K12 Virginia public school has to report various data mandatorily to VDOE.	School district
ACT	ACT Standardized Testing	High schoolers who took the ACT	State level descriptive characteristic statistics about students who took the ACT	State
The Perkins Network	US Department of Education	Individuals in the US enrolled in a CTE program	state level CTE data - breakout / enrollment by concentration.	State
QCEW Microdata	VA Employment Commission	Virginia's payrolled workers covered by UI	Provides firm-level QCEW data for Virginia's payrolled workers covered by UI -- firm-level data on employment and wages.	Firm
Integrated Postsecondary Education Data System (IPEDS)	US DOE - National Center for Education Statistics	Individuals in the US who are enrolled in or were awarded a degree at a higher education institution	6-part data set on postsecondary data: Covers degree and certificate awards, enrollment data, expenditure and outcome data for first time college / minorities, tuition data.	Institution
SCHEV Research	State Council of Higher Education for Virginia	Individuals in Virginia who are enrolled in or were awarded a degree at a higher education institution	Same as IPEDS above, but one more year recency than IPEDS. Includes awards by CIP code and wage outcomes dashboards.	Institution
Elementary Secondary Information System	US DOE - National Center for Education Statistics	Individuals that are in the US K12 system	K12 data on enrollment, student/teacher ratios, high school completion rates.	School District
National Assessment of Educational Progress	US DOE - National Center for Education Statistics	Individuals that are in the US K12 system	Also called "The Nation's Report Card" (marketing term). Concept similar to nationwide SOL/standardized learning assessment.	State
NCES Surveys	NSF - National Center for Science and Engineering Statistics	Graduates who took their survey	NCES conducts a number of surveys of including those that are longitudinal. Including graduates / recent graduates and the science & engineering workforce: - Survey of Earned Doctorates - Survey of Graduate	Institution

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			<p>Students and Post doctorates in Science and Engineering</p> <ul style="list-style-type: none"> - Early Career Doctorates Survey - National Survey of College Graduates - National Survey of Recent College Graduates - Survey of Doctorate Recipients <p>Includes HERD (higher education R&D survey), which is data on R&D spending across all higher ed institutions in the country. Can be broken down by workforce.</p>	
Behavioral Risk Factor Surveillance System	Center for Disease Control	US residents who participated in survey	<p>Nation's premier system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services.</p> <p>An ongoing survey asking people about the condition of their health and relatives behaviors: such as alcohol consumption, physical activity etc.</p>	MSA
National Survey on Drug Use and Health	US Department of Health and Human Services Substance Abuse and Mental Health Services Administration (SAMHSA)	US residents who participated in survey	<p>Provides up-to-date information on tobacco, alcohol, and drug use, mental health and other health-related issues in the United States. (Including opioids data)</p>	State
Moody's Analytics Employment Projections	Moody's Analytics	US residents	<p>The Gold Standard for population projections, employment projections, and economic output projections.</p>	County
Esri's population projections	Esri Business Analyst	US residents US infrastructure locations	<p>Best source for population data.</p> <p>Also has a lot of random data, such as: household consumption, people's opinions about things, # of grocery stores, schools,</p>	County

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			airports, etc. within a certain radius, and GPS data on them.	
Weldon Cooper Center's population projections	Weldon Cooper Center	Individuals living in Virginia	Population projections for Virginia down to the county level. Professional demographers collect this data as a public service. Includes a blog called StatChat with data on remote workers.	County
US Dept of Veterans Affairs' veteran dataset	US Department of Veterans Affairs	US Veterans	Statistics about veterans related to their skills, location, employment status.	State
<u>Cyberseek.org</u>	Cyberseek	Individuals that work in cybersecurity and/or have credentials in it	A cyber-focused industry organization that has a data dashboard on industry certifications. They provide data on 1) estimated # of people working in cybersecurity across various occupations all aggregated together; 2) estimated # of people with various cyber-focused industry credentials.	MSA

Sourced from the Virginia Economic Development Partnership's "Getting Smart of Key Talent-Focused Data Sources." Not exhaustive. Compiled by Strategic Talent Initiatives, Research, and Economic Competitiveness team members.

Appendix E: Implications of Data Driven Policies and Planning

A coordinated, comprehensive statewide alignment ecosystem can support more strategic policy and program development. However, the ecosystem's coordinated efforts must also ask the following questions and more as such data driven actions will influence the marketplace in different ways. A few of the big questions with policy and planning implications are listed below to spur further dialogue and ensure they obtain the attention they deserve.

- 1) If the alignment ecosystem identifies "high demand" degrees based on occupational shortages, how will that influence the cost of the high demand degree versus a traditional liberal arts degree? How will this impact overall tuition?
- 2) How will parameters concerning "high demand" occupations be determined? Will these be based on credentials, wage thresholds, industry sectors and/or potential pathways?
- 3) If occupational pathway is deemed one of the parameters, what pathways should Virginia focus on and how will these be determined?
- 4) Will the coordinated ecosystem's activities include sector strategies under its scope of work? How will the ecosystem handle inter-related sector strategies?
- 5) Will addressing a shortage via the ecosystem's coordinated efforts affect wages for that occupation positively or negatively? Regional and employer context must be assessed in an objective manner similar to quantitative labor market insight. For example, why does the shortage exist – because of a genuine lack of supply or employer(s) with workforce conditions that create retention issues? Another spin on this topic pertains to supply issues that cannot be addressed by increasing the pipeline – other systemic issues must be addressed. For example, wages or working conditions (i.e. nursing and teaching shortages).
- 6) In addition to occupational shortages and surpluses, a second order focus can be on signaling (refer to Appendix A for more examples of signaling issues). What are employers truly looking for – competencies versus skills versus degrees versus experience? What are the real issues and what signaling problems need addressed to adequately meet real employer needs.
- 7) Related to signaling, how will the ecosystem collectively assess and address underemployment, non-completers and those that did not seek a credential as part of the course of action?
- 8) Should coordinated ecosystem efforts focus on 2-year, 4-year, graduate degrees relative to shortages? Should initial focus start with one, if so, which?

Illustrating the complexity of alignment, addressing these and other questions will uncover additional questions and implications.